

MEETING ABSTRACTS

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ORAL PRESENTATIONS

O1

OA01.01. Are complementary therapies and integrative care cost-effective? A comprehensive systematic review of economic evaluations

P Herman¹, B Poindexter¹, C Witt², D Eisenberg³

¹University of Arizona, Tucson, USA; ²Charité University Medical Center, Berlin, Germany; ³Harvard Medical School and Harvard School of Public Health, Boston, USA

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Purpose: One-third or more US adults, and similar numbers elsewhere, use complementary and integrative medicine (CIM). The results of previous systematic reviews of the economic impacts of CIM are limited and now out of date. The purpose of this comprehensive review is to capture and highlight for policy makers what is currently known about the economics of CIM, and to make recommendations for future research.

Methods: PubMed, CINAHL, AMED, PsychInfo, Web of Science, and EMBASE were searched through December 2010 using a comprehensive search strategy. In addition, bibliographies were searched, and key researchers contacted. All full economic evaluations published 2001-2010 were also subjected to five study quality criteria and one indicator of whether the study's results were transferable (i.e., could be adjusted to apply/generalize to other settings).

Results: A total of 340 economic evaluations of CIM were found, of which 206, covering a wide variety of CIM for different populations, were published 2001-2010, and 134 of those were full economic evaluations. Despite the fact that most CIM users utilize more than one type of CIM, almost all (88%) of these studies were of single CIM therapies and only one evaluated coordinated care across CIM and conventional practitioners. Of the recent full evaluations 32 (24%) met all five study quality criteria, and 17 of these also met the minimum criterion for study transferability.

Conclusion: This comprehensive review identified a substantial number of economic evaluations of CIM and emerging evidence of cost-effectiveness in at least a few clinical populations. Therefore, instead of more studies, what is actually needed are higher quality studies—both in terms of enhanced study quality (to increase the validity of the results for its targeted population and setting) and better transferability (to increase the usefulness of results to other decision-makers in other settings). To this end, eight specific recommendations are made.

O2

OA01.02. Associations between complementary and alternative medicine and conventional medical care utilization, access and quality of care

C Bethell¹, N Gombojav, S Stumbo

The Child and Adolescent Health Measurement Initiative (CAHMI), OHSU, Portland, USA

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Purpose: To assess complementary and alternative medicine (CAM) use in relation to utilization, access, parent's experience with conventional medical care (CM) and CM expenditures for children with and without chronic conditions.

Methods: Data sources used were the 2007 National Health Interview Survey (NHIS, n=9,417), the linked file of the 2007 NHIS to the 2008 Medical Expenditure Panel Survey (MEPS) (n=2,411) and the 2009/10 National Survey of Children with Special Health Care Needs (NS-CSHCN; n=40,243). Multivariate analyses were used to calculate adjusted odds ratios (AOR), controlling for children's chronic condition and special needs status and demographic characteristics.

Results: Nearly 40% of the over 1 in 5 children with special health care needs used CAM and nearly 45% of CSHCN using any CAM used two or more types. (AOR 2.54). Higher use of conventional medical care (CM) was associated with CAM use (AOR 1.94; NHIS/MEPS). Using both the NHIS and NS-CSHCN data, CAM use was more common among children who had difficulties accessing CM (AOR 1.73; NHIS). Among children with at least one chronic condition, parents who are less satisfied with doctor's communication were more likely to use CAM for their children (AOR 2.20; NHIS/MEPS). The mean medical expenditures for CAM users were twice those of non-CAM users (\$3,286 vs. \$1,633, NHIS/MEPS). Variations in strength of associations were found by type of health condition and type of CAM used.

Conclusion: CAM use is associated with the complexity and intensity of children's health conditions and service needs, difficulties accessing CM services and experience with CM providers. Despite observation of important trends, condition specific analysis is limited by available data. Children with health conditions receive multiple forms of conventional, complementary and alternative care, emphasizing the need for well integrated and coordinated pediatric care systems.

O3

OA01.03. Sample size and regions of principally achievable significance in cost effectiveness studies: an example of complementary medicine

T Ostermann^{1*}, K Boehm¹, F Krummenauer²

¹University of Witten/Herdecke, Herdecke, Germany; ²Institute for Medical Biometrics, University of Witten/Herdecke, Witten, Germany

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Purpose: Health economic studies gain more and more importance in both conventional and complementary medicine. In most cases such studies are conducted as a combination of a RCT and a health economic evaluation ("Piggy-Back-Studies"). Therefore study planning parameters like sample size still are calculated on the basis of the outcome of the clinical parameters. This might lead to situations of underpowering.

Methods: Based on the sample size estimates given in Glick (2011), we aimed at finding health economic studies of CAM providing mean and standard deviation data on cost and outcome differences. Based on this data and on assumptions on willingness to pay and cost-outcome correlation, we constructed a model of principally achievable significance.

Results: Based on an existing review on health economic studies in CAM, 8 of 143 studies mentioned sample size calculation parameters. However, only one study (Lin et al. 2008) provided enough data for modelling. We found a significant discrepancy between the sample size of n=46 based on conventional sample size calculation and the hypothetically needed patients of more than 350 based on our modelling approach.

Conclusion: Planning health economic studies should be done with great caution not to end in a situation of small power. Our approach might retrospectively give estimates of regions of significance and thus might help to interpret health economic studies not only in the field of CAM.

O4

OA01.04. The effectiveness and cost effectiveness of acupressure for chemotherapy-related nausea

J Hughes^{1*}, A Molassiotis², W Russell², M Breckons³, M Lloyd-Williams⁴, J Richardson³

¹Royal London Hospital for Integrated Medicine, London, United Kingdom;

²University of Manchester, Manchester, United Kingdom; ³Plymouth

University, Plymouth, United Kingdom; ⁴University of Liverpool, Liverpool, United Kingdom

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Purpose: To assess the clinical effectiveness and cost effectiveness of self-acupressure using wristbands in addition to standard care in the management of chemotherapy-induced nausea.

Methods: Randomised three-group sham-controlled trial. Patients with heterogeneous cancer diagnoses receiving low, moderate and highly emetogenic chemotherapy randomised to receive, in addition to standardised antiemetics, either acupressure wristbands, sham acupressure wristbands or antiemetics alone. Patients were instructed to wear the wristbands for 7 days during each cycle of chemotherapy. Patients participated for 4 cycles of chemotherapy. An economic evaluation was carried out based on drug and health service utilisation. A nested qualitative interview study was also incorporated to shed more light into quantitative findings.

Results: 500 patients randomised in the three study groups. Primary outcome analysis (nausea in cycle (1) revealed no statistically significant differences between the three groups. When the two wristband groups were examined together against antiemetics only, statistical level almost reached significance (p=0.07). No significant differences were detected in relation to vomiting outcomes, anxiety, and quality of life measures. The cost-effectiveness evaluation revealed that both real and sham wristbands were associated with reduced costs compared to the antiemetics group only (p<0.001). The qualitative data suggested that patients perceived the wristbands (both real and sham) as effective and helpful to manage their nausea experience. Minor and transient side effects from the use of the wristbands were observed.

Conclusion: No clear recommendations can be made about the use of acupressure wristbands in the management of chemotherapy-related nausea, as results did not reach statistical significance. However, the use of wristbands was associated with significant health care cost-savings,

they were safe and perceived to be effective by patients. Before rejecting this intervention, we need to consider the therapeutic effects of placebos in situations such as the management of nausea with a low-cost and safe intervention that may enhance the effect of antiemetic drugs.

O5

OA02.01. Effect of macronutrient composition of weight loss diets on reduction of the inflammatory marker hsCRP

J Nicklas^{1*}, F Sacks², S Smith³, M LeBoff⁴, J Rood⁵, G Bray⁵, P Ridker⁴

¹Beth Israel Deaconess Medical Center, Boston, USA; ²Department of

Nutrition, Harvard School of Public Health, Boston, USA; ³Sanford-Burnham

Medical Research Institute, Winter Park, USA; ⁴Brigham and Women's

Hospital, Boston, USA; ⁵Pennington Biomedical Research Center, Baton

Rouge, USA

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Purpose: High sensitivity CRP (hsCRP), a marker of systemic inflammation, is associated with obesity and is an independent predictor for cardiovascular disease. Although practitioners may prescribe weight loss and/or special diets to treat systemic inflammation, little is known about how diets differing in fat, protein, or carbohydrate composition affect hsCRP.

Methods: In the two-year POUNDS (Preventing Overweight Using Novel Dietary Strategies) LOST trial, overweight and obese adults were randomly allocated to one of four weight loss diets with targeted percentages of energy derived from fat/protein/carbohydrates (20/15/65%; 20/25/55%; 40/15/45%; 40/25/35%, respectively). All participants received tailored diet prescriptions with a 750 kilocalorie deficit from energy expenditure, and an intensive behavioral program accompanied all diet assignments. hsCRP as well as cardiovascular and metabolic factors were measured at baseline, 6, and 24 months among 710 participants.

Results: There was a 25% (IQR +7%, -50%) decrease in hsCRP at 6 months in all trial participants, as well as 7% (IQR -3%, -11%) weight loss and a reduction in waist circumference by 6% (IQR -3%, -10%) (all p <.002), with no significant differences observed according to randomized dietary composition. Irrespective of diet composition, the percent change in hsCRP at 6 and 24 months correlated modestly with change in weight, waist circumference, fasting insulin, fasting glucose, HOMA (homeostasis model assessment of insulin sensitivity), and most lipid levels. Reductions in hsCRP persisted throughout the study period despite an approximate 50% regain of weight by 24 months.

Conclusion: hsCRP decreased equally on all four weight loss diets, and was associated with improvements in lipids and metabolic factors. Findings from this study suggest that macronutrient composition is not an important component of weight loss diets designed to reduce inflammation.

O6

OA02.02. Effect of MBSR and psychological state on inflammatory markers in HIV positive adults

E Weston^{1*}, P Moran¹, M Acree¹, J Moskowitz¹, M Kemeny², E Elissa²,

P Bacchetti³, K Barrows¹, S Deeks⁴, F Hecht¹

¹University of California, San Francisco (UCSF), Osher Center for Integrative

Med, San Francisco, USA; ²Department of Psychiatry, UCSF, San Francisco,

USA; ³Department of Epidemiology and Biostatistics, UCSF, San Francisco,

USA; ⁴Department of Medicine, UCSF, San Francisco, USA

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Purpose: HIV induces a pro-inflammatory response that is linked to increased morbidity and mortality. Stress and depression have been associated with elevated inflammation. We sought to test whether Mindfulness Based Stress Reduction (MBSR) would improve high sensitivity C-reactive protein (hsCRP) and D-dimer in HIV+ adults, and to explore the cross-sectional and longitudinal relationships between psychological state and these markers.

Methods: We randomized antiretroviral-untreated HIV+ adults with CD4+ counts >250 cells/ μ l to MBSR or an education/support control group. Baseline, 3, and 12 month measures included: Perceived Stress Scale (PSS), Beck Depression Inventory (BDI), Patient Health Questionnaire-9 (PHQ), State Trait Anxiety Inventory (STAI), and Positive and Negative Affect Scale (PANAS+/-). Data were censored for starting antiretroviral therapy during follow-up.

Results: Of 177 participants, 132 (71 MBSR, 61 control) had complete specimen panels and were eligible for this sub-study. MBSR did not appear to have a substantial effect on change in hsCRP or D-dimer from baseline to 3, or 12 months ($p>0.10$), though CIs were wide. hsCRP at baseline was positively correlated with: PSS ($\beta=0.18$, $p=0.034$), BDI ($\beta=0.21$, $p=0.014$), PHQ ($\beta=0.15$, $p=0.087$), PANAS+/- ($\beta=0.17$, $p=0.049$), and STAI ($\beta=0.19$, $p=0.030$). hsCRP was correlated with BMI ($\beta=0.25$, $p=0.004$). After controlling for BMI, age, and viral load, hsCRP remained associated with BDI ($\beta=0.19$, $p=0.03$) and STAI ($\beta=0.16$, $p=0.065$). D-dimer showed no substantial baseline correlation with any scale ($\beta<0.1$, $p>0.5$). No substantial longitudinal relationships were found between change in hsCRP or D-dimer and change in any psychological measure ($\beta<0.12$, $p>0.2$).

Conclusion: MBSR did not appear to substantially improve hsCRP or D-dimer. Correlations between hsCRP and psychological measures were in hypothesized directions. The observation that hsCRP was associated with depression in multivariate analysis suggests a causal association between these processes. Interventional studies aimed at reducing inflammation, or improving mood, are needed to clarify this association and to identify future therapeutic strategies.

O7

OA02.03. Nutrient biomarker patterns and rates of cognitive decline in dementia-free elders

G Bowman*, J Quinn, J Kaye, J Shannon
Oregon Health & Science University, Portland, USA
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Purpose: We previously identified three distinct nutrient biomarker patterns associated with both psychometric and neuroimaging indices of brain health in a cross-sectional analysis. The objective of this study was to examine the relationship between the nutrient biomarker patterns and cognitive decline over 2 years.

Methods: Thirty biological markers of diet were assayed in plasma from 104 dementia-free elders in the Oregon Brain Aging Study. Principal component analysis constructed distinct nutrient biomarker patterns. A linear regression model was used to assess the association between NBP patterns and rate of change in Clinical Dementia Rating - sum of box score over two years.

Results: Mean age was 87 ± 10 , 62% were female, and 10% were carrying the ApoE4 allele. Two distinct nutrient biomarker patterns were associated with rates of cognitive decline: a vitamin pattern high in B, C, E and D ($p=0.001$) and a high trans fat pattern ($p<0.001$) associated with less and more decline over two years, respectively. These findings were independent of age, gender, education years, ApoE4 carrier status and vascular risk factors.

Conclusion: A plasma nutrient profile high in certain vitamins and low in trans-fat may be prudent for maintaining cognitive function in older populations.

O8

OA02.04. Integrative Health Coaching: the accumulating research at Duke IM

J Kosey*, L Simmons, A Perlman, L Smith, R Wolever
Duke Integrative Medicine, Durham, USA
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Purpose: Lifestyle behaviors are the main contributor to chronic disease, including cardiovascular disease (CVD), diabetes, and obesity. However, few patients successfully make and sustain behavioral changes. To address this problem, Integrative Health Coaching (IHC) has emerged as a potential solution.

Methods: Duke Integrative Medicine (IM) has completed 3 RCTs, a rigorous observational study, and a large program evaluation utilizing IHC.

Results: In the first RCT, targeting CVD prevention, IHC improved 10 year CVD risk scores (Framingham) faster and more substantially than did usual care (UC). IHC patients also increased exercise and reduced their blood pressure, and the overweight IHC patients had greater weight loss. In a second RCT, patients with type 2 diabetes received 6 months of IHC. Compared to UC, the IHC group improved medication adherence, patient activation, exercise frequency, social support and benefit-finding. Those

with baseline HbA1c > 7.0 also improved glycemic control. Subsequently, when the UC group also received IHC, additional improvements were captured including mood, perceived stress, and health-related quality of life. A third RCT examined the effects of mindfulness-based experiential education paired with IHC compared to an attention, education support control on weight loss maintenance. While both groups maintained significant weight loss eighteen months post-baseline, those in the IHC group lost additional weight. In a fourth study, a 3-day immersion with 8 months of IHC follow-up reduced 5 year stroke and diabetes risk through small improvements in multiple parameters (e.g., exercise behavior, resting pulse, BMI, waist circumference, and cholesterol). Finally, results from a health promotion program utilizing IHC showed a decline in inpatient admissions for those receiving IHC.

Conclusion: Although in its infancy, IHC research demonstrates improved health outcomes and potentially reduced healthcare costs. While the health coaching field continues to evolve, the accumulating results of IHC merit a large-scale, multi-site RCT.

O9

OA03.01. Acupuncture for chronic pain: an individual patient data meta-analysis of randomized trials

A Vickers¹, A Cronin¹, A Maschino¹, G Lewith^{2*}, H MacPherson³, N Victor⁴, N Foster⁵, K Sherman⁶, C Witt⁷, K Linde⁸
¹Memorial Sloan-Kettering Cancer Center, New York City, USA; ²University of Southampton, Southampton, United Kingdom; ³University of York, York, United Kingdom; ⁴University of Heidelberg, Heidelberg, Germany; ⁵University of Keele, Keele, United Kingdom; ⁶Group Health Cooperative, Seattle, USA; ⁷Charite University, Berlin, Germany; ⁸Technical University of Munich, Munich, Germany
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Purpose: Although acupuncture is widely used for chronic pain, there remains uncertainty about the clinical impact. The aim of this study is to determine the effect size of acupuncture vs. sham acupuncture and the effect size of acupuncture vs. non acupuncture controls for four conditions, back and neck pain, osteoarthritis, and chronic headache. More precision can be obtained in a meta-analysis when using individual patient data, and it also provides an opportunity to explore treatment effect modifiers.

Methods: Data sources included MEDLINE, the Cochrane Collaboration and the citation lists of systematic reviews. Studies were included if randomized with unambiguously adequate allocation concealment. Individual patient data was obtained for 29 of 31 eligible trials, with a total of 17,922 patients, and analyzed in a single database.

Results: Patients receiving acupuncture had less pain than those receiving sham acupuncture for back and neck pain, osteoarthritis, and chronic headache (all $p<0.001$). After exclusion of an outlying set of trials showing very large differences between acupuncture and sham, the effect size for acupuncture was similar across the pain conditions, [SMD -0.23 (95% CI -0.33, -0.13)], [SMD -0.16 (-0.25, -0.07)], and [SMD -0.15 (-0.24, -0.07)] (all $p<0.001$) respectively. Larger effect sizes were found when comparing acupuncture to non acupuncture controls ($p<0.001$). Acupuncture had a more beneficial effect in patients with worse baseline pain scores and worse baseline mental status ($p<0.005$).

Conclusion: Individual patient data meta-analysis is a powerful method of evaluating effect sizes and exploring treatment effect modifiers. Our results from high quality trials show that acupuncture is effective for the treatment of chronic pain, with significant differences between true and sham acupuncture indicating that acupuncture is more than a placebo. However, these differences are relatively modest, suggesting that factors in addition to the specific effects of needling are important contributors to the therapeutic effects of acupuncture.

O10

OA03.02. Acupuncture for back pain: predicting attendance at appointments

F Bishop*, L Yardley, C Cooper, P Little, G Lewith
University of Southampton, Southampton, United Kingdom
BMC Complementary and Alternative Medicine 2012, 12(Suppl 1):O10

Purpose: Acupuncture is gaining acceptance within the mainstream healthcare system in the UK. To date, research has focused on demonstrating its efficacy and effectiveness, with some qualitative studies analysing patients' and practitioners' perspectives. We examined two novel questions of particular relevance to practitioners and providers – to what extent do patients attend a prescribed course of acupuncture treatments and what factors predict attendance?

Methods: We analysed data from a prospective cohort of adults receiving acupuncture for back pain. 485 patients were recruited opportunistically as they sought acupuncture from 83 acupuncturists practicing in different settings across the UK. They completed validated questionnaires before commencing acupuncture, at 2 weeks, 3 months, and 6 months. We measured attendance at prescribed appointments using a combination of patient self-report and acupuncturist report.

Results: Attendance reports were available for 356 participants, of whom 174 (49%) attended all of the acupuncture treatment appointments recommended by their acupuncturist. Baseline health status (pain, wellbeing, disability, anxiety, depression) did not predict attendance. Psychological factors – participants' views of their back pain (measured at baseline) and their perceptions of their acupuncturist (measured 2 weeks into treatment) – did predict attendance. Participants who attended all recommended appointments perceived their back pain as less threatening, had higher levels of personal control over their back pain, felt that they understood their back pain better, and appraised their acupuncturist more positively than participants who did not attend all appointments.

Conclusion: Acupuncturists who develop a positive therapeutic relationship early in treatment appear to encourage higher levels of attendance for subsequent appointments. As acupuncture provision increases in publicly funded health care systems it will become even more important to encourage complete attendance in order to maximise acupuncture's clinical- and cost-effectiveness.

O11

OA03.03. The effect of acupuncture on post cancer fatigue and wellbeing for women recovering from breast cancer: a feasibility randomized control trial

C Smith*, J Ussher, J Perz, B Carmady
University of Western Sydney, Penrith South, Australia
BMC Complementary and Alternative Medicine 2012, 12(Suppl 1):O11

Purpose: Persistent and severe fatigue following breast cancer treatment is estimated to affect over a third of breast cancer patients. To date the evidence of effectiveness for the management of fatigue using acupuncture is unclear. We undertook a study to examine the feasibility and effect of acupuncture with managing fatigue in breast cancer survivors.

Methods: We conducted a randomised controlled trial, comparing acupuncture with a placebo and a wait list control. Inclusion criteria included: aged between 18 and 70 years, a diagnosis of breast cancer, a score of >4 on the Brief Fatigue Inventory (BFI), and completed chemotherapy at least one month previously. Acupuncture was based on Traditional Chinese Medicine using a semi standardised treatment. The placebo control received non invasive needles using the Park Sham device, and placed away from points and meridians. Treatment was administered twice weekly over three weeks and weekly for three weeks. Endpoints were assessed at 2, 4 and 6 weeks, and included the BFI, Well-Being and Measure Yourself Concerns and Wellbeing questionnaire. In depth interviews were also conducted with women receiving acupuncture, exploring their sense of wellbeing, levels of fatigue and experience of acupuncture.

Results: Thirty women were randomised and outcome data was available from 29 participants. At two weeks there was a significant reduction in fatigue for women receiving acupuncture compared to the placebo and wait list control (MD 5.3, 95% CI 4.5, 6.2, $p=0.05$). A trend to reduced fatigue for the acupuncture group was seen at week 4 (MD 4.6, 95% CI 3.6, 5.6, $p=0.06$), and at six weeks acupuncture demonstrated improved wellbeing (MD 2.7, 95% CI 2.2-3.2, $p=0.006$). Interviews demonstrated participants valued the therapeutic relationship, empowerment through self care and the invigorating nature of the intervention.

Conclusion: The study demonstrated acceptability, feasibility and encouraging results to plan further research.

O12

OA03.04. An assessment of the effectiveness of acupuncture for the Trauma Spectrum Response: results of a rapid evidence assessment of the literature (REAL)

C Lee^{1*}, J Smith¹, M Sprengel¹, C Crawford¹, D Wallerstedt¹, R Welton¹, A York¹, A Duncan², W Jonas¹
¹Samueli Institute, Alexandria, USA; ²Healingworks: Restoring and Renewing Military Families, Silver Spring, USA
BMC Complementary and Alternative Medicine 2012, 12(Suppl 1):O12

Purpose: Exposure to deployment, combat, and other traumatic events can induce a spectrum of physical, cognitive, psychological and behavioral effects. This constellation has been termed the "Trauma Spectrum Response" (TSR) and includes depression, anxiety, post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), sleep disturbances, substance abuse, cognition, headache, pain, and spirituality. Acupuncture has been shown to effectively treat such symptoms as headache, insomnia, stress, anxiety, depression, and perceived pain. While many literature reviews on acupuncture have been published, their conclusions are often difficult to interpret, inconsistent or contradictory. Thus, in order to comprehensively assess acupuncture's effectiveness across these symptoms, a rapid evidence assessment of the literature (REAL) was conducted to rigorously and systematically assess the quantity and quality of the existing systematic reviews/meta-analyses to gauge the effectiveness of acupuncture in treating the various components of TSR.

Methods: We conducted a search of systematic reviews published in the English language in several key databases (PubMed, Cochrane Database of Systematic Reviews, EMBASE, PsycINFO, and CINAHL) from inception to September 2011. Articles were included if they involved needle acupuncture as a treatment for at least one of the TSR components.

Results: We present the results of this review of systematic reviews for each of the TSR components and discuss the overall quality of these reports using the Scottish Intercollegiate Guidelines Network (SIGN) 50. Additionally, we present the results on the overall effectiveness of acupuncture and safety rating for each of the TSR components as determined by a group of subject matter experts using a systematic grading methodology.

Conclusion: The results of this review of reviews is expected to provide a systematic assessment of the quality of the current body of acupuncture literature for each of the TSR components and identify gap areas that may elicit further research.

O13

OA04.01. Effects of relaxation response intervention on endogenous progenitor cells in a hypertensive population

A Fyfe-Johnson^{1*}, D Taylor², C Zierold², J Dusek¹
¹Penny George Inst. for Health & Healing, ANW, Allina Health, Minneapolis, USA;
²Center for Cardiovascular Repair, University of Minnesota, Minneapolis, USA
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Purpose: To examine the impact of a relaxation response intervention on endogenous progenitor cell populations in a systolic hypertension population.

Methods: These ancillary data are an extension of a current study investigating the impact of a relaxation response meditation (RR) in a systolic hypertension population. Data were collected from 15 subjects with systolic hypertension: before and after an 8-week manualized RR meditation intervention, and compared to subjects receiving health education. Primary outcomes were pre and post-progenitor cell populations measured by flow cytometry (FACScan). After lysis and processing, cell number and viability were determined using an automated Guava ViaCount assay counter, Millipore. FACScan raw data were collected using LSRII Cytometer, BD Biosciences. Paired T-tests were used to test for significant differences in mean pre and post progenitor cell changes. Cell surface markers of interest were CD45, CD34, CD31, AC133, CXCR4, and VEGFR2.

Results: Progenitor cells offer the potential to be a meaningful outcome measure for integrative medicine, and are specifically relevant to cardiovascular disease. Arterial repair has powerful clinical applications; particularly for hypertension. Relative to health education control, we found a marked increase in endogenous progenitor cells expressing CD45, CD34, CD31, CXCR4, and VEGFR2 ($p<0.01$) after 8 weeks of RR meditation. The largest increase was seen in the CD34 subpopulation (40.1%, $p<0.05$).

A significant decrease was shown in cells expressing AC133 (61.1%, $p < 0.05$). In concordance with an increase in the CD34 subpopulation, these data suggest that increases in progenitor cells are evident in the middle of the differentiation process and offer a promising signal for the prospect of arterial repair with mind/body interventions.

Conclusion: Based on preliminary data, RR meditation appears to increase populations of endogenous progenitor cells in patients with systolic hypertension. These findings provide incentive to further investigate endogenous progenitor cells as a novel outcome measure for mind/body therapies.

O14

OA04.02. Mechanisms of growth inhibition of pancreatic cancer by omega-3 polyunsaturated fatty acids

M Chen, V Go, O Hines, G Eibl¹

David Geffen School of Medicine at UCLA, Department of Surgery, Los Angeles, USA

BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:O14

Purpose: Omega-3 polyunsaturated fatty acids (PUFAs) are widely considered health promoting. We have previously reported that the omega-3 PUFA eicosapentaenoic acid (EPA) inhibits growth of pancreatic cancer (PaCa) cells *in vitro* and *in vivo*. However, the mechanism underlying the effects of EPA in PaCa cells is unknown.

Methods: Six human PaCa cell lines of varying degrees of differentiation were exposed to different concentrations and times to EPA. Cell growth was measured by BrdU and apoptosis was determined by a Cell Death ELISA, and cleavage of PARP and caspase-3/7. The involvement of PI3K/Akt, a major survival pathway in PaCa, was determined using pharmacological inhibitors (LY294002) and constitutively active Akt (myr-Akt1). The effect of EPA on *de novo* fatty acid synthesis as a downstream pathway of Akt inhibition was investigated using Western blotting and inhibitors of fatty acid synthase (FASN).

Results: EPA dose-dependently increased apoptosis and stimulated cleavage of PARP and caspase-3/7, which was accompanied by inhibition of Akt. Exposure of PaCa cells to LY294002 induced apoptosis and decreased cell growth. EPA-induced apoptosis and growth inhibition was attenuated in myr-Akt1 transfected cells. FASN was expressed in all cell lines. Inhibition of FASN by C75, a synthetic FASN inhibitor, reduced cell growth and induced apoptosis. EPA inhibited FASN expression, which was accompanied by inhibition of cell growth. Insulin stimulated Akt phosphorylation and increased FASN expression, while LY294002 reduced FASN. PaCa cells transfected with myr-Akt1 exhibited increased FASN expression, indicating the importance of Akt in baseline FASN expression. Importantly, EPA decreased Akt phosphorylation and FASN expression in control-transfected cells, but this inhibition was abrogated in myr-Akt1 transfected cells.

Conclusion: Our studies provide compelling evidence that the growth inhibitory effects of the omega-3 polyunsaturated fatty acid EPA in PaCa cells was mediated by inhibition of the PI3K/Akt pathway and subsequently reduced fatty acid synthesis.

O15

OA04.03. Neural responses to the mechanical characteristics of a spinal manipulation: effect of varying direction of the applied thrust force

J Pickar^{1*}, W Reed¹, C Long¹, G Kawchuk²

¹Palmer Center for Chiropractic Research, Davenport, USA; ²University of Alberta, Edmonton, Canada

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Purpose: A goal of our laboratory is to identify mechanisms of action operative during the body-based practice of spinal manipulation. Spinal manipulation can be identified by a number of mechanical characteristics including but not limited to thrust rate, magnitude, site, and direction. Because neural mechanisms are thought to contribute to its clinical effects, we studied spinal manipulation during a series of experiments to identify mechanical characteristics that affect responses from sensory neurons innervating paraspinal tissues. Presumably specific parameters related to these characteristics relate to successful clinical outcomes. In this study we determined the effect of manipulative thrust direction on neural activity of proprioceptive afferents from lumbar paraspinal muscles.

Methods: In anesthetized cat preparations ($n=18$), a simulated spinal manipulation (100ms thrust duration) was delivered in each of 5 directions [posterior-to-anterior (0°), cranialward (15° & 30°), and medialward (15° & 30°)] to the prone, intact lower lumbar spine (L_6-S_1) using the L_6 lamina as the contact site. Importantly, we increased thrust force as we deviated thrust direction from vertical in order to keep the force component that was perpendicularly-oriented to the contact site constant at 21.3N (55% of an average cat's body weight of 3.95kg). During the manipulative thrust, electrophysiological recordings from individual muscle spindle afferents innervating the L_6 multifidus and longissimus muscles were obtained from L_6 dorsal rootlets exposed through an L_5 laminectomy.

Results: Muscle spindle discharge frequency during P-A- 0° thrust increased 81.6 (89.1, 98.0; 95% CI), during cranialward- 15° increased 101.4 (93.1, 109.6), during cranialward- 30° increased 82.8 (90.3, 96.6), during medialward- 15° increased 104.6 (93.4, 115.8), and during medialward- 30° increased 87.6 (69.8, 105.5) impulses/sec.

Conclusion: Our results suggest that for the same vertically-oriented force component, thrust direction had little effect on muscle spindle responses. These data provide neurophysiological evidence that only the component of the manipulative thrust normally-oriented to the contact site is transmitted to deeper tissues.

O16

OA04.04. Changes in physiological and psychological markers of stress in hospital personnel after a low-dose mindfulness-based worksite intervention

M Klatt¹, B Steinberg, D Marks, A Duchemin

The Ohio State University College of Medicine, Columbus, USA

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Purpose: To determine the efficacy of a pragmatic low dose mindfulness-based worksite intervention on biological and behavioral indices of stress in healthcare professionals caring for seriously ill patients.

Methods: Participants ($n=32$) were recruited among the Surgical Intensive Care Unit (SICU) personnel of a large university hospital, and were randomized to intervention or wait-list control groups, stratified by gender. The low dose 8-week mindfulness-based intervention was delivered on site, one hour before shift change.

Results: Participants were representative of the SICU staff with 69% nurses, 88% females, age average of 44, and 11.8 (± 10.1 , SD) average years working in the SICU. Participant biological indices of stress, measured by the level of salivary α -amylase, was significantly reduced in the intervention group ($t=2.562$, $p=0.026$) only. Behaviorally, they rated their experience of stress using the Depression, Anxiety and Stress Scale (DASS-21), and rated sleep over the past month using the Pittsburgh Sleep Quality Index (PSQI). There was a significant decrease of the scores on the DASS-21 stress subscale ($t=2.245$, $p=0.040$) and a significant improvement in the overall quality of sleep ($t=2.482$, $p=0.027$) between pre and post assessments in the intervention group with no changes for the wait list group. Work satisfaction also increased significantly ($t=-3.2020$, $p=0.006$) for the intervention group only.

Conclusion: These data indicate the effectiveness of a mindfulness-based intervention delivered at the worksite towards stress reduction for staff in a high stress, hospital environment. The SICU personnel care for trauma 1 and 2 level patients and patients with severe pathology recovering from major surgery, and are confronted with catastrophic events on a regular basis. Given the nature of the job, work-related stressful events in the SICU will not change, but the resiliency tools offered via the intervention may help maintain wellness and prevent the deleterious effects of stress.

O17

OA05.01. Altering nutrition-related behaviors of healthcare professionals through CME involving nutrition experts and chefs

D Eisenberg^{1*}, A Myrdal Miller², K McManus³, M Erickson², G Drescher², J Burgess¹, A Bernstein⁴, B Rosner⁵, E Rimm⁵, W Willett⁵

¹Harvard Medical School, Chestnut Hill, USA; ²Culinary Institute of America, St. Helena, USA; ³Brigham and Women's Hospital, Boston, USA; ⁴Cleveland Clinic, Cleveland, USA; ⁵Harvard School of Public Health, Boston, USA

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Purpose: For healthcare professionals, practicing a healthful behavior oneself is a powerful predictor of counseling patients about these same self-care behaviors (e.g. exercise, wearing seat belts, etc). We explored the feasibility of altering healthcare professionals' personal and professional behaviors with regard to diet, food preparation, and their ability to advise patients who are overweight or obese as a result of a four-day continuing medical education (CME) conference, "Healthy Kitchens, Healthy Lives—Caring for Our Patients and Ourselves," which combines both medical and culinary education.

Methods: This CME program occurs in a facility that allows for didactic presentations, cooking demonstrations, and hands-on cooking workshops. An anonymous survey of conference registrants' (n=387) nutrition-related behaviors was conducted at the start of the conference, March 2010, and twelve weeks later. The CME program included plenary lectures, culinary demonstrations, hands-on cooking sessions, interactive workshops, case presentations, meals, and tastings. Main outcome measures were self-reported changes in nutrition-related personal and professional behaviors.

Results: Of 387 registrants, 219 (57%) completed the survey at baseline and 192 (50%) completed the follow up survey at twelve weeks. 265 (66%) registrants were physicians. Respondents reported significant positive changes in (1) frequency of cooking their own meals ($p < 0.001$), (2) personal awareness of calorie consumption ($p \leq 0.05$), (3) frequency of vegetable, nut, and whole grain consumption ($p \leq 0.04$), (4) ability to formally address a patient's nutrition status ($p < 0.001$), and (5) ability to successfully advise overweight/obese patients regarding specific nutritional/lifestyle habits ($p < 0.001$).

Conclusion: It is possible to alter healthcare professionals' personal and professional nutrition-related behaviors using a four-day continuing educational program involving a combination of medical and culinary education in an interactive setting. In light of increasing rates of obesity and diabetes, how this multi-disciplinary educational approach can alter the behaviors of large numbers of healthcare practitioners and, hypothetically, their patients, should be explored further.

O18

OA05.02. Relationships among well-being and wellness behaviors over time in residents in eight family medicine residencies

S Dodds^{1*}, A Brooks¹, J Woytowicz², P Cook¹, R Benn³, V Maizes¹, P Lebensohn¹

¹University of Arizona Center for Integrative Medicine, Tucson, USA; ²Maine-Dartmouth, Augusta, USA; ³University of Michigan Health Center, Ann Arbor, USA

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Purpose: To present findings on relationships among dimensions of well-being and wellness behaviors in family medicine residents participating in the Integrative Medicine in Residency (IMR) program through the last two years of training.

Methods: Residents in the 2011 graduating class of the IMR (n=56) were assessed at the beginning of PGY2 and PGY3 and at graduation. Measures were self-administered online and included established measures of well-being: perceived stress, burnout (emotional exhaustion, depersonalization), depression, and satisfaction with life. Wellness behaviors assessed included restful sleep, nutrition, physical activity, mind-body activities, being in nurturing relationships, being outdoors in nature, and alcohol use. Stepwise regression analysis examined relationships between wellness behaviors and each well-being measure at each timepoint.

Results: In both PGY2s (n=52) and PGY3s (n=38), restful sleep was associated with less perceived stress ($p=0.003$; $p=0.01$), greater life satisfaction ($p=0.007$; $p=0.007$), less depression ($p=0.002$; $p=0.041$), and less emotional exhaustion ($p=0.001$; $p \leq 0.001$). In PGY2s, more time in nurturing relationships was associated with greater life satisfaction ($p=0.039$). In PGY3s, more frequent exercise was associated with less depression ($p=0.003$) and greater life satisfaction ($p=0.014$). By graduation (n=42), sleep was associated with less emotional exhaustion ($p=0.006$). Spending more time outdoors in nature was associated with lower perceived stress ($p=0.002$), less depression ($p=0.026$), and lower depersonalization ($p=0.003$). Nurturing relationships were associated with greater life satisfaction ($p \leq 0.001$). More alcohol use was associated with less perceived stress ($p=0.001$). Using a variety of mind-body wellness

behaviors was associated with greater depression in PGY2s ($p=0.015$), and with emotional exhaustion at graduation ($p=0.045$).

Conclusion: Sleep, nurturing relationships, exercise, and time outdoors in nature were most frequently associated with well-being among Family Medicine residents. This study is the first to describe these relationships for residents who participated in the IMR, and points to the importance of addressing well-being and wellness behaviors during the formative time of graduate medical education.

O19

OA05.03. Impact of a mind-body medicine skills course on medical students' perceived stress, mindfulness and elements of emotional intelligence

K Motz^{*}, K Graves, C Gross, P Saunders, H Amri, N Harazduk, A Haramati

Georgetown University School of Medicine, Washington D.C., USA

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Purpose: Most medical schools list self-awareness, self-care and personal growth as key educational competencies. Yet, studies have reported that traits such as altruism and empathy tend to decline throughout medical school training. To foster medical student self-awareness and mindfulness, which may improve their emotional intelligence (EI), Georgetown University School of Medicine (GUSOM) offers an experiential course to medical students in mind-body medicine skills. The purpose is to expose students to a variety of mind-body approaches (e.g., mindfulness meditation, autogenic training, guided imageries, movement, and writing exercises), as well as group sharing that involves listening generously and without judgment.

Methods: The aim of this study was to assess the impact of the Mind Body Medicine Skills (MBS) course on several behavioral measures such as perceived stress (PSS), mindfulness (Freiberg Mindfulness Inventory – FMI), positive and negative affect (PANAS) and elements of EI (measured by the Trait Meta Mood Scale and the Interpersonal Reactivity Index).

Results: Data were obtained from 72 first year medical students (47 females and 25 males), who completed the survey instruments before and after participating in the course. A significant decline was seen in perceived stress among all participants (17.4 vs. 13.3, $p < 0.001$, effect size 0.73), while mindfulness increased significantly (35.3 vs. 40.0, $p < 0.001$; effect size 0.94). Both males and females showed a significant increase in positive affect, but only females had a decrease in negative affect (males showed no change). Female students reported greater increases in attention to feelings and perspective taking, and a decrease in the personal distress in response to distress in others. However, both genders reported significant increases in empathic concern.

Conclusion: These findings suggest that participation in a one-semester MBS course during the first year of medical school is effective in enhancing important traits such as mindfulness and empathic concern, while reducing students' perceived stress.

O20

OA05.04. Inpatient acupuncture care: establishing hospital-wide policy and service at Beth Israel Medical Center (NYC)

D Nielsen^{*}, B Kligler, R Lee, W Merrell

Beth Israel Medical Center, Integrative Medicine Department, New York City, USA

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Purpose: Our goal was to establish inpatient acupuncture care at Beth Israel Medical Center (BIMC), a US teaching hospital that required inpatient specific policy and procedures, credentialing, supervision and a standard of safety for acupuncture therapy. Stages and logistics of 'integrating' modalities are identified.

Methods: An outpatient IM clinic was established in 2000 in association with BIMC offering primary care and modalities including acupuncture therapies, which in turn established a outpatient record of safety. In 2008, we developed a post-graduate Fellowship training program in inpatient care for licensed acupuncturists, setting policy and procedures that included scope of practice, recommendations for verbal informed consent and options for individual or blanket physician permission to treat per Department. Fellows worked two four hours shifts per week for one year.

The Fellowship director gave lectures on acupuncture research relevant to specialties at Department Grand Rounds. Patients verbal consent was required, an INR of 4 or less, and a platelet count of at least 25,000.

Results: Since September 2008, Acupuncture Fellows have worked over 5000 hours with over 5,000 inpatient and staff encounters across Departments of General Surgery, Orthopedic Surgery, Family medicine, Internal Medicine, Oncology, Pulmonary Rehab, Pediatrics, and as a full consult service hospital-wide. Acupuncture therapies include acupuncture needling, ear needling, ear seeds, palpation, Tui na and Gua sha as well as explanation and recommendations in terms of traditional East Asian medicine principles. There was only one reported complication of a patient fainting that in the end was attributed to his use of his wife's beta-blockers.

Conclusion: It is feasible to develop a training model for graduate licensed acupuncturists as a safe and effective strategy for offering acupuncture in the inpatient setting. A safe record of care and integration of inpatient acupuncture therapy has been established at Beth Israel Medical Center in New York City.

O21

OA06.01. A randomized controlled trial of 8-form Tai chi improves symptoms and functional mobility in fibromyalgia patients

S Mist^{1*}, K Jones¹, C Sherman², J Carson¹, R Bennett¹, F Li²

¹Oregon Health & Science University, Portland, USA; ²Oregon Research Institute, Eugene, USA

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Purpose: Previous researchers have found that 10-form Tai Chi yields symptomatic benefit in patients with fibromyalgia (FM). The purpose of this study was to further investigate these findings and focus on functional mobility.

Methods: We conducted a parallel-group randomized controlled trial for FM using a modified 8-form Yang-style Tai chi program compared to an education control. Participants met in small groups twice weekly for 90 minutes over 12 weeks. The primary endpoint was symptom reduction and improvement in self-report physical function, as measured by the Fibromyalgia Impact Questionnaire (FIQ), from baseline to 12 weeks. Secondary endpoints included pain severity and interference [Brief Pain Inventory (BPI)], sleep (Pittsburg Sleep Inventory), self-efficacy and functional mobility.

Results: Of the 98 randomly assigned subjects (mean age 54 years, 93% female), those in the Tai chi condition compared to the education condition demonstrated clinically and statistically significant improvements in FIQ scores (16.5 vs. 3.1, $p < 0.0002$), BPI pain severity (1.2 vs. 0.4, $p < 0.0008$), BPI pain interference (2.1 vs. 0.6, $p < 0.0001$), sleep (-2.0 vs. -0.03, $p < 0.0003$) and self-efficacy for pain control (9.2 vs. -1.5, $p < 0.0001$). Functional mobility variables including timed get-up and go (-0.92 vs. -0.25, $p < 0.0001$), static balance (7.5 vs. -0.3, $p < 0.0001$) and dynamic balance (1.6 vs. -0.5, $p < 0.0001$) were significantly improved with Tai chi compared to education control. No adverse events were reported.

Conclusion: Tai chi appears to be a safe and effective mind/body exercise treatment that could be used as an adjunctive modality in FM patients for both symptom reduction and functional mobility improvement. (ClinicalTrials.gov Identifier, NCT01311427).

O22

OA06.02. Impact of Tai Chi exercise on multiple fracture-related risk factors in post-menopausal osteopenic women: a pilot pragmatic, randomized trial

P Wayne^{1*}, D Kiel², J Buring¹, P Bonato³, G Yeh⁴, C Cohen⁵, C Mancinelli³, R Davis⁴

¹Harvard Medical School, Brigham and Women's Hospital, Boston, USA;

²Institute for Aging Research, Hebrew SeniorLife, Harvard Medical School, Boston, USA;

³Spaulding Rehabilitation Hospital, Harvard Medical School, Boston, USA;

⁴Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, USA;

⁵Harvard Vanguard Medical Associates, Internal Medicine, Boston, USA

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Purpose: Tai Chi (TC) is a mind-body exercise that shows potential as an effective and safe intervention for preventing fall-related fractures in the

elderly. Few randomized trials have simultaneously evaluated TC's potential to reduce bone loss and improve fall-predictive balance parameters in osteopenic women.

Methods: In a pragmatic randomized trial, 86 post-menopausal osteopenic women, aged 45-70, were recruited from community clinics. Women were assigned to either nine months of TC training plus usual care (UC) vs. UC alone. Primary outcomes were changes between baseline and nine months of bone mineral density (BMD) of the proximal femur and lumbar spine (dual-energy X-ray absorptiometry) and serum markers of bone resorption and formation. Secondary outcomes included quality of life. In a subsample ($n=16$), quiet standing fall-predictive sway parameters and clinical balance tests were also assessed. Both intent-to-treat and per-protocol analyses were employed.

Results: For BMD, no intent-to-treat analyses were statistically significant; however, per protocol analyses (i.e., only including TC participants who completed $\geq 75\%$ training requirements) of femoral neck BMD changes were significantly different between TC and UC (+0.04 vs. -0.98%; $p=0.05$). Changes in bone formation markers and physical domains of quality of life were also more favorable in per protocol TC vs. UC ($p=0.05$). Changes in sway parameters were significantly improved by TC vs. UC (average sway velocity, $p=0.027$; anterior-posterior sway range, $p=0.014$). Clinical measures of balance and function showed statistically non-significant trends in favor of TC.

Conclusion: TC training offered through existing community-based programs is a safe, feasible, and promising intervention for reducing multiple fracture risks. Our results affirm the value of a more definitive, longer-term trial of TC for osteopenic women, adequately powered to detect clinically relevant effects of TC on attenuation of BMD loss and reduction of fall risk in this population.

O23

OA06.03. Spinal manipulative therapy, supervised rehabilitative exercise and home exercise for seniors with neck pain

M Maiers^{1*}, G Bronfort¹, R Evans¹, J Hartvigsen², K Svendsen¹, Y Bracha¹, C Schulz¹, K Schulz², R Grimm⁴

¹Northwestern Health Sciences University, Bloomington, USA;

²University of Southern Denmark, Odense, Denmark;

³Hennepin County Medical Center, Minneapolis, USA;

⁴Berman Center for Outcomes and Clinical Research, Minneapolis, USA

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Purpose: Neck pain (NP) is a common condition in old age, leading to impaired functional ability and decreased independence. Spinal manipulation and exercise are common and effective treatments for the general NP population; however, their effectiveness among seniors is unknown. The primary aim of this randomized clinical trial was to assess the relative short- and long-term clinical effectiveness of spinal manipulative therapy (SMT) and supervised rehabilitative exercise (SRE), both in combination with and compared to home exercise (HE) alone, in NP patients 65 years and older.

Methods: 241 individuals age 65 and older with NP at least 12 weeks in duration were randomized to 12 weeks of treatment (above). The primary outcome was pain; secondary outcomes included disability, improvement, medication use, general health and satisfaction. Patient-rated outcome measures were collected via self-report questionnaires at baseline, 4, 12, 26, and 52 weeks post-randomization. Differences between the 3 groups were calculated for the short-term (weeks 4 and 12 data) and long-term (weeks 4, 12, 26, and 52 data) with a linear mixed model analysis.

Results: In the short-term, SMT+HE demonstrated significantly greater reduction in pain compared to the other two groups. SMT+HE also showed greater improvement compared to HE alone. Both combined treatment groups were more satisfied at all time points. In the long-term, significant between group differences in both pain and improvement persisted in favor of SMT+HE over HE, but not SRE+HE. Participants in the combination therapies continued to report greater satisfaction with care than HE alone. There was less medication use among SMT+HE group compared to SRE+HE in the long term.

Conclusion: In a senior population with chronic NP, SMT combined with home exercise results in less pain and greater improvement than home exercise alone in both the short- and long-term, and greater pain reduction than rehabilitative exercise plus home exercise in the short-term.

O24

OA06.04. Dose-response of spinal manipulation for chronic low back pain: pain and disability outcomes from a randomized controlled trial

M Haas¹, D Vavrek, D Peterson

Center for Outcomes Studies, University of Western States, Portland, USA
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Purpose: Report short- and long-term low back pain and disability outcomes from a randomized controlled trial on the quantity of visits to a chiropractor for nonspecific chronic low back pain (cLBP).

Methods: We randomized 400 patients with cLBP to receive one of four dose levels of care: 0, 6, 12, or 18 sessions of lumbar spinal manipulation from a chiropractor. All participants were scheduled for three visits per week for six weeks at one of eight clinics. Care was rendered at each visit, either the index intervention or light massage control. The primary outcomes were low back pain intensity and functional disability at 12 and 24 weeks (100-point scales). Secondary outcomes included days with pain and functional disability, pain unpleasantness, global perceived improvement, and general health status. Outcomes were assessed at baseline and at 6, 12, 18, 24, 39, and 52 weeks. Linear dose effects and group comparisons (efficacy) were evaluated using covariate-adjusted simultaneous regression for continuous data (primary analysis). Binomial regression was performed in a responder analysis of 50% improvement (secondary analysis).

Results: Adherence to all 18 treatment visits was 94%. Small linear dose-response effects were observed at 6 to 18 weeks and 52 weeks ($p < .02$). In comparison to the no-manipulation control, the optimal adjusted mean differences (MD) in the short term were found for 12 treatment sessions at 12 weeks: MDpain = 8.6 (3.2 to 14.0) and MDdisability = 7.5 (1.7 to 13.3). No differences were found at 24 weeks. Differences at 52 weeks were maximized with 18 visits: MDpain = 7.6 (2.0 to 13.2) and MDdisability = 8.8 (3.3 to 14.4). Responder analysis supported these results.

Conclusion: Spinal manipulation visits had modest effects on cLBP outcomes. Best outcomes were for 12 visits in the short term (12 weeks) and 18 visits in the long term (52 weeks).

O25

OA07.01. A naturopathic approach to the prevention of cardiovascular disease: a cost effectiveness analysis of a randomized multi-worksite trial

P Herman^{1*}, O Szczurko², K Cooley², D Seely³

¹University of Arizona, Tucson, USA; ²Canadian College of Naturopathic Medicine and University of Toronto, Toronto, Canada; ³Canadian College of Naturopathic Medicine, Toronto, Canada

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Purpose: Cardiovascular disease (CVD), a major cause of death and substantial healthcare costs, is also largely preventable. The purpose of this study is to determine the cost-effectiveness of a naturopathic approach to the primary prevention of cardiovascular disease.

Methods: This study is an economic evaluation alongside a pragmatic, multi-worksite, randomized trial comparing enhanced usual care (EUC; usual care plus biometric screening) to the addition of a naturopathic approach to CVD prevention (NC+EUC; an individualized package of lifestyle counseling and nutritional medicine). Biometric and self-report outcomes were collected at 0, 6, and 12 months. Cost-effectiveness is determined from the societal and employer perspectives for participants who consented (before randomization) to make available their electronic employer sick leave and medical claims data.

Results: Of the 246 employees who consented to the trial, two-thirds also gave consent to make available their claims and sick leave data: 77 (63.1% of 122) randomized to EUC and 79 (63.7% of 124) randomized to NC+EUC. There were no statistically significant differences between those who did and did not give this consent across baseline characteristics, outcomes, or tendency to miss study visits. After one year NC+EUC resulted in a net decrease of 3.3 (CI: 1.7 -4.8) percentage points in 10-year CVD event risk (NNT=30) and 0.9 (CI: 0.2 - 1.6) points in CVD mortality risk (NNT=111). These risk reductions came with an average net savings of \$1138 in societal costs and \$1187 in employer costs. There was no change in quality-adjusted life-years across the study year.

Conclusion: In this multi-worksite-based study, a naturopathic approach to the primary prevention of CVD provided significant reductions in CVD risk over usual care plus biometric screening. These risk reductions are achieved with cost savings to society and employers. Further research into naturopathic approaches to CVD risk reduction is justified.

O26

OA07.02. Naturopathic medicine for the prevention of cardiovascular disease: a pragmatic randomized clinical trial

D Seely^{1*}, O Szczurko², C Kieran², H Fritz², P Herman³, R Bradley⁴, S Aberdour⁵, C Herrington⁶, P Rouchotas², D Lescheid², T Gignac², B Bernhardt², Q Zhou⁷, G Guyatt⁷

¹Ottawa Integrative Cancer Centre, Ottawa, Canada; ²Canadian College of Naturopathic Medicine, Toronto, Canada; ³University of Arizona, Tucson, USA; ⁴Bastyr University, Kenmore, USA; ⁵Private clinic, Vancouver, Canada; ⁶Private Clinic, Halifax, Canada; ⁷McMaster University, Hamilton, Canada

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Purpose: Cardiovascular disease (CVD) is largely preventable through a number of dietary and lifestyle based interventions utilized in naturopathic medicine. We aimed to test the whole-practice of this discipline for the prevention of cardiovascular disease in a work place setting.

Methods: Multi-site pragmatic randomized controlled trial of enhanced usual care (EUC; usual care plus biometric screening) versus EUC plus naturopathic care (EUC+NC). NC consisted of individualized care provided in work-site clinics by licensed naturopathic doctors (NDs) utilizing one or more of the following strategies: lifestyle counseling, nutritional medicine, and/or dietary supplementation. EUC consisted of usual care provided by the participant's family physician in the community following identification as having a higher relative risk of developing cardiovascular disease. Primary outcomes were incidence of metabolic syndrome and 10-year risk of having a cardiovascular event based on the Framingham algorithm and the Adult Treatment Panel (ATP) III diagnostic criteria for metabolic syndrome.

Results: A total of 246 participants were randomized and enrolled in study work-sites in three cities across Canada; 207 participants completed the study. The two groups were similar at baseline. After one year of individualized naturopathic care, there was a 3.6 percentage point reduction in 10-year cardiovascular risk (95% CI: -5.1, -2.3) and a 27.4% reduced prevalence of metabolic syndrome (95% CI: -41.7, -13.1) in the treatment arm (n=124) compared to the control arm (n=122).

Conclusion: This study is the first pragmatic whole-practice trial to formally evaluate the benefits of individualized naturopathic care for the prevention of cardiovascular disease. In this setting, and widely generalizable due to the whole-systems methodology employed, naturopathic medicine appears to provide safe and effective risk reduction for people at risk of developing cardiovascular disease.

O27

OA07.03. Randomized, double-blind, double-dummy trial of myrrh, chamomile, coffee charcoal compared to mesalazine in maintaining remission in ulcerative colitis

J Langhorst^{1*}, A Westendorf², M Knopp², S Schneider³, K Goos⁴, U Albrecht⁵, A Rueffer⁶, R Stange⁷, A Michalsen⁷, G Dobos¹

¹University of Duisburg, Complementary and Integrative Medicine, Essen, Germany; ²Department for Microbiology, University of Duisburg-Essen, Essen, Germany; ³Biometric Institute, University of Hannover, Hannover, Germany; ⁴Repha GmbH, Hannover, Germany; ⁵Mediconomics, Hannover, Germany; ⁶Enterosan, L+S Labor, Bad Bocklet - Grossenbrach, Germany; ⁷Immanuel Hospital, Charité, Berlin, Germany

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Purpose: We compared the efficacy of the herbal preparation of myrrh, chamomile extract and coffee charcoal (herb) with a mesalazine (mes) therapy in maintaining remission in ulcerative colitis (UC).

Methods: A total of 96 patients (51 female) with UC in remission (not longer than 12 months) were included in a randomized, double-blind, double-dummy, multicenter, non inferiority study comparing mesalazine 500mg (3x1/d) to 100mg myrrh, 70mg chamomile extract and 50mg coffee charcoal (3 x 4/d) over a time period of 12 months. As primary outcome criterion, non-inferiority of the herbal preparation was defined and

accepted, if the difference in the colitis activity index (Colitis Activity Index - CAI - Rachmilewitz) (calculated at six time points during the 12 month interval) averaged over all visits was ≤ 1 point. Furthermore, relapse rates, relapse-free times, safety, a comprehensive activity index (CAI, CRP and fecal Lactoferrin, Calprotectin and PMN-Elastasis), an endoscopic activity index and Health-related Quality of life (HrQoL) were assessed. Peripheral CD4+CD25+ reg T-cells were investigated in a subgroup at each time point and during a flare.

Results: Primary outcome criterion ($p = 0.19$), relapse rates (CAI>4) (mes 22/49 patients vs herb 25/47 patients; $p = 0.54$), relapse-free time (268 \pm 22 days for mes and 240 \pm 23 days ($p = 0.40$) for the herb), the comprehensive activity index and HrQoL did not show a significant difference. Of notice, peripheral CD4+CD25+ regulatory T-cells showed a distinct different pattern at time points pre-flare and flare for the two treatment modalities (CD4+CD25+T_{reg} mes p =non significant (ns); herb p =0.02; CD4+CD25+ T_{reg} high mes p =ns; herb p =0.008).

Conclusion: The herbal preparation shows efficacy and safety in maintaining remission non-inferior to mesalazine in ulcerative colitis. It appears to offer an alternative option for maintenance therapy. Regulatory T-cell pattern might give first evidence to suggest a different mechanism of action.

O28

OA07.04. Self-care, use of CAM and satisfaction with health care in people with inadequately controlled Type 2 diabetes

R Bradley^{1*}, K Sherman², S Catz², C Calabrese³, E Oberg¹, D Cherkov²
¹Bastyr University, Kenmore, USA; ²Group Health Research Institute, Seattle, USA; ³Naturopathic Physicians Research Institute, Portland, USA
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Purpose: To test the hypothesis that people with inadequately controlled Type 2 diabetes (T2D) interested in adjunctive naturopathic care (ANC) may differ in their current self-care behavior and motivation for behavior change compared to those with less interest. We also aimed to measure CAM use and satisfaction with health care.

Methods: Patients with inadequately controlled T2D from Group Health Cooperative were invited to participate in a telephone survey. The survey queried interest in ANC, current CAM use, and current self-care. Self-care behavior, perceptions about blood sugar, and motivation for behavior change were assessed using the Summary of Diabetes Self-care Activities, Perceptions of Blood Sugar Control and the Readiness Index instruments, respectively. Survey responses were then compared between people who expressed great interest in using ANC services and those who expressed less interest.

Results: 219 of 321 eligible patients (68.5%) completed the survey. Nearly half of the respondents (48%) expressed strong interest in ANC services. Patient demographics, health history, and self-care behaviors did not differ by ANC interest. People interested in ANC were more likely to: have a plan to change self-care ($p=0.01$), be more determined to succeed in self-care ($p=0.007$) and have a long-term commitment to change self-care ($p=0.02$). Use of several CAM therapies was higher in the ANC-interested group, including vitamin and mineral supplements, herbal and nutritional supplements and meditation ($p<0.05$ for each). Those interested in ANC perceived their current health care as less beneficial for blood sugar control than those less interested (mean response: 5.9 +/- 1.9 vs. 6.6 +/- 1.5, $p=0.003$).

Conclusion: People with T2D interested in ANC do not differ in their current self-care, but are more motivated for self-care improvement. Dissatisfaction with current care for T2D may influence their interest in CAM.

O29

OA08.01. Cholecystokinin antagonizes opioid function during electroacupuncture inhibitory effect on pressor reflex in rats

M Li¹, S Tjen-A-Looi, Z Xu, E Choi, J Ho, J Longhurst
University of California, Irvine, Department of Medicine, Irvine, USA
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Purpose: Acupuncture or electroacupuncture (EA) is increasingly being accepted as a viable therapy in the United States and may serve as an alternative treatment to drug therapy in patients with mild to moderate hypertension. We have demonstrated that EA acts through an opioid

mechanism in the rostral ventrolateral medulla (rVLM) to inhibit sympathoexcitatory reflexes induced by gastric distention. Cholecystokinin octapeptide (CCK-8), a gastrointestinal peptide hormone, is present throughout the central nervous system and mediates pain and anxiety. CCK-8 interacts with CCK1 and CCK2 receptors. The present study investigated the hypothesis that CCK-8 in the rVLM limits the modulatory action of EA effect on sympathoexcitatory responses.

Methods: Experiments were performed on male rats anesthetized with ketamine and α -chloralose who were subjected to repeated gastric distension every 10 minutes.

Results: EA (2Hz, 0.5ms, 1-4mA) at Jianshi-Neiguan (P5-P6) acupoints applied for 30 min followed by microinjection of CCK-8 (0.15mM, 50 nl) into the rVLM in 7 rats reversed the EA modulatory response from 11.0 (\pm 2.0) to 19.1 (\pm 2.8) mmHg. Saline injections into the rVLM at the end of 30 min of EA did not influence the prolonged inhibition of reflex elevations in blood pressure in five other animals. Alternatively, devazepide (0.5 mM, 50 nl), a CCK1 antagonist microinjected into the rVLM of six rats that initially did not respond to 30 min of EA, led to conversion during a second application of EA. Microinjection of the vehicle of devazepide (50 nl) into rVLM did not modify the nonresponsiveness to EA application ($n=2$).

Conclusion: These data suggest that CCK-8 through its action on CCK1 receptors limits the action of EA in the rVLM of rats in modulating reflex hypertension. (Supported by AHA 10POST4190125, NIH HL-63313 and HL-072125).

O30

OA08.02. Differential acute effects of real and sham acupuncture on mu-opioid receptor availability in treatment naive and conditioned chronic pain patients

N Akbar¹, J Zubieta, T Love, D Clauw, R Harris
University of Michigan, Ann Arbor, USA

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Purpose: Previous studies suggest acupuncture analgesic effects involve the release of endogenous opioid peptides. We have previously shown that while both acupuncture and sham reduced clinical pain in fibromyalgia (FM), only acupuncture increased mu-opioid receptor (MOR) baseline receptor availability *in vivo* (binding potential, BP). Here we investigated whether real and sham acupuncture were associated with differential changes in MOR BP in FM patients that were naive to acupuncture as compared to conditioned patients.

Methods: 20 female FM patients (mean (SD) age 44.3 (13.6) years) were randomized to acupuncture ($n=10$) or sham ($n=10$) treatments over four weeks. Acupuncture involved insertion of nine needles into the body whereas sham did not penetrate the skin. Positron emission tomography (PET) with the mu-opioid radiotracer [¹¹C] carfentanil was performed during the first and ninth treatments. Each session included a 'baseline' scan prior to needle insertion and 'treatment' scan during needle insertion. We compared the difference in MOR BP between baseline and treatment, before and after 4 weeks of acupuncture versus sham. MOR quantification performed with Logan plots resulting in voxel-by-voxel maps of MOR BP. Images were analyzed with SPM 5.

Results: Real and sham acupuncture differed in their acute effects on MOR BP. The effect was localized in the left temporal pole and left amygdala/striatum (significant after correction for multiple comparisons, $p<0.05$). The treatment effect was largely due to a change in BP with sham after 4 weeks.

Conclusion: Acupuncture and sham resulted in differential acute effects on MOR binding in treatment naive as compared to conditioned patients. These findings could demonstrate a conditioned placebo response in sham treated chronic pain patients.

O31

OA08.03. Electroacupuncture alleviates hyperalgesia by inhibiting spinal interleukin-17 in an inflammatory pain rat model

R Zhang^{1*}, X Meng¹, Y Zhang², X Shen³, A Li¹, B Berman¹, K Ren⁴, P Wei¹, L Lao¹

¹Center for Integrative Medicine, Baltimore, USA; ²Department of Neurobiology, Shanxi Medical University, Taiyuan, China; ³Shanghai University

of Traditional Chinese Medicine, Shanghai, China; ⁴Dept. of Neural and Pain Sciences, Dental Sch., Univ. of Maryland, Baltimore, USA

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Purpose: Previous studies demonstrated that electroacupuncture (EA) alleviates hyperalgesia, but the mechanisms remained unclear. Because it is well known that interleukin-17 (IL-17) is associated with autoimmune disorders, the present study was designed to determine whether spinal IL-17 plays a role in inflammatory pain and, if so, whether EA inhibits spinal IL-17 expression during such pain.

Methods: Hyperalgesia was induced by injecting complete Freund's adjuvant (CFA, 0.08 ml, 40 µg Mycobacterium tuberculosis) into one hind paw of each rat. EA treatment, 10 Hz at 3 mA, was given at acupoint GB30 twice for 20 min each, once immediately post-CFA and again 2 hours later. Paw withdrawal latency (PWL) was tested before (-48 h) and 2 and 24 hours after CFA to assess behavioral hyperalgesia. IL-17 antibody (0.2-2 µg/rat) was given intrathecally (i.t.) 24 h before CFA to block the action of basal IL-17 and 2 hours prior to each of two PWL tests to block CFA-induced IL-17. I.t. recombinant IL-17 (10-400 ng/rat) was administered to naive rats to determine its effects on PWL and phosphorylation of NR1 (p-NR1). P-NR1 is known to modulate N-methyl-D-aspartate receptor (NMDAR) activity and to facilitate pain. Spinal cords were removed for immunostaining of IL-17, double immunostaining of IL-17/cell markers and IL-17 receptor subtype A (IL-17RA)/NR1, and western blot to measure p-NR1 and IL-17RA.

Results: The data showed that (1) IL-17 is selectively up-regulated in astrocytes, (2) IL-17RA is localized and up-regulated in NR1-immunoreactive neurons, and (3) an IL-17 antibody at 2 µg/rat significantly increased PWL ($p < 0.05$) and decreased p-NR1 and IL-17RA in CFA- and IL-17-injected rats compared to control. EA significantly inhibited hyperalgesia, IL-17, IL-17RA, and p-NR1.

Conclusion: The results suggest that (1) spinal IL-17 is produced by astrocytes and enhances p-NR1 to facilitate inflammatory pain, and (2) EA inhibits hyperalgesia by suppressing IL-17.

O32

OA08.04. Brain circuitry subserving acupuncture relief of itch in atopic dermatitis: an fMRI study

V Napadow^{1*}, A Li¹, M Loggia¹, J Kim¹, P Schalock², E Lerner², B Rosen¹, T Kaptchuk³, P Pfab¹

¹Harvard Medical School, Massachusetts General Hospital, Martinos Center, Charlestown, USA; ²Department of Dermatology, Massachusetts General Hospital, Boston, USA; ³Department of Medicine, Beth Israel Hospital, Boston, USA

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Purpose: Chronic itch is a prevalent symptom of many inflammatory skin disorders, including atopic dermatitis (AD). While conventional systemic approaches to reduce AD itch have shown limited efficacy and/or significant side effects, several recent studies have demonstrated effectiveness of acupuncture for reducing itch in healthy adults and AD. We sought to evaluate the brain circuitry underlying acupuncture reduction of itch.

Methods: We evaluated $n=14$ AD patients (age: 25.4 ± 9.1 yrs) showing type-I-sensitivity to grass pollen, *Dermatophagoides farinae* or *D. pteronyssinus*. A previously validated itch modulation model was used to create a block design paradigm in conjunction with fMRI (3T, Siemens Trio, Germany). Itch was induced with subject-specific allergen prick testing, and its intensity experimentally increased and decreased using a thermode (Medoc, Israel). Brain response to itch was investigated before and after (1) real (100Hz EA at LI-11 to HT-3) and (2) sham acupuncture, as well as (3) antihistamine (levocetirizine) and (4) placebo solution. This was a crossover study where each patient experienced each therapy in separate randomized MRI scan sessions.

Results: Clinically-relevant allergen itch produced activation in anterior insula, putamen, and ventrolateral prefrontal gyri. Real, but not sham, acupuncture, and neither anti-histamine nor placebo solution were found to reduce itch sensation (ACUP: base= 66 ± 18 , post= 44 ± 18 , $p < 0.001$). Following real acupuncture, there was diminished itch-evoked brain activity in right alns, putamen, and nucleus accumbens. Furthermore, insula, putamen, and S2 response to acupuncture correlated with reduced

itch ratings; thereby linking brain response to acupuncture stimuli with clinical outcomes.

Conclusion: Putamen response may reflect affective/motivational aspects of itch, consistent with the urge to scratch. Down-regulation of salience (insula) and affective/motivational (putamen) components of itch in AD may underlie acupuncture efficacy in this clinical population. Based on our data, acupuncture protocols which activate insula and S2, but not putamen should optimize itch reduction. This neuroimaging biomarker should be further explored.

O33

OA09.01. Massage therapy for osteoarthritis of the knee: a randomized dose-finding trial

A Perlman^{1*}, A Ali², V Njike², D Horn³, A Davidi², S Gould-Fogerite⁴, C Milak⁴, D Katz²

¹Duke University, Durham, USA; ²Yale University School of Medicine, Prevention Research Center, Derby, USA; ³Boston Medical Center, Boston, USA; ⁴University of Medicine and Dentistry of New Jersey, Newark, USA
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Purpose: In a previous trial of massage for osteoarthritis (OA) of the knee, we demonstrated feasibility, safety and possible efficacy, with benefits that persisted at least 8 weeks beyond treatment termination.

Methods: We performed a RCT to identify the optimal dose of massage within an 8-week treatment regimen and to further examine durability of response. Participants were 125 adults with OA of the knee, randomized to one of four 8-week regimens of a standardized Swedish massage regimen (30 or 60 min weekly or biweekly) or to a Usual Care control. Outcomes included the Western Ontario and McMaster Universities Arthritis Index (WOMAC), visual analog pain scale, range of motion, and time to walk 50 feet, assessed at baseline, 8-, 16-, and 24-weeks.

Results: WOMAC Global scores improved significantly (24.0 points, 95% CI ranged from 15.3-32.7) in the 60-minute massage groups compared to Usual Care (6.3 points, 95% CI 0.1-12.8) at the primary endpoint of 8-weeks. WOMAC subscales of pain and functionality, as well as the visual analog pain scale also demonstrated significant improvements in the 60-minute doses compared to usual care. No significant differences were seen in range of motion at 8-weeks, and no significant effects were seen in any outcome measure at 24-weeks compared to usual care. A dose-response curve based on WOMAC Global scores shows increasing effect with greater total time of massage, but with a plateau at the 60-minute/week dose.

Conclusion: Given the superior convenience of a once-weekly protocol, cost savings, and consistency with a typical real-world massage protocol, the 60-minute once weekly dose was determined to be optimal, establishing a standard for future trials.

O34

OA09.02. Observation on effects of 10.6µm laser moxibustion in patients with knee osteoarthritis: a double-blind, randomized, controlled study

F Wu¹, L Zhao¹, W Lizhen^{1*}, H Zhang¹, L Lao², X Shen¹

¹Shanghai University of Traditional Chinese Medicine, Shanghai, China; ²University of Maryland School of Medicine, Baltimore, USA

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Purpose: To observe whether 10.6µm laser moxibustion provides greater pain relief, improved joint stiffness and function in comparison with sham laser moxibustion.

Methods: 172 patients with knee osteoarthritis were randomly divided into real and sham laser moxibustion groups, with 10.6µm laser moxibustion and sham laser moxibustion treatment on ST-35 respectively. Patients in both groups received 20 minutes of treatment, thrice a week and 4 weeks in total. Effects of treatment were assessed mainly by changes in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC VA 3.1) before, in the middle (after 2 weeks), at the end (after 4 weeks) and 4 weeks after the end of the treatment. Completion time of 50 yards walking was evaluated as a secondary measurement.

Results: There was no statistical difference in WOMAC pain, stiffness and function scores between the two groups before treatment. Patients in the

real treatment group experienced greater improvement in WOMAC pain, stiffness and function scores in the middle, at the end and 4 weeks after the end of the treatment ($p \leq 0.05$). No significant difference was shown in completion time of 50 yards walking before, in the middle and at the end of the treatment. Patients in the real treatment group were superior to those in the sham group in completion time of 50 yards' walking 4 weeks after the treatment.

Conclusion: Compared with sham treatment, 10.6 μ m laser moxibustion can significantly reduce pain and improve knee joint stiffness and function in patients with knee osteoarthritis.

O35

OA09.03. Stress reduction using massage in cardiac surgery patients

L Braun^{1*}, C Stanguts¹, L Casanella², O Spitzer¹, E Paul¹, N Vardaxis², F Rosenfeldt¹

¹Monash, Melbourne, Australia; ²Endeavour College, Melbourne, Australia
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Purpose: The primary aim of the study was to determine the effects of massage therapy, delivered to post-surgery cardiothoracic patients, on pain, anxiety, relaxation and muscular tension at two different time points and compare it to an equivalent period of rest time. The secondary aims were to explore the effects of massage on heart rate, respiratory rate and blood pressure, feasibility of treatment delivery in a busy ward and staff acceptance of the new therapy and therapists.

Methods: A randomised study conducted at the Alfred hospital compared massage therapy to an equivalent period of rest time. Visual analogue scales measured pain, anxiety, relaxation, muscular tension and satisfaction. Heart rate, respiratory rate and blood pressure were measured pre- and post-treatment by a cardiac nurse. Focus groups, staff and therapist feedback were utilised to collect qualitative data about clinical significance and feasibility of delivering the treatment.

Results: One hundred and fifty-two (99% response rate) patients participated. Compared to rest time, massage therapy produced a significantly greater reduction in pain ($p=0.001$), anxiety ($p<0.0001$), muscular tension ($p=0.002$) and increases in relaxation ($p<0.0001$) and satisfaction ($p=0.016$). No significant differences were seen for heart rate, respiratory rate and blood pressure. The effects at different time points were also compared between the groups. Pain significantly reduced after massage on day 3/4 ($p<0.0001$) and day 5/6 ($p=0.003$) whereas controls experienced no significant change at either time point. At both time points, massage significantly reduced anxiety ($p<0.0001$) and muscular tension ($p<0.0001$). Relaxation significantly improved on day 3/4 for both groups (massage $p<0.0001$; rest time $p=0.006$) but only massage was effective on day 5/6 ($p<0.0001$). Nurses and physiotherapists confirmed patient improvements and helped facilitate delivery of the treatment.

Conclusion: Post-surgery massage therapy significantly improved pain, anxiety, muscular tension and relaxation amongst cardiothoracic surgery patients, was well accepted and feasible to deliver.

O36

OA09.04. NEonatology and Osteopathy (NEO) Study: effect of OMT on preterms' length of stay

F Cerritelli^{1*}, G Pizzolorusso¹, F Ciardelli², E La Mola², C Renzetti², V Cozzolino², G Barlafante²

¹European Institute for Evidence Based Osteopathic Medicine, Pescara, Italy;
²Accademia Italiana Osteopatia Tradizionale, Pescara, Italy
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Purpose: The use of osteopathic manipulative treatment (OMT) in preterm infants has been documented and results from previous studies suggest the association between OMT and length of stay (LOS) reduction, as well as significant improvement in several clinical outcomes. The aim of the present study is to show the effect of OMT on LOS and daily weight gain in a sample of premature infants.

Methods: Randomized controlled trial on preterm newborns admitted in a single NICU between 2008-2009. N=101 subjects free of medical complications and with gestational age >28 and <38 weeks were enrolled and randomized into two groups: study group (N=47) and control group (N=54). All subjects received routine pediatric care and OMT was

performed to the study group for the entire period of hospitalization. Endpoints of the study included differences in LOS and daily weight gain. Statistical analyses were based on univariate tests and multivariate linear regression.

Results: Univariate statistical analysis showed no significant imbalances among treated and control groups in terms of main characteristics measured at admission. At the end of follow-up, OMT was significantly associated with LOS (days) [27.3 ± 17.3 vs 31.5 ± 21.7 , $p=0.03$] and with daily weight gain (grams) [65.1 ± 28.5 vs 58.6 ± 28.8 , $p=0.03$]. After adjusting for all potential confounders, multivariate analysis showed a significant association between OMT and LOS reduction (mean difference between treated and control group: -6.325 ; 95% CI -8.687 , -3.962 ; $p<0.0001$). OMT was not independently associated with any change in daily weight gain.

Conclusion: The present study suggests that OMT plays an important role in the management of preterm infants hospitalization.

O37

OA10.01. The Yoga Dosing Study: comparing once vs. twice per week yoga classes for chronic low back pain in predominantly low income minority populations

R Saper^{1*}, A Boah¹, J Keosai¹, J Weinberg², K Sherman³

¹Boston University School of Medicine, Boston, USA; ²Boston University School of Public Health, Boston, USA; ³Group Health Research Institute, Seattle, USA

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Purpose: Previous studies suggest yoga is effective for mild to moderate chronic low back pain (CLBP) in mostly white higher socioeconomic status (SES) populations. However, little is known regarding yoga's optimal dose or its effectiveness for more severe CLBP in diverse lower SES populations.

Methods: From September-December 2011, we conducted a 12-week RCT comparing once vs. twice-weekly standardized 75-minute hatha yoga classes for 95 adults with nonspecific CLBP. Recruitment and classes occurred in a large safety-net hospital and five affiliated community health centers in Boston, Massachusetts. Primary outcomes were mean low back pain intensity in the previous week (0-10) and back-related function (Modified Roland-Morris Disability, MRMD, 0-23). We used two-sample t-tests to compare once/week vs. twice/week mean change scores (baseline-12 weeks) for pain and MRMD. Analyses used the intention-to-treat principle.

Results: Participants were on average 48 years old, 76% female, 82% non-white, 63% with annual household incomes $\leq \$30,000$, and 35% with high school education or less. Baseline pain intensity (6.9, SD 1.6) and MRMD (13.7, SD 5.0) were consistent with moderate-severe CLBP. Baseline characteristics of the once/week (n=49) and twice/week (n=46) groups were similar. Overall class attendance was 73% and 62% for the once/week and twice/week participants, respectively. Both groups practiced yoga at home on average 3-4 days/week. Each group experienced statistically significant ($p<0.0001$) and clinically meaningful improvements in pain and function: Mean pain change scores for the once/week and twice/week groups were -2.1 (SD 2.7) and -2.4 (SD 2.2), respectively. Mean MRMD change scores for the once/week and twice/week groups were -5.2 (SD 6.5) and -4.9 (SD 4.4), respectively. There were no statistically significant differences between the two groups for pain or MRMD.

Conclusion: Twelve weeks of either once or twice-weekly hatha yoga classes augmented by home practice were similarly effective for moderate to severe CLBP in a diverse predominantly lower SES population.

O38

OA10.02. Yoga for women with breast cancer undergoing radiotherapy (XRT): a randomized clinical trial with an active stretching control group

L Cohen^{1*}, K Chandwani², N Raghuram³, R Haddad¹, G Perkins¹, A Spelman¹, R Nagarathna⁴, K Johnson¹, A Fortier¹, B Arun¹, Q Wei¹, C Kirschbaum⁵, H Nagendra⁴

¹The University of Texas MD Anderson Cancer Center, Houston, USA; ²Swami Vivekananda Yoga Research Foundation, Bangalore, India; ³Vivekananda Yoga University, Bangalore, India; ⁴Vivekananda Yoga Research Foundation, Bangalore, India; ⁵Technical University of Dresden, Dresden, Germany
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Purpose: We examined the effects of yoga on buffering changes in QOL and cortisol slope in women with breast cancer undergoing (XRT).

Methods: Patients with stage 0-III disease were recruited prior to XRT (baseline) and randomized to one of three groups: Yoga (YG-n=53) or Stretching program (STR-n=56) 3 times a week for 6 weeks during XRT or Waitlist Control (WLC-n=54). Self-report measures of fatigue (BF), depression (CESD), QOL (SF-36), benefit finding (BF), and spirituality (FACT-SP) were completed and saliva collected at baseline, end of treatment, and 1, 3, and 6 months later. We examined change from baseline for questionnaires and slope analyses for cortisol.

Results: By the end of XRT, the YG and STR groups had a reduction in fatigue while the WLC had an increase (YG: -0.23, STR: -0.45, WLC: 0.52; $p < .05$). At 1, 3, and 6 months after XRT, the YG group had greater increases in SF-36 physical functioning compared to both STR and WLC (1 month: 5.8, 2.0, 0.8; 3 months: 6.5, 3.4, -0.2; 6 months: 6.1, 3.4, 1.1; $p < .05$). The outcomes were similar for SF-36 general health scores. By 3 and 6 months after XRT, there were significant increases in BF for the YG group (3 months: 3.0, -2.6, -2.5; 6 months: 1.1; -3.9, -4.7; $p < .05$). There were no differences for spirituality and depression. Cortisol slope was steepest for the YG group compared to the STR and WLC groups (end of XRT: -0.10, -0.08, -0.08; 1 month: -0.10, -0.09, -0.06; $p < .01$).

Conclusion: Yoga buffered changes associated with XRT in terms of fatigue, QOL and benefit finding, and resulted in steeper cortisol slopes, while stretching resulted in only modest benefits. This is the first yoga study in oncology to include an active control group, suggesting that the benefits of yoga are due to more than simple stretching or other indirect effects.

O39

OA10.03. Improved activity, participation, and quality of life for individuals with chronic stroke following an 8-week yoga intervention

M Van Puymbroeck¹, A Schmid², K Miller², N Schalk³

¹Indiana University, Bloomington, USA; ²Roudebush VAMC/ Indiana University, Indianapolis, USA; ³Heartland Yoga, Indianapolis, USA

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Purpose: The purpose of this study was to determine if participation in an 8-week yoga program improved activity, participation, and quality of life in individuals with chronic stroke.

Methods: For this pilot study, individuals were randomized 3:1 into the experimental group or wait list control. Forty-seven individuals were recruited into the study, with 37 individuals randomized to the yoga arm, and 10 randomized into the control group. Twenty-nine individuals completed the yoga intervention (22% attrition). The yoga intervention occurred twice per week for 1 hour each session, and was designed for individuals with chronic stroke (>6 months post event). All yoga classes were led by a registered yoga therapist. To measure activity and participation, the ICF Measure of Participation and Activity (IMPACT) subscales were utilized (lower scores indicate higher activity or participation). To measure quality of life, the Stroke Survivor Quality of Life (SSQOL) scale was utilized. Paired t-tests were utilized to compare the baseline and 8-week scores on each of the measures for both groups.

Results: The mean age of the participants was 64, most were male (76%), married (47%), white (63%), and had some college education (42%). For individuals in the yoga group (n=29), activity improved (t=2.45, p=.02), participation improved (t=2.10, p=.045), and quality of life improved (t=-2.187, p=.04). For those in the control group (n=9), activity, participation, and quality of life did not statistically significantly improve over the 8-week period.

Conclusion: The 8-week yoga intervention for individuals with chronic stroke resulted in improved activity, participation, and quality of life; while those in the control group did not see improvements in these areas. These findings support future research in these areas to determine the mechanisms from yoga that improved activity, participation, and quality of life for individuals with chronic stroke.

O40

OA10.04. Effectiveness of integrated yoga therapy in treatment of chronic migraine: randomized controlled trial

P Sharma^{1*}, N Sharma²

¹NMP Medical Research Institute, Jaipur, India; ²Brett Research (UK), London, United Kingdom

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Purpose: The present study was undertaken to evaluate whether an integrated yoga therapy program helps in reducing pain measures and depression in chronic migraine patients.

Methods: To test the effectiveness of an integrated yoga therapy program for chronic migraine treatment in a low cost, nonclinical setting, a prospective, randomized, controlled trial was conducted in Jaipur, India. Subjects aged 18 to 65 years with 15 or more headache days per month, at least half of which were migraine/migrainous headaches, were randomized 1:1 to either yoga therapy or standard management. Seventy men and women were randomly assigned. The intervention group went through individualized yoga treatment for 12-weeks with 4 consecutive therapeutic sessions a week. Each therapy session lasting for about 60 minutes focusing on strengthening, relaxation, releasing muscular tension and increasing self-efficacy. The control group consisted of standard care with the patient's physician. Outcome measures included self-perceived pain intensity, frequency, and duration; functional status; depression; prescription and nonprescription medication use. Outcomes were measured at the end of the 12-week intervention and at a 6-month follow-up.

Results: Thirty-one of 35 patients from the intervention group and all 35 patients from the control group completed the study. There were no statistically significant differences between the two groups before the intervention. Intention to treat analysis revealed that the intervention group experienced statistically significant changes in self-perceived pain frequency (p<.001), pain intensity (p=.001), pain duration (p<.001), functional status (p<.001), medication used (p<.01) and depression (p<.001); these differences retained their significance at the 6-month follow-up.

Conclusion: Positive health related outcomes in chronic migraine can be obtained with a low cost, group, integrated yoga in a community based nonclinical setting.

O41

OA11.01. Integrative care for the management of low back pain: design of a clinical care pathway

M Maiers¹, K Westrom, C Legendre, G Bronfort

Northwestern Health Sciences University, Bloomington, USA

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Purpose: For the treatment of chronic back pain, it has been theorized that integrative care plans can lead to better outcomes than those achieved by monodisciplinary care alone, especially when using a collaborative, interdisciplinary, and non-hierarchical team approach. This paper describes the development and implementation of a care pathway designed to guide treatment by an integrative group of providers within a randomized controlled trial.

Methods: A clinical care pathway was used by a multidisciplinary group of providers, which included acupuncturists, chiropractors, cognitive behavioral therapists, exercise therapists, and primary care physicians. Treatment recommendations were based on an evidence-informed practice model, and reached by group consensus. Research study participants were empowered to select one of the treatment recommendations proposed by the integrative group. Common principles and benchmarks were established to guide treatment management throughout the study.

Results: Thirteen providers representing 5 healthcare professions collaborated to provide integrative care to study participants. On average, 3 to 4 treatment plans, each consisting of 2 to 3 modalities, were recommended to study participants. Exercise, massage, and acupuncture were both most commonly recommended by the team and selected by study participants. Over one-third of treatment plans were re-evaluated over the course of care by the integrative team; changes most commonly incorporated cognitive behavioral therapy to care.

Conclusion: The integrative care pathway designed for this trial proved to be an essential mechanism to operationalize care, allowing team members and patients to consistently and effectively apply treatment plans. The pragmatic design of this research study required a high level of communication and flexibility between participants, providers, case managers, and project managers. Clinical care pathways can be useful tools in providing evidence-based treatment, especially in the context of multidisciplinary or integrative care settings.

O42

OA11.02. A model of integrative care for low back pain

D Eisenberg^{1*}, J Buring¹, A Hrbek², R Davis³, M Connelly¹, D Cherkin⁴, D Levy², M Cunningham², B O'Connor⁵, D Post²

¹Harvard Medical School, Chestnut Hill, USA; ²Brigham and Women's Hospital, Boston, USA; ³Beth Israel Deaconess Medical Center, Boston, USA; ⁴Group Health Research Institute, Seattle, USA; ⁵Brown University, Providence, USA

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Purpose: While previous studies focused on the effectiveness of individual complementary and alternative medical (CAM) therapies, the value of providing patients access to an integrated program involving multiple CAM and conventional therapies remains unknown. Our objective is to explore the feasibility and effects of a model of multidisciplinary integrative care for subacute low back pain (LBP) in an academic teaching hospital.

Methods: Study design was a pilot randomized trial comparing an individualized program of integrative care (IC) plus usual care to usual care (UC) alone for adults with LBP. Twenty individuals with LBP of 3-12 weeks duration were recruited from an occupational health clinic and community health center. Participants were randomized to 12 weeks of individualized IC plus usual care vs UC alone. Integrative care was provided by a trained multidisciplinary team offering CAM therapies and conventional medical care. Outcome measures were symptoms (pain, bothersomeness), functional status (Roland-Morris score), SF-12, worry, and difficulty performing 3 self-selected activities.

Results: Over 12 weeks, participants in the IC group had a median of 12.0 visits (range 5-25). IC participants experienced significantly greater improvements at 12 weeks than those receiving UC alone in symptom bothersomeness ($p=0.02$) and pain ($p=0.005$), and showed greater improvement in functional status ($p=0.08$). Rates of improvement were greater for patients in IC than UC in functional status ($p=0.02$), bothersomeness ($p=0.002$), and pain scores ($p=0.001$). Secondary outcomes of self-selected most challenging activity, worry and the SF-12 also showed improvement in the IC group at 12 weeks. These differences persisted at 26 weeks, but were no longer statistically significant.

Conclusion: It was feasible for a multidisciplinary, outpatient integrative care team to deliver coordinated, individualized intervention to patients with subacute LBP. Results showed a promising trend for benefit of treating patients with persistent LBP with this integrative care model, and warrant evaluation in a full-scale study.

O43

OA11.03. Mediators of the effects of yoga and stretching on chronic low back pain (cLBP) outcomes: results from the YES RCT

K Sherman¹, R Wellman, A Cook, D Cherkin
Group Health Research Institute, Seattle, USA

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Purpose: We previously reported that yoga and intensive stretching had equivalent benefits for persons with chronic back pain and both were superior to self care. As part of this trial, we explored whether physical, cognitive, affective and physiological factors mediated the effects of yoga on patient outcomes.

Methods: 228 persons with non-specific cLBP recruited from primary care and the general community were randomized to 12 weekly 75-minute classes of either yoga or intensive stretching, or to a self-care book. Back-related function (Roland-Morris Disability Scale), symptoms (0-10 score) and psychological mediators (fear avoidance, body awareness, self-efficacy, psychological distress, perceived stress, positive affect) were assessed at baseline and 6, 12, and 26 weeks later by blinded interviewers. Physical function was assessed at baseline and 12 weeks and saliva samples were collected for cortisol and DHEA analyses at baseline, 6 and 12 weeks. Open-ended questions were asked about benefits of yoga and stretching. Statistical analyses for mediators were conducted using the framework of Baron and Kenney.

Results: 95% of participants responded to at least one follow-up interview. Of the potential mediators, only self-efficacy decreased significantly from baseline to 6 weeks for both interventions ($p=0.0015$ and 0.0129). Cortisol awakening response was marginally significant for yoga ($p=0.08$). For yoga,

18% of the effect was mediated by increased self-efficacy, 8% by cortisol awakening response, and 21% by any of the mediators. For exercise, 8% of stretching was mediated by self-efficacy. In response to open-ended questions about benefits, >20% of participants mentioned: learning new exercises (both groups); relaxation, increased awareness and the benefits of breathing (yoga), and benefits of regular practice (stretching).

Conclusion: While both interventions were superior to self-care, our mediator analysis showed these benefits were not well explained by our measured "mediators". Qualitative data suggest that yoga and stretching may exert comparable benefits through partially distinct mechanisms.

O44

OA11.04. Psychosocial outcomes from the chiropractic and integrative care low back pain randomized clinical trial

K Westrom¹, G Bronfort, R Evans, M Maiers
Northwestern Health Sciences University, Bloomington, USA

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Purpose: Evidence to date suggests there is no one treatment approach which is clearly superior for low back pain (LBP). It is plausible that combining treatments with small to moderate effect sizes will improve patient outcomes. Additional benefit might also be achieved by individualizing treatment plans according to patient presentation, for example, by addressing psychosocial factors. Our objective was to assess the relative clinical effectiveness of: 1) mono-disciplinary chiropractic care versus 2) multi-disciplinary integrative care for LBP, within the context of defined clinical care pathways.

Methods: Adult patients with LBP rated 3 or greater (0-10) for at least 6 weeks were randomized to one of two care teams for 12 weeks of treatment. Integrative multi-disciplinary care included acupuncture and Oriental medicine, cognitive behavioral therapy, exercise, massage, chiropractic and/or medicine. Mono-disciplinary care consisted of chiropractic alone. After randomization, psychosocial measures were used to guide treatment suggestions. The primary outcome was self-rated pain. The secondary outcomes discussed here are: fear avoidance, quality of life, self-efficacy, kinesiophobia and passive and active coping.

Results: A total of 201 participants were randomized. There were no significant between-group differences in kinesiophobia, fear avoidance beliefs and self efficacy at any time point. Patients randomized to mono-disciplinary chiropractic care were more likely to report passive coping at week 12 compared to the integrative group. At week 52, patients in integrative care rated quality of life significantly better than the mono-disciplinary group.

Conclusion: Multi-disciplinary integrative care did not yield significant changes in self-rated psychosocial measures compared to mono-disciplinary chiropractic care alone. Although at one year patients from the integrative group rated quality of life significantly higher, it is important to consider this in the context of utilization. Upcoming cost effectiveness data analysis will aid in the interpretation of these results.

O45

OA12.01. Analysis of FDA mandated dietary supplement adverse event reports (AER) 2008-2009

M Hardy^{1*}, S Stumpf¹, M Zimmerman², C Carr¹

¹Simms/Mann-UCLA Center for Integrative Oncology, Los Angeles, USA; ²American Herbal Products Association, Washington D.C., USA

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Purpose: Safety of dietary supplements has been an area of concern for regulators, the health care community and consumers. The ability of the FDA to assess validity of these concerns has been hampered by small numbers of voluntary AE reports. In 2006 Congress mandated all serious adverse events be reported by dietary supplement manufacturers. We present the first systematic analysis of the initial two years of reports.

Methods: We obtained AER's for 2008 and 2009 from the FDA ($n=2,288$). Data were abstracted by a single reviewer, confirmed by at least one other, entered into a standard excel sheet, and analyzed using SPSS. Non-parametric tests of significance were also applied.

Results: In preliminary results, manufacturers accounted for 57.8% of all reports, consumers 29.6% and health care professionals 9.7%. 61.8% of subjects were female. The most commonly reported dietary ingredients

were combination products (33.5%), vitamin/mineral (19%), and plant or isolated plant constituent (15.8%). 297 reports included multiple products. Fifty-five percent of reports included the label or label information. The most common adverse outcome was hospitalization (750, 32.8%). Thirty-one deaths were reported (1.4% total reports), 56 episodes of disability (2.4%), 233 life-threatening complications (10.2%), and 943 other serious adverse events (41.2%). A detailed assessment of deaths, hospitalizations and life threatening complications will be presented. No single product type or ingredient was significantly associated with death. Attempts to apply the WHO-UMC causality assessment system yielded limited results and would be improved with the collection of more sufficient data. A cluster of serious adverse events involving a single exercise enhancement product was identified.

Conclusion: Mandated reporting has increased manufacturer reports but missing data limits analysis. Preliminary results do not suggest a wide spread problem with dietary supplement safety. This analysis did identify a cluster of cases representing a potential public health concern. Directions for future research will be discussed.

O46

OA12.02. CAM utilization among underserved patients in a safety-net hospital

P Gardiner

Boston Medical Center, Boston, USA

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Purpose: Little is known about the relationship between complementary and alternative medicine (CAM) usage and factors associated with underserved patients, such as health literacy, homelessness, alcohol and drug use, and high depression status.

Methods: This is a secondary database analysis of the Project RED dataset (N=623) identifying the sociodemographic characteristics as well as underserved patient factors associated with CAM use. We used descriptive statistics, bivariate, and multivariate logistic regression. We used multivariate logistic regression models for each outcome (any CAM use, CAM provider delivered therapies, and relaxation practices), testing the association with independent variables associated with underserved patients.

Results: In this underserved population (N=623), CAM use was reported by 51% of the non-Hispanic blacks, 40% of Hispanics, and 53% of the non-Hispanic whites. Twenty-seven percent used any relaxation techniques, and 28% used any practitioner delivered therapy. In this sample, individuals with a higher health literacy (> 9th grade) were approximately three times [odds ratio 2.97, confidence interval (1.82, 4.86)] more likely to use relaxation techniques compared to those with a lower health literacy. Those who used illegal drugs were more likely to use any CAM [odds ratio = 1.81 (1.14-2.88)] and relaxation techniques [odds ratio = 2.61 (1.56-4.38)]. Those with mild depression were three times [odds ratio = 2.86 (1.19, 6.83)] more likely to use only relaxation techniques compared to those with no depression.

Conclusion: It is important for providers to recognize that underserved patients utilized CAM and more research is needed to understand the patterns of CAM use in relation to access to care.

O47

OA12.03. Integrative medicine at academic health centers: a survey of clinicians' educational backgrounds and practices

G Ehrlich*, T Callender, B Gaster

University of Washington, Seattle, USA

BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:O47

Purpose: Integrative medicine is a relatively new field which seeks to combine a wide range of conventional and nonconventional approaches to patient care. Many academic health centers have now established integrative medicine clinics, yet little is known about the clinicians who practice at them.

Methods: We conducted a nationwide survey of clinicians (MD's, DO's, PA's, and nurse practitioners) who practice at integrative medicine clinics which are affiliated with academic health centers, seeking to characterize

their educational backgrounds, clinical practices, and participation in research and education activities.

Results: We received completed surveys from 136 of 162 clinicians (84% response rate). The integrative therapies that clinicians most often reported providing themselves were breathing exercises (66%), herbal medicine prescribing (61%), meditation (44%), and functional medicine (34%). The integrative therapies that clinicians most often referred their patients for were acupuncture (96%), massage (92%), yoga (85%), and meditation (79%). Respondents reported spending a mean of 20% of their time training medical students, and 63% had participated in research in the past year.

Conclusion: This survey provides the first national assessment of clinicians practicing integrative medicine at academic health centers. These clinicians employ a wide variety of complementary and alternative therapies and appear involved in the research and education missions of their academic health centers.

O48

OA12.04. The role of mind-body awareness in complementary and alternative medicine (CAM) outcomes

F Sirois^{1*}, C Bann², E Walsh²

¹Bishop's University, Sherbrooke, Canada; ²RTI International, Research Triangle Park, USA

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Purpose: Body awareness - attending to, and identifying the inner sensations and overall state of the body and its changes in response to emotional and environmental shifts - is often viewed as an outcome of CAM use. Emerging evidence suggests that mind-body awareness may be an intermediate outcome that contributes to CAM-related outcomes. Qualitative and quantitative work indicate that provider empowerment and support may facilitate the development of mind-body awareness associated with CAM use. Consistent with a whole systems research perspective, the aim of the current study was to test a model of mind-body awareness as an intermediate outcome of CAM use via provider autonomy support that facilitates improvements in self-reported symptoms and health behavior changes.

Methods: A sample of 243 undergraduate students (mean age = 23.5, 84% female) screened for current use of CAM completed a survey including questions about their CAM use, perceived health-related outcomes from their use of CAM, a measure of CAM provider autonomy support, and a new 8-item measure of Mind-body Awareness (MBA).

Results: Bivariate analyses confirmed the associations among MBA, autonomy support, CAM use and positive CAM-related health behavior (diet, weight loss, exercise) and symptom (sleep quality, mood, energy levels, concentration) changes. Path analysis controlling for demographics tested the proposed model of CAM use predicting provider autonomy support, which in turn predicts MBA and the two CAM-related outcomes. The model fit well to the data, CFI = 0.96, TLI = 0.93, RMSEA = .03, supporting the hypotheses that CAM use enhances MBA via increased autonomy support, and MBA contributes to positive symptom and health behavior changes from CAM use.

Conclusion: Our findings extend previous research on body awareness by linking it to CAM-related symptom and behavioral outcomes in a sample of young adult CAM consumers, and further suggest a route through which provider support may enhance CAM outcomes.

O49

OA13.01. Mind-Body Medicine Skills training for self-care and emotional well-being in medical students

M Dutton*, A Prashar, G Romero, J Talley, H Amri, A Haramati, N Harazduk

Georgetown University Medical Center, Washington, D.C., USA

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Purpose: The purpose of this study was to examine the effect of a Mind-Body Medicine program for enhancing self-care and well-being among first year medical students. Depression and anxiety are common among medical students (West et al, 2011) and physicians (Krasner et al, 2009). Further, distress among medical students is associated with poor patient

care (Dyrbye et al, 2010; Krasner et al, 2009). Thus, prevention and self-care have become central to medical education. One approach to developing self-care competencies among medical students is through enhancing mind-body skills. At the GUMC, these skills are taught in a Mind-Body Skills (MBMS) program. The 11-week MBMS program includes teaching of self-awareness, relaxation, meditation, guided imagery, biofeedback, physical exercise, art, music and movement. The program promotes self-care within a context of group support.

Methods: First-year medical students, 34 females and 25 males, from a class of 192 students elected the MBMS and were administered pre- and post-test assessment questionnaires measuring depression and anxiety (BSI; Derogatis, 1983), physical health symptoms (Wahler, 1983) and mindfulness (5FMS; Baer, 2006).

Results: Bonferroni-corrected results show significant improvements in students' pre-post levels of depression ($M=.78$ vs. $.58$, $SD=.86$ and $.73$, respectively; $t=3.08$, $p<.003$) and anxiety ($M=40.95$ vs. 33.17 , $SD=10.97$ and $SD=9.32$, respectively; $t=6.46$, $df=58$, $p<.001$) with a trend for physical health ($M=23.54$ vs. 19.98 , $SD=14.00$ and 15.37 , respectively; $t=2.20$, $p<.03$). Mindfulness skills also increased ($M=121.05$ vs. 132.68 , $SD=16.48$ and 18.31 , respectively). Controlling for baseline levels, increases in mindfulness skills predicted post-test levels of depression and anxiety, accounting for an additional 10% and 12% of the variance.

Conclusion: The GUMC MBMS course for medical students can lay a foundation for prevention of stress often experienced by medical professionals (Krasner, 2009). Specifically, MBMS was associated with reduction in distress, and change in mindfulness skills appear to account, in part, for improvements in depression and anxiety.

O50

OA13.02. Utilizing mind-body practices in public schools: teaching self-regulation skills and fostering resilience in our next generation

M Sprengel¹, M Fritts

Samueli Institute, Alexandria, USA

BMC Complementary and Alternative Medicine 2012, 12(Suppl 1):O50

Purpose: Due to multiple and increasing stressors including large classroom sizes, increased educational requirements and decreased personal attention, children in public schools are at a greater risk than ever of developing behavioral, anxiety and stress-related disorders. These problems have contributed to poor test scores and academic performance, as well as decreased high school graduation rates. The drop-out rate among U.S. students was 9.1% in 2009 and is approaching 50% in urban high schools. To remedy these problems, public school systems needs to provide their schools with more effective tools for coping with academic and social pressures. While the physical and mental benefits of mind-body practices are well-established in adult populations, comparatively little research exists on the potential benefits of these self-management skills in children, especially in urban areas. To begin to address this knowledge gap, we reviewed the published literature on mind-body practices in children.

Methods: This review was performed in conjunction with a W.K. Kellogg Foundation funded project in which we are developing a framework for community wellness and resilience focusing on vulnerable children in underserved communities. This effort includes high-level linkages to national health policy (via active collaboration with the U.S. Surgeon General and the National Prevention Strategy). We searched five databases (PubMed, Medline, CINAHL, PsycInfo and EBSCO) for studies that used a mind-body therapy intervention, included children (ages 2 to 18), and were written in English.

Results: 17 articles met our inclusion criteria. The mind-body interventions studied included the Relaxation Response Training, Transcendental Meditation, HeartSmarts[®]/HeartMath Program, Mindfulness-Based Stress Reduction (MBSR), and miscellaneous yoga, meditation and mind-body interventions.

Conclusion: School and classroom oriented programs that incorporate mind-body practices have demonstrated positive outcomes for well-being, resilience, academic performance, test scores, individual self-perception, self-regulation of negative behaviors, anxiety, stress, Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder, insomnia, anger/aggressive behaviors, and chronic pain conditions.

O51

OA13.03. Promoting safe and integrated maternity care through interprofessional education

A Steel^{1*}, H Diezel², D Sibbritt³, J Adams¹

¹University of Technology, Sydney and Brisbane, Australia; ²Embrace Holistic Services, Brisbane, Australia; ³University of Newcastle, Newcastle, Australia

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Purpose: A majority of women use complementary and alternative medicine (CAM) during pregnancy yet many are not under the care of a qualified CAM practitioner nor inform their primary healthcare clinician of their CAM use. Most conventional maternity carers do not receive training in CAM as part of their formal education and many CAM practitioners do not gain training in order to collaborate effectively with practitioners within the conventional system. Inter-professional education (IPE) is an approach which has been utilised as a tool to promote collaborative practice. However, IPE programs encompassing CAM practitioners and midwives are comparatively scarce. The aim of this study is to evaluate whether participation in an IPE program impacts upon the perceptions and practice behaviours of maternity care providers (midwives and CAM practitioners).

Methods: Midwives and CAM practitioners participated in discrete workshops designed to promote a shared understanding and develop network, referral and collaboration pathways. The impact of the workshop on the perceptions and practice behaviours of the participants was evaluated using a 3 stage questionnaire: pre-workshop, post-workshop and 3 month follow-up questionnaire.

Results: Questionnaires were completed by 147 midwives and 30 CAM practitioners. Preliminary analysis identified an improvement in midwives' perceptions of self-proficiency with regard to CAM particularly with regards to perceived knowledge of CAM (+1.44, $p<0.0001$) and ability to answer general questions about safety (+1.45, $p<0.0001$) and effectiveness (+1.40, $p<0.0001$) of CAM in pregnancy. Final analysis will explore changes in practice behaviours of both midwives and CAM practitioners in the 3 months after completing the IPE workshop

Conclusion: This study shows IPE may be an effective education tool for midwives and CAM practitioners improving participants' competence when caring for women choosing to integrate CAM and conventional maternity care during their pregnancy and birth. Further research on the issue of IPE for maternity care providers is suggested.

O52

OA13.04. Physical health benefits of health Qigong and Energize programs in American elementary school classrooms

C Wang^{1*}, D Seo¹, R Geib², N Wroblewski³, M Van Puymbroeck¹, L Kolbe¹

¹Indiana University Bloomington, Bloomington, USA; ²Indiana University School of Medicine, Terre Haute, USA; ³Monroe County YMCA, Bloomington, USA

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Purpose: With the increasing use of complementary and alternative medicine, mind-body exercises (i.e., Tai Chi, Yoga, and Qigong) have become more popular in the United States. In particular, numerous recent investigations have suggested the positive benefits of Qigong for cardiovascular fitness, musculoskeletal conditions, and stress. However, such research is largely limited to adults and the elderly. Few studies have explored the benefits of Qigong in the pediatric population. Thus, the purpose of this study is to investigate: (1) whether Health Qigong is effective, and (2) how effective it is compared with conventional exercise among elementary school children.

Methods: A pre- and post-test quasi-experimental design was used to assess the effects of three different modes of exercise: (1) aerobic exercise (Energize), (2) mind-body exercise (Health Qigong), and (3) conventional physical education (PE) activities, in terms of improving health during a 16-week intervention, as measured by Heart Rate (HR), Sit-and-Reach (SR), and Body Mass Index (BMI) in children.

Results: One hundred and five children provided valid data from two elementary schools in Southern Indiana. Of the 105 students, 57 (35.2%) were boys. The average age was 9 years old. The repeated measures

analyses of variance revealed a significant decrease in HR ($F=70.54$, $p<.001$, $\eta^2=.409$), SR ($F=11.68$, $p<.001$, $\eta^2=.103$), and BMI ($F=41.97$, $p<.001$, $\eta^2=.292$). In particular, BMI decreased more quickly from the Health Qigong group, with a mean change of 0.698 ($p<.001$), than the Energize (0.197, $p<.05$) and the PE group (0.224, $p<.05$).

Conclusion: Health Qigong can be as effective as aerobic exercise and physical education activities in reducing HR and increasing SR among elementary school children. Given the significant reduction in BMI, Health Qigong should be further investigated on a possible mechanism to help lose body weight.

O53

OA14.01. Relaxation-induced anxiety: predictors and subjective explanations among young adults

C Luberto¹, S Cotton, A McLeish

University of Cincinnati, Cincinnati, USA

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Purpose: Relaxation is used to treat multiple physical and mental health conditions. However, with 17% to 53% of adults reporting relaxation-induced anxiety (RIA), relaxation treatments may not be suitable for all individuals. Indeed, RIA is associated with poor treatment outcomes (e.g., increased panic attack frequency). Therefore, understanding the characteristics of and reasons for the fear of relaxation will help determine how to administer relaxation treatments safely and appropriately. This study used a mixed methods approach to examine predictors and explanations for RIA.

Methods: Participants were 300 undergraduate students (mean age=21.25; 73% female; 83% white) who completed self-report measures assessing their health and emotions. RIA was measured using a single dichotomous item, "Do you ever feel anxious when doing relaxing activities like yoga, meditation, or getting a massage?" (Y/N). Those who reported 'yes' were asked, "What about these activities makes you anxious?" (open-ended). Chi-square and t-tests were used to compare demographic variables and self-reported history of medical and psychiatric problems between those who did and did not endorse RIA. Multivariable binary logistic regression was used to model the effects of significant ($p<.05$) clinical and demographic variables. Qualitative responses were examined for explanatory themes.

Results: Approximately 15% ($n=46$) of individuals reported RIA. RIA was associated with a self-reported history of asthma, insomnia, depressive symptoms, social anxiety, and generalized anxiety ($\chi^2(1)=5.17$ to 20.71, $p<.05$ to $p<.001$), but not with demographic variables. In multivariable analyses, asthma ($OR=2.38$, $p<.05$) and generalized anxiety ($OR=4.09$, $p<.05$) remained significant predictors. Reported themes regarding reasons for RIA included restlessness, boredom, embarrassment, unwanted cognitive activity, and worry regarding the ability to relax (e.g., "I should feel calm but I don't"). Findings suggest that a self-reported history of asthma and anxiety, particularly generalized anxiety disorder, are associated with adverse reactions to relaxation. Worries regarding the relaxation procedure itself should be addressed prior to administering treatment.

Conclusion: A self-reported history of asthma and anxiety, particularly generalized anxiety disorder, are associated with adverse reactions to relaxation. Worries regarding the relaxation procedure itself should be addressed prior to administering treatment.

O54

OA14.02. Exploration of body awareness and pain and emotion regulation among yoga and meditation practitioners: does type of mind-body practice matter?

J Daubenmier¹, W Mehling¹, C Price^{2*}, E Bartmess-Levasseur¹, M Acree¹, A Stewart¹

¹University of California, San Francisco, San Francisco, USA; ²University of Washington, Seattle, USA

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Purpose: Yoga and meditation are mind-body therapies that are effective for managing pain and negative emotions. Body awareness is a key component of these therapies and may be an important mechanism of

action. It is unknown whether differences exist between yoga and meditation practitioners in body awareness and pain and emotion regulation. We explored these questions: do yoga and meditation practitioners differ in degree of body awareness and ability to regulate pain and negative affect? Is body awareness more strongly related to pain and emotional regulation outcomes among yoga or meditation practitioners?

Methods: We used a convenience sample of yoga ($N=88$) and meditation practitioners ($N=112$) participating in a study to develop the Multi-Dimensional Assessment of Interoceptive Awareness Instrument (MAIA). We compared mean scores of yoga practitioners and meditators along eight dimensions of body awareness using the MAIA: Noticing, Distracting, Worrying, Attention Regulation, Emotional Awareness, Self-Regulation, Body Listening, and Trusting, and measures of pain and emotion regulation: Pain Catastrophizing Scale (3 subscales), Anxiety Sensitivity Inventory (2 subscales), and Difficulties in Emotion Regulation Scale (6 subscales). Within each group, we examined correlations between MAIA subscales and pain and emotional regulation measures.

Results: Yoga practitioners reported significantly higher levels of Noticing, Emotional Awareness, Trust, and more Worrying. Yoga practitioners reported significantly higher levels of Noticing, Emotional Awareness, Trust, and more Worrying. Groups did not differ in pain or emotion regulation. In each group, greater body awareness was significantly associated with less pain catastrophizing, less fear of symptoms associated with arousal, and less difficulty managing negative emotions. The pattern of correlations between MAIA subscales and pain and emotion regulation subscales did not differ substantially between meditation and yoga practitioners.

Conclusion: Although meditators reported lower levels of specific aspects of body awareness, body awareness cultivated in either meditation or yoga may improve pain management and emotion regulation.

O55

OA14.03. Effects of yoga on sleep, mood, and related outcomes in older women with Restless Legs Syndrome: a nested randomized controlled trial (RCT)

K Innes^{1*}, T Selve¹, G Alexander², C Bourguignon³, A Taylor³, I Hinton³

¹West Virginia University, Morgantown, USA; ²Texas Christian University, Dallas, USA; ³University of Virginia, Charlottesville, USA

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Purpose: Restless Leg Syndrome (RLS), a common sleep disorder, has been linked to increased cardiovascular disease (CVD) risk, key components of the metabolic syndrome, and is associated with significant societal and economic burden. Current treatments are often ineffective and can have serious side effects, highlighting the need to investigate promising non-pharmaceutical approaches. In this nested RCT, we examined the effects of a gentle yoga program vs. an educational film program on sleep, mood, perceived stress, blood pressure, and heart rate in women at risk for CVD.

Methods: Participants were drawn from a larger trial regarding the effects of yoga on CVD risk profiles. Seventy-five overweight, sedentary postmenopausal women aged 45-79 years were randomized to receive either an 8-week yoga ($n=38$) or educational film ($n=37$) program. Main outcomes assessed pre- and post-treatment included measures of sleep (Pittsburgh Sleep Quality Index), stress (Perceived Stress Scale), mood (Profile of Mood States, State-Trait Anxiety Scale), blood pressure, and heart rate. Participants completed an RLS screening questionnaire at baseline. Twenty (27%) of the 75 women met standardized diagnostic criteria for RLS ($n=10$ yoga, 10 film group).

Results: At baseline, women with RLS demonstrated significantly poorer sleep quality, higher blood pressure, and greater likelihood of having a history of depression than those without RLS. Among participants with RLS, those assigned to the yoga group demonstrated significantly greater improvement than did controls in sleep quality, perceived stress, mood, anxiety, and blood pressure ($p\leq.05$). Among participants with RLS and insomnia (PSQI>5) at baseline, 86% of the yoga group (6/7) vs. 30% of controls (3/10) had scores in the normal range post-intervention ($p=0.03$). Adjustment for treatment expectancy did not materially alter these findings.

Conclusion: These preliminary findings suggest that yoga may offer a safe, effective intervention for reducing sleep and mood disturbance, perceived stress, anxiety, and blood pressure in women with RLS.

O56

OA14.04. A randomized controlled trial of spinal manipulation, medication or home exercise for acute and subacute neck pain

G Bronfort^{1*}, R Evans¹, A Anderson², K Svendsen¹, Y Bracha³, R Grimm⁴

¹Northwestern Health Sciences University, Bloomington, USA; ²Medical Pain Management, St. Louis Park, USA; ³Cincinnati Children's Hospital, Cincinnati, USA; ⁴Berman Center for Outcomes and Clinical Research, Minneapolis, USA
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Purpose: Mechanical neck pain is a common condition that affects almost three quarters of individuals at some point in their lives. Little research exists to guide the choice of therapy for acute and subacute neck pain. The purpose of this presentation is to present the results of a randomized clinical trial assessing the relative efficacy of spinal manipulation therapy (SMT), medication, and home exercise with advice (HEA) for acute and subacute neck pain.

Methods: A total of 272 persons aged 18 to 65 years with a main complaint of nonspecific neck pain, 2 to 12 weeks duration were randomly assigned to 12 weeks of SMT, medication, or HEA. The primary outcome was participant-rated pain, measured at 2, 4, 8, 12, 26, and 52 weeks after randomization. Secondary measures were self-reported disability, global improvement, medication use, satisfaction, general health status and adverse events.

Results: The SMT group had significantly less pain than the medication group after 8, 12, 26, and 52 weeks; HEA was superior to medication at 26 weeks. There were no differences in pain between SMT and HEA at any point. Results for most of the secondary outcomes were similar to those of the primary outcome.

Conclusion: For individuals with acute and subacute neck pain, SMT was more effective than medication in both the short and long term. However, a few instructional sessions of HEA resulted in similar outcomes at most time points. (ClinicalTrials.gov registration number: NCT00029770)

O57

OA14.05. Hypnosis for hot flashes: results from a randomized clinical trial and future directions

G Elkins¹, W Fisher, A Johnson
Baylor University, Waco, USA

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Purpose: Hot flashes are a significant clinical problem for many women. Currently there are limited options to hormone replacement therapy as non-hormonal pharmacological agents are associated with only modest activity and many adverse side effects. Hypnosis is one mind-body therapy that seems particularly promising for treating hot flashes and was investigated in the present study. This study examined the efficacy of hypnosis in reducing both self-reported and physiologically determined hot flash frequency and severity among post-menopausal women.

Methods: One-hundred and seventy post-menopausal women with moderate to severe hot flashes were randomly assigned to either a 5-session hypnosis intervention or a 5-session structured-attention control condition. All sessions were provided consistent with a treatment manual and all therapists were trained to criteria for consistency and treatment fidelity. Primary outcome measures were self-reported hot flash frequency and severity (determined via daily diaries) and physiologically monitored hot flashes (determined via sternal skin conductance). Physiological assessment of hot flashes were made using 24-hour recordings of sternal skin conductance. Measures were obtained at baseline, at the end of the five weeks intervention, and at 12 week follow-up.

Results: Results demonstrated that hot flash scores (self-report of frequency and severity of hot flashes) for the participants that received the therapist delivered hypnosis intervention decreased by approximately 70% at 5 weeks and continued to decline to approximately 80% at the 12 week follow-up. Physiologically assessed hot flashes demonstrated a 50% reduction at 5 weeks and approximately 60% reduction at 12 weeks for participants in the therapist delivered hypnosis condition.

Conclusion: To our knowledge, this is the first study to demonstrate a clinically significant reduction in physiologically measured hot flashes using a hypnosis intervention. This study has important implications for women experiencing hot flashes who are contraindicated for hormone replacement therapy.

O58

OA15.01. Use of self-care habits among graduates of the HEART program and association with physician burnout

M Dosssett^{1*}, W Kohatsu², W Nunley³, D Mehta⁴, R Davis¹, R Phillips¹, G Yeh¹

¹Beth Israel Deaconess Medical Center, Boston, USA; ²Santa Rosa Family Medicine Residency, Santa Rosa, USA; ³CareOregon, Portland, USA; ⁴Massachusetts General Hospital, Boston, USA

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Purpose: Physician burnout is associated with decreased well-being, loss of empathy, and reduced quality of patient care. Despite high rates of burnout among physician trainees, few studies have explored strategies to address this problem. We examined the skills and habits associated with decreased burnout among physicians who participated in the Humanistic Elective in alternative medicine, Activism, and Reflective Transformation (HEART), an innovative fourth year medical student elective teaching humanism, physician self-care, and integrative medicine.

Methods: We conducted a cross-sectional survey of HEART alumni from 2002-2009, collecting information on demographics, medical training, self-care habits, burnout (Maslach Burnout Inventory), mindfulness (Baer Mindfulness Questionnaire) and experience with the elective, both quantitatively and qualitatively. We used descriptive statistics to characterize the sample, grounded theory to inform the qualitative analyses, and multivariable linear regression to determine which self-care habits were associated with reduced burnout.

Results: Of 168 eligible alumni, 122 (73%), completed the survey. The majority were female (71%), age ≤ 35 (78%), and trained in primary care specialties (67%). Forty-two percent were residents in training. The majority of respondents highly agreed that the elective helped them better cope with stress during residency training (80%), taught them self-care skills (75%), and improved their ability to empathize and connect with patients (71%). Qualitative analysis of the personal and professional impact of the elective identified twelve common themes with self-care, self-discovery, and collegial development/community most frequently cited. Practice of self-care habits was common in this cohort. After adjusting for age, gender, and stage of training the self-care habits most associated with reduced burnout were reflection ($\beta=3.7$, $p=0.02$), social support ($\beta=8.1$, $p=0.003$), and mindfulness (1.5 points/std dev change, $p=0.02$).

Conclusion: The HEART curriculum promotes humanism and self-care skills that may protect against physician burnout. Incorporating aspects of this curriculum more broadly into medical education may improve trainee well-being and patient care.

O59

OA15.02. Quantitative findings from piloting the LEAP project: an online spirituality based depression intervention for young adults

S Moritz^{1*}, J Toews¹, B Rickhi¹, P Paccagnan¹, S Malhotra², C Hart², R Maser², J Cohen²

¹The Canadian Institute of Natural and Integrative Medicine, Calgary, Alberta, Canada; ²Department of Psychiatry, University of Calgary, Calgary, Canada
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Purpose: 1) To pilot the LEAP Project (<http://www.leaproject.com>), an online spirituality based depression intervention for young people aged 13-24. 2) To estimate the impact of the intervention on depression severity.

Methods: This pilot study used a parallel-group randomized controlled assessor-blinded trial design. A total of 46 individuals aged 13-24 with clinically diagnosed unipolar major depression of mild to moderate severity are being recruited in Calgary, Canada and randomized to two study arms: 1. Immediate Intervention Group (eight week online intervention) and 2. Waitlist Control Group (no intervention for 8 weeks followed by the online intervention). Participants were assessed at baseline, 8, 16 and 24 weeks. The main outcome measure (depression severity) was based on the Children Depression Rating Scale (CDRS for participants aged 13 to 18) and the Hamilton Depression Rating Scale (HAM-D for participants aged 19-24).

Results: Preliminary analysis of 30 participants (20 participants aged 13-18, 10 participants aged 19-24) indicates notable changes in depression severity at 8 weeks in the Immediate Intervention Group compared to the Waitlist Control Group. For those aged 13-18 in the Immediate Intervention Group the CDRS score change at 8 weeks was -13.8 compared to -1.8 in

the Waitlist Control Groups ($p=0.044$). Follow-up scores for this group at 16 and 24 weeks show a further reduction in depression severity compared to the baseline score (CDRS score change at 16 weeks: -21.6 and at 24 weeks: -23.3). For those aged 19-24 in the Immediate Intervention Group the HAM-D score change at 8 weeks was -8.8 compared to -3.6 in the Waitlist Control Groups ($p=0.037$); 16 and 24 week follow-up scores suggest that the post intervention score was maintained.

Conclusion: Preliminary results suggest that the LEAP Project can reduce depression severity long term. Data collection is continuing and final results will be available for presentation in May 2012.

O60

OA15.03. Cost savings associated with mindfulness meditation and moderate exercise intervention in the common cold (The MEPARI Study)

D Rakef, B Barrett, M Mundt, L Fortney, T Ewers

University of Wisconsin School of Medicine and Public Health, Madison, USA
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Purpose: Value is defined by improving quality while reducing cost. This study's objective was to evaluate if 8-week mindfulness meditation or exercise programs can result in reduced costs related to Acute Respiratory Infections (ARIs).

Methods: One hundred forty-nine adults ≥ 50 years were recruited from community and randomized into one of three groups: 1) wait-list observation (control), 2) meditation and 3) moderate intensity exercise. Cost associated with ARI incidence and severity was assessed by tracking self-reported medication use, and number of missed-work days and medical clinic visits, with costs per subject calculated based on average cost for generic medications, a missed-work day (\$126.20) and a clinic visit (\$78.70). Monte Carlo bootstrap sampling was used based on the incidence of ARI and computed to 95% confidence intervals (CI) from the sampling distributions.

Results: The mean total cost per subject for the control group was \$214 (95% CI: \$105-\$358), for exercise \$136 (95% CI: \$64-\$232) and for meditation \$65 (95% CI: \$34-\$104). The majority of the cost savings was through a reduction in missed days of work. The exercise group had the highest medication costs per subject at \$16.60 compared to \$5.90 for meditation ($p=.004$) and \$7.20 ($p=.046$) for control. Compared to control, meditation and exercise were associated with a 70% ($p=.010$) and 36% ($p=.334$) lower cost respectively.

Conclusion: Meditation and exercise reduce the burden of ARI and associated costs. Meditation, more than exercise, brings value to health care spending by enhancing quality of health while reducing cost for ARI. Further research is needed to show how integrative medicine therapies can add value to medical spending for other health care needs.

O61

OA15.04. Accelerating the healing of bone fracture using homeopathy: a prospective, randomized double-blind controlled study

S Sharma¹, N Sharma², R Sharma¹

¹NMP Medical Research Institute, Jaipur, India; ²Brett Research (UK), London, UK

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Purpose: In clinical practice, homeopathy is widely used in the fracture-repair process, which accelerates the healing of fractures, enhances callus formation and reduces pain. But there is no anatomical or scientific evidence yet to prove that. Therefore, the current study was undertaken to test the efficacy of homeopathy in bone fracture healing.

Methods: The study was conducted as a double blind randomized controlled study with 67 patients with acute non-displaced lateral malleolar fracture. Patients were recruited from the Emergency Orthopaedic department, SMS Hospital, Jaipur, India during May 2007 to May 2009. Patients were randomized to either a homeopathy treatment ($n=34$) or a control group ($n=33$). All the patients received standard orthopaedic care through 12 weeks following injury. The treatment group received homeopathic medicine on the basis of totality of symptoms and individualisation. Outcome measures include radiological assessments and functional tests for healing. Assessments were taken on 3, 6, 9 and 12 weeks.

Results: Faster healing was reported in the homeopathy group by week 9 following injury, including significant improvement in fracture line ($p<0.0001$), fracture edge ($p<0.0001$), callous formation ($p<0.05$) and fracture union ($p<0.0001$) in comparison to placebo. There was also lower use of analgesics and less self-reported pain in the homeopathy group.

Conclusion: The study suggests that homeopathy could enhance anatomical and functional fracture healing.

O62

OA16.01. Patients, physicians, and CAM providers regard communication as central for integrating conventional and CAM therapies for chronic pain

C Ritenbaugh¹, L Penney¹, L DeBar², D Welch¹, J Schneider², C Catlin², A Firemark², C Elder²

¹University of Arizona, Tucson, USA; ²Kaiser Permanente Center for Health Research, Portland, USA

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Purpose: Interviews were conducted in a large managed care organization (MCO) to explore the integration of community CAM services (acupuncture and chiropractic) with conventional care for chronic pain patients.

Methods: Primary care providers (PCPs) were recruited, stratified on their rates of patient referral to CAM therapies. Acupuncturists and chiropractors were recruited from among those who treated MCO patients, stratified on numbers of MCO patients seen. Patients were recruited from among 11,960 respondents to a questionnaire on use of acupuncture and chiropractic for chronic pain, stratified on patterns of acupuncture and chiropractic use.

Providers (CAM and conventional) participated in individual qualitative interviews. Patients participated in focus groups and individual interviews following similar structured guides. Audio from interviews and focus groups were transcribed, and coded. This poster addresses communication and interaction among PCPs, CAM providers, and patients.

Results: Interviews with 48 individuals and 11 focus groups were conducted between August 2011 and February 2012. The 90 patients were 78% female, average age 67.7 years, 71% white. Providers included 6 chiropractors, 7 acupuncturists, 8 family medicine clinicians, and 15 internists.

Most PCPs expressed frustrations with existing chronic pain treatment and desired more accessible treatment options. However, unknowns surrounding CAM modalities, and little feedback from patients on their responses to CAM therapies, created caution in referring chronic pain patients for CAM treatment. Patients consistently wanted more communication between their PCPs and CAM providers. CAM providers wanted a higher degree of communication or interaction with PCPs, specifically to coordinate care. All those interviewed (PCPs, patients, and CAM providers) wanted more systematic information about the availability and quality of CAM services and practitioners.

Conclusion: Many PCPs are interested in and willing to refer their patients to CAM providers. However, PCPs, patients and CAM providers all identify the lack of communication and interaction as barriers to integrated patient care.

O63

OA16.02. Longitudinal collection of patient-related outcomes in integrative medicine clinics: a pilot study from the BraveNet Practice Based Research Network

J Dusek, D Abrams, BraveNet Practice Based Research Network

Penny George Inst. for Health & Healing, ANW, Allina Health, Minneapolis, USA

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Purpose: To understand the impact of integrative medicine (IM) therapies on patients receiving care at BraveNet practice-based research network (PBRN) via longitudinal collection of patient-reported outcomes. Previously, the BraveNet PBRN conducted a cross-sectional study including over 4,000 patients receiving clinical care at the 9 IM clinics, which comprise the Bravewell Clinical Network and BraveNet PBRN. This effort provided important information about patients receiving care at these IM clinics as well as the type of medical condition and IM treatments patients were receiving.

Methods: The current pilot study extends the prior study by collecting patient-reported outcomes every 6 weeks for 6 months from patients

receiving various types of IM services (including acupuncture, Ayurveda, massage therapy, biofeedback, IM physician consults, and various mind/body practices). Patients are asked to complete demographics, substance use, exercise habits, Perceived Stress Scale, Arizona Integrated Health Outcomes, and Patient Related Outcomes Measurement Information System-29 (which measures physical function, anxiety depression, fatigue, sleep disturbance, social roles, and pain interference/intensity) measures. Questions examining the patients' prior IM history, perceived benefits of IM treatments, and satisfaction with IM clinic are also included. Medical records are reviewed to obtain billing and healthcare utilization information. While electronic questionnaires are completed using the REDCap (Research Electronic Data Capture) system, patients may also complete the questionnaires via paper format.

Results: The Penny George Institute for Health and Healing (Minneapolis, MN) has been successfully piloting this project and 200 participants are enrolled to date. Additional BraveNet PBRN sites are joining the pilot study and expanded results of the entire pilot study will be presented.

Conclusion: Practice-based research and patient-reported outcome measures will be key factors in demonstrating the effectiveness of IM interventions in the treatment of many clinical conditions. Multicenter participation provides increased enrollment and allows for generalizability of results from which future randomized controlled trials may be developed.

O64

OA16.03. Patients seek integrative medicine for preventive approach to health

R Wolever*, BraveNet Practice Based Research Network
Duke Integrative Medicine, Durham, USA

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Purpose: Integrative medicine (IM) has emerged as a new discipline with its own specialty centers, fellowship programs, and certification processes. However, the reasons patients seek IM have not been well characterized in the literature. This is the first large-scale study in IM designed to systematically characterize patients seeking care at IM clinics.

Methods: The BraveNet practice-based research network enrolled 3940 eligible participants who were receiving treatment by a clinician at one of 8 IM clinics. Within 2 weeks of their IM clinic visit, participants provided demographics and lifestyle information, and ranked treatment goals and reasons for seeking care at an IM clinic. Clinicians documented the medical condition treated and services provided. A central database received de-identified data through a secure website. All sites and the coordinating center received IRB approval.

Results: Top-ranked reasons were the desire to: (1) improve health and wellness now to prevent future problems (83.8%); (2) try new options for health care (78.6%); and (3) maximize health regardless of whether or not illness is curable (73.8%). When analyzed separately by sex and patient status (new versus returning), the top 2 reasons remained the same. Fourteen of the 17 most common health condition subgroups reported "the desire to ... prevent future problems" as the most important reason for seeking IM. Additional findings include sociodemographics, medical conditions addressed, lifestyle-related behaviors (including exercise, tobacco and alcohol use, weight), patient goals, and the frequencies of therapeutic services most commonly provided.

Conclusion: Our findings represent an important step in IM research as the first large scale study to characterize patients seen across multiple IM clinics. Patients at IM centers desire to expand the current paradigm of health care, seeking preventive and novel options consistent with those proposed in the current U.S. health care reform effort.

O65

OA16.04. Women's sources of information for CAM use during pregnancy

J Frawley¹, D Sibbritt¹, J Adams², A Steel², J Wardle³, A Broom³, C Lui³, V Murthy¹

¹University of Newcastle, Katoomba, NSW, Australia; ²University of Technology Sydney, Sydney, Australia; ³University of Queensland, Brisbane, Australia

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Purpose: It is well known that women of reproductive age are high consumers of complementary and alternative medicine (CAM) with emerging research highlighting the use of high amounts of CAM in pregnancy. Substantial data exists about the information sources women use for utilising complementary medicines and treatments generally, however little is known about the sources of information used in pregnancy. Various authors have raised concerns about aspects of safety in relation to consuming CAM in pregnancy and it is important to elucidate and understand the resources that women are using to gather this information. The objective of our study was to examine women's information sources when deciding to use CAM in pregnancy.

Methods: We analysed data from the Australian Longitudinal Study of Women's Health (ALSWH). The ALSWH is a longitudinal population-based survey which examines the health of a representative sample of over 40,000 Australian women in 3 age groupings. This study has analysed data from a sub-study of 1740 women from the young cohort. These data were supplemented by a review of the literature from the last 10 years.

Results: Fifty-three percent of women used herbal medicine in pregnancy, whilst only 7.2% visited a herbalist or naturopath; 89.1% consumed vitamins and minerals of which 43.7% self-prescribed these supplements. Women were found to use a variety of sources for information on CAM during pregnancy, namely obstetricians (25.8%) and general practitioners (14.4%), followed by alternative health practitioners (14.3%). Overall, the result for non-professional sources of information (friends, family, internet, magazines etc.) always or sometimes was 61.6% as compared to 61.9% for professional sources.

Conclusion: Women are using a variety of sources of information about CAM in pregnancy. Many of these are of questionable quality. Health care professionals need to be aware of this and check that women are only consuming CAM products that are safe during pregnancy.

POSTER PRESENTATIONS

P1

P01.01. Neural responses to the mechanical characteristics of a spinal manipulation: effect of varying segmental contact site

J Pickar¹, W Reed¹, C Long¹, G Kawchuk²

¹Palmer Center for Chiropractic Research, Davenport, USA; ²University of Alberta, Edmonton, Canada

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Purpose: A goal of our laboratory is to identify mechanisms of action operative during the body-based practice of spinal manipulation. Spinal manipulation can be identified by a number of mechanical characteristics, including but not limited to, contact site, magnitude, rate and direction of thrusting force. Because neural mechanisms are thought to contribute to its clinical effects, we studied spinal manipulation during a series of experiments aimed at identifying mechanical characteristics that affect responses from sensory neurons innervating paraspinal tissues. Presumably, specific parameters related to these characteristics are related to successful clinical outcomes. In this study, we determined the effect of contact site on manipulation-induced neural activity of proprioceptive afferents from lumbar paraspinal muscles.

Methods: In an anesthetized cat preparation, a simulated spinal manipulation [posterior-to-anterior; thrust amplitude = 21.3N (55% of an average cat's body weight of 3.95 kg); thrust duration = 100ms] was delivered to the intact lower lumbar spine (L₆ – S₁) at each of 4 contact sites: L₆ spinous process, left L₆ mammillary process, left L₆ lamina, and L₇ spinous process. Electrophysiological recordings from individual muscle spindle afferents (n=16) innervating the L₆ multifidus and longissimus muscles were obtained from L₆ dorsal rootlets exposed through an L₅ laminectomy. Changes in neural activity during the manipulative thrust were compared between the four contact sites.

Results: All contact sites increased mean spindle activity: L₆ spinous: 85 impulses per second (imp/s) (60, 100; lower, upper 95% CI); L₆ lamina: 104 imp/s (79, 130); L₆ mammillary 80 imp/s (55, 105); and L₇ spinous 43 imp/s (18, 68). Lamina contact produced the largest increase, but only differences between the L₇ spinous and each L₆ contact site were statistically significant.

Conclusion: The data suggest that maximizing sensory input from segmental paraspinal tissues during a spinal manipulation requires specifically contacting that segmental level. In addition, a lamina contact may most effectively create the dynamic mechanical stimulus that evokes the sensory input.

P2

P01.02. Psychophysiological assessment of the impact of mind-body interventions—pilot trial to determine the best assessment methods

R Glick¹, A White, C Greco, B Handen, E Szigethy, J Jennings
University of Pittsburgh School of Medicine, Pittsburgh, USA
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Purpose: This study seeks an inexpensive, non-invasive, and easily reproducible measure of autonomic activity, which could greatly advance mind-body research and treatment. Specific aims of this study were to: explore the utility of selected physiological measures as a gauge of autonomic function; confirm the usefulness of Stroop and Math as stressors; and explore the utility of this testing protocol for changes over time.

Methods: Subjects from three treatment studies were enrolled, assessing the impact of biofeedback, hypnosis, and MBSR. Pre and post treatment testing was conducted using Bionex hardware and software from MindWare Technologies. For one group, recordings were obtained with subjects watching a video-movie and for the other two during Stroop and Math Stressor tasks. Cardiovascular outcomes included Heart Rate Variability (HRV), impedance cardiography, and BP monitoring.

Results: Three representative subjects, 1 from each group, were reviewed. The most consistent findings were an increase in the square root of the mean squared difference of successive RR-intervals (RMSSD) of 13.4%, 12.4%, and 41.7% for these 3 subjects; and decrease in BP by 11.2%, 6.4%, and 4.3% from pre to post recordings, reflecting an increase in parasympathetic and decrease in sympathetic activity following the intervention. High Frequency HRV (HF), Heart Rate, and Finger Pulse Amplitude (FPA) were also useful measures, while Pre-Ejection Period gave inconsistent values. We did not see a clear repeatable pattern of autonomic markers in response to the stressors.

Conclusion: We found RMSSD and BP to be the most useful parasympathetic and sympathetic measures respectively. FPA may serve as an inexpensive continuous proxy for BP. Across these three interventions, we found a shift from pre to post treatment with increased parasympathetic and decreased sympathetic activity. Our stressors yielded inconsistent responses, but the average values over the 30 minute testing period were useful for assessing treatment effect. Psychophysiological testing is potentially of great utility in understanding the mechanism of mind-body interventions.

P3

P01.03. A machine classification measure of meditation ability

A McCollough¹, K Hild, H Wabeh, B Oken
Oregon Health & Science University, Portland, USA
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Purpose: The purpose of the study was to develop an objective measure of meditation quality based on the machine classification of multiple simultaneous physiological recordings.

Methods: We recorded 32-channel EEG, electro-oculogram (EOG), ECG, respiration, and movement from 12 experienced (mean=13.3 years of practice) Zen Buddhist meditators and 12 non-meditator controls under two conditions for each group: listening to an audiotape and either loving-kindness meditation (meditators) or sitting quietly (non-meditators). The data were split into 15 minute audiotape and meditation epochs. Data were further divided into training and classification sets, and the support vector machine (SVM)-light algorithm was trained on data from each subject.

Results: Performance of the SVM classifier is measured as the mean AUC for the receiver operating characteristic on the classification set. Perfect separation is AUC = 1.0, whereas chance classification is AUC = 0.5. The best performing feature set across subjects was the respiration signal, AUC = 0.90. The EEG (based on the 7 common artifact-free channels) and EOG

classification performance had mean AUC values of 0.85 and 0.77, respectively. Frequency domain features analyzed included alpha band (mean AUC 0.54) and scalp EMG (mean AUC of 0.68).

Conclusion: The classifier was able to reliably separate meditating and non-meditating states using the physiological measures. We were also able to construct a preliminary performance hierarchy of response variables: respiration, EEG, EOG, EMG, and alpha power. The probability of classification can be interpreted as a measure of meditation ability by using the trained classifier to predict class membership in novice meditators. In summary, we have demonstrated a proof-of-concept objective measure of meditation quality.

P4

P01.04. Attenuation of neurological dysfunction and brain infarction with a chinese herbal formula in ischemia-reperfusion induced brain injury of mice

F Cheng¹, X Wang, X Zhong, Y Zhao, Y Lu, X Wang, Q Wang
Beijing University of Chinese Medicine, Beijing, China
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Purpose: Stroke is one of the most common diseases in China, especially ischemic stroke. Although there are significant advances in treatment of stroke in Western medicine, traditional Chinese medicine also plays an important role in treatment of patients suffering from acute ischemic stroke in China. One Chinese herbal formulation named Qingkailing solution is derived from an ancient formulation of Angongniuhuangwang and has been documented to reduce ischemic injury of the brain. However, due to significant side effects associated with Qingkailing solution, we reconstituted components of Qingkailing solution and formed a new solution named JZQKL. In the study, we are investigating the effect of different concentrations of JZQKL on ischemia induced brain injury.

Methods: Mice were employed to induce ischemia injury of brain by middle cerebral artery occlusion (MCAO). JZQKL solution was injected into mice through the tail vein at different times (0, 1.5, 3, 6, and 9 hours after MCAO) and at different doses (0, 1.5, 3, and 6ml/kg). Twenty-four hours after MCAO, neurological function and brain infarction were examined and cell apoptosis at the hippocampus and prefrontal cortex were evaluated by TUNEL, western blot and ROS.

Results: After examining the effect of different concentrations of JZQKL on neurological function and brain infarction, we identified that there was a good correlation between concentrations and improvement of neurological function. With a concentration of 3ml/kg, time dependent experiments were conducted. Improvement of neurological function and reduction of infarction gradually decreased with delay of administration of JZQKL. Moreover, JZQKL reduced apoptosis of neurons in the hippocampus and prefrontal cortex as documented by reduction of caspase-3 expression, eIF2 α phosphorylation and caspase-12 activation. JZQKL also decreased oxygen-reactive species (ROS) in the brain.

Conclusion: Early administration of JZQKL significantly prevented ischemic induced brain injury and its mechanism might be related to an anti-oxidative effect and/or attenuation of apoptosis in the brain.

P5

P01.05. Increase in blood flow associated with traditional chinese medicine therapies

S Lin¹, T Ross, N Sutherland, G Orenstein
University of California, Irvine, Irvine, USA
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Purpose: Many Traditional Chinese Medicine (TCM) therapies are supposed to "move the blood" to enhance health and healing. This pilot study compared the time course of how these therapies increased the flow of blood measured at skin level.

Methods: The experiments involved a handful of healthy subjects in their 20's-60's. Blood flow was measured as "flux" of cutaneous blood perfusion using a laser Doppler flowmetry instrument (DRT4 from Moor). In each experiment, continuous recording was made to establish a baseline level prior to treatment, and recording was resumed after treatment until baseline level was reached again.

Results: First we found that needle insertion at various acupuncture points on the back produced an immediate and sharp peak of increased blood flow measured at the treated point which lasted only a few seconds, followed by a second broader peak of 3-4 fold increase that lasted about 5-15 minutes. Cupping on acupoint GB21 produced a similar increase that lasted 15-20 minutes, as did Gua Sha administered on points along the bladder meridian on the back. Similarly, 5 minutes of acupressure massage on the shoulder increased blood flow at GB21 by around 5 fold, diminishing to baseline level within half an hour. In contrast, 5 minute moxibustion treatment on GB21 produced about a 10 fold increase that lasted an hour or two. The longer duration of the effect was also seen in the 4-5 fold increase produced by a 5-minute treatment on PC6 with an over-the-counter herbal remedy commonly used for bruises and sprains ("Tree Head Essence" from Ren Ji Biopharmaceutical Technology Co., Taiwan).

Conclusion: In conclusion, we found that the different therapies tested were all very effective in increasing blood flow as measured. Our observation that the treatments involving chemicals lasted significantly longer than the other ones most likely reflects different mechanisms behind their healing effects.

P6

P01.06. The effect of bee venom pharmacopuncture therapy in a neuropathic pain rat model

Y Kwon^{1*}, M Park²

¹Wonkwang University Hospital, Gwangju City, Republic of Korea; ²Doctor, Gwangju City, Republic of Korea

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Purpose: The purpose was to examine the effect of bee venom (BV) pharmacopuncture therapy with different concentrations on neuropathic pain in a rat model.

Methods: We performed BV pharmacopuncture therapy with different concentrations on neuropathic pain in a rat model on the 7th day after ligating the L5 nerve as suggested by Kim and Chung. Rats were divided into a control group (treated with normal saline), experimental group I (treated with constantly increased BV concentration, from 1.67×10^{-3} mg/kg to 8.35×10^{-3} mg/kg, total 3.22×10^{-2} mg), and experimental group II (treated fixed high concentration, 3.58×10^{-3} mg/kg, total 3.22×10^{-2} mg). BV pharmacopuncture was injected to Huantiao (GB30) every other day for 18 days. To identify any therapeutic effect, foot withdrawal threshold to mechanical and thermal stimulation, nerve conduction velocity (NCV), and c-Fos immunological reactivity in the dorsal horn of the spinal cord were analyzed.

Results: In the pain threshold and the c-Fos immunological reactivity test, experimental group II showed a better therapeutic effect than in experimental group I. In NCV testing, experimental group I showed a better therapeutic effect than experimental group II in the early stage of BV treatment. In the latter stage of BV treatment, however, therapeutic effect was similar in both groups.

Conclusion: BV pharmacopuncture therapy was effective in neuropathic pain. Under the same total amount of BV dose, treatments with constantly increasing BV concentration and fixed high concentration BV had similar effect.

P7

P01.07. The Chinese herbs Chuan Bei Mu and Huang Qin can produce dose-dependent biphasic response in endometrial cancer cells

K Ahmad¹, J Pirog^{1*}, V Syed², Y Jiang¹, H Nguyen²

¹Northwestern Health Sciences University, Bloomington, USA; ²Uniformed Services University of the Health Sciences, Bethesda, USA

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Purpose: We shortlisted four commonly-used herbs from the Chinese Materia Medica, including Lian Qiao (*Forsythiae Fructus*), Chuan Bei Mu (*Fritillariae cirrhosae Bulbus*), Bai Zhi (*Angelicae dahuricae Radix*) and Huang Qin (*Scutellariae Radix*) due to suggestions in classical writings that they could possess antitumor properties.

Methods: We were interested in testing the herbs' cytotoxic potential and used Ishikawa endometrial cancer cells. Cells were incubated for 24 hours in varying concentrations (1-500 µg/ml).

Results: We found that at low doses Huang Qin induced cytotoxicity (1 µg/ml), but at high doses, 50-300 µg/ml, the same herb induced cell proliferation. Chuan Bei Mu exhibited a similar biphasic response with cytotoxicity at 1-200 µg/ml but proliferation at 400 µg/ml. Data on Lian Qiao was scattered but the herb induced cytotoxicity at low doses from 1-10 µg/ml and less significantly at high doses. Bai Zhi was the only herb that did not induce cytotoxicity in endometrial cancer cells.

Conclusion: Taken together, the preliminary data underscore the effect of these herbs as bioactive compounds with chemotherapeutic potential, and contrastingly of their ability to enhance cancer cell growth or confound the effect of chemotherapeutic agents.

P8

P01.08. Acupuncture alleviates affective dimension of pain in a rat model of inflammatory hyperalgesia

L Lao^{1*}, Y Zhang¹, X Shen², A Li¹, J Xin¹, B Berman¹, M Tan¹, K Ren³, R Zhang¹

¹Center for Integrative Medicine, Baltimore, USA; ²Shanghai University of Traditional Chinese Medicine, Shanghai, China; ³Dept. of Neural and Pain Sciences, Dental Sch., Univ. of Maryland, Baltimore, USA

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Purpose: Pain has both sensory and affective dimensions. Previous studies demonstrate that electroacupuncture (EA) alleviates the sensory dimension. This study was to determine whether EA inhibits affective pain and, if so, to study the possibility that rostral anterior cingulate cortex (rACC) opioids underlie this effect.

Methods: An inflammatory pain rat model, produced by a complete Freund adjuvant (CFA) injection into the hind paw of each rat, was combined with a conditioned place avoidance (CPA) test. On day one, time spent by the rats in each of two distinct compartments during a 10-min period was recorded. On day two, each rat explored one of the conditioning compartments for 30 min. Two hours after the CFA injection, each rat was allowed to explore the second compartment for 30 min. On day three, the time spent by the rats in each compartment was recorded again.

Results: The rats showed place aversion (i.e. affective pain) by spending less time in a pain-paired compartment after conditioning than during a preconditioning test. An analgesic dose of intrathecal morphine inhibited acquisition of the aversive response but had no effect on display of an established one; systemic non-analgesic morphine inhibited acquisition and display of the affective reaction. This suggests that affective pain is underpinned by mechanisms different from those governing the sensory dimension. The effect of EA was evaluated before pain-paired conditioning and before a post-conditioning test. Rats given EA showed no aversion to the pain-paired compartment, indicating that the treatment inhibits acquisition and display of affect. Mu and kappa opioid receptor antagonists (CTOP and nor-BNI) blocked EA inhibition of acquisition and display, respectively, of the affective dimension.

Conclusion: EA activates opioid receptors in the rACC to inhibit affective pain and EA may be an effective therapy for both the sensory and the affective dimensions of pain.

P9

P01.09. Effect of Maeg-Moon-Dong-Tang on production and secretion of respiratory mucus

C Lee^{1*}, H Sung², J Kim³

¹Chungnam National University School of Medicine, Daejeon, Republic of Korea; ²Dongguk Univ-Seoul, Graduate School of Oriental Medicine, Seoul, Republic of Korea; ³Dongguk Univ-Seoul, Graduate School of Oriental Medicine, Seoul, Republic of Korea

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Purpose: Effects of maeg-moon-dong-tang (MMT) on ATP- or TNF-alpha- or PMA- or EGF-induced MUC5AC mucin production and gene expression from human airway epithelial cells and the increase in airway epithelial mucosubstances of rats were investigated.

Methods: Confluent NCI-H292 cells were pretreated for 30 min in the presence of MMT and treated with ATP (200µM) or PMA (10ng/ml) or EGF (25ng/ml) or TNF-alpha (0.2nM) for 24 hours, to assess the effect of MMT both on ATP- or PMA- or EGF- or TNF-alpha-induced MUC5AC mucin production using enzyme-linked immunosorbent assay (ELISA) and on gene

expression by the same inducers using reverse transcription-polymerase chain reaction (RT-PCR). At the same time, hypersecretion of airway mucus was induced by exposure of rats to SO₂ during 3 weeks. Effect of orally-administered MMT during 2 weeks on increase in airway epithelial mucosubstances from tracheal goblet cells of rats was assessed using histopathological analysis after staining the epithelial tissue with PAS-alcian blue. Possible cytotoxicity of MMT was assessed by investigating the potential damage of kidney and liver function by measuring serum GOT/GPT activities and serum BUN concentration of rats and body weight gain during the experiment.

Results: (1) MMT did not only inhibit but also increased MUC5AC mucin production and expression levels of the MUC5AC gene from NCI-H292 cells. (2) MMT did not decrease the amount of intraepithelial mucosubstances in the trachea of rats. (3) MMT did not show renal or hepatic toxicity and did not affect body weight gain of rats during the experiment.

Conclusion: MMT might normalize the production and gene expression of airway mucin observed in various respiratory diseases accompanied by yin-deficiency, without *in vivo* toxicity to liver and kidney functions after oral administration.

P10

P01.10. Effects of caloric restriction combined with traditional chinese phytoedicine on the glucolipid metabolism in Wistar Rats with insulin resistance

C Li^{1*}, S Li², A Michalsen¹, J Qin²

¹Charité, University Medical Centre Berlin, Berlin, Germany; ²The First Affiliated Hospital of Sun Yat-Sen University, Guangzhou, China
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Purpose: Insulin resistance (IR) and hyperlipemia are two important pathophysiological manifestations in metabolic diseases. This research aims to investigate the influence of complete caloric restriction (CR) combined with Chinese medicine decoction (ling-gui-zhu-gan, LGZG) on glucose and lipid metabolism in rats with IR.

Methods: 48 male Wistar rats were randomly assigned by 3:1 ratio to a high-fat diet group, which was fed with a high-fat diet for 12 weeks, and a control group which received a standard diet, respectively. Rats in the high-fat diet group were randomized by a ratio of 1:1:1 into a CR group, a CR+LGZG group that additionally received a LGZG decoction, and a group which continued the high-fat diet. Rats in the CR+LGZG group were administered intragastrically LGZG decoction daily, and the other two groups received 3ml of saline. Outcomes were assessed at baseline, at the end of the 12th week, and after the 3-day CR.

Results: At the end of the 12th week, the rats with insulin resistance were established successfully in the high-fat diet group. After CR, fasting plasma glucose (FPG), fasting insulin (FINS) and insulin resistance index (IRI) were reduced by 10.0% ($p>0.05$), 61.6% ($p<0.01$) and 65.5% ($p<0.01$) compared with standard diet, while CR+LGZG led to reductions of 43.9% ($p<0.01$), 73.4% ($p<0.01$) and 85.9% ($p<0.01$). Compared with CR only, CR+LGZG led to significant decreases in FPG ($p<0.01$), FINS ($p<0.05$) and IRI ($p<0.01$). Blood lipids (CHO, TG, HDL-C, LDL-C) were significantly reduced in both CR only and CR+LGZG compared with standard diet ($p<0.01$), while there was no difference between CR with or without LGZG.

Conclusion: CR+LGZG decoction has greater effects on glucose metabolism than only CR. Both CR and CR+LGZG improve lipids to the same extent. The beneficial effect of an additional herbal medication during CR might be related to fasting-induced gluconeogenesis. Human studies on the beneficial impact of CR+Chinese medicine on diabetic patients are warranted.

P11

P01.11. Amalaki Rasayana, an Ayurvedic preparation: to evaluate its effect against experimental gastric ulcers in albino rats

B Kalsariya^{1*}, P Prajapati², P Vaishnav¹, L Singh¹, S Gupta¹, B Patgiri²

¹J.S.Ayurved College, Nadiad, Gujarat, India; ²Institute for Post-graduate Teaching & Research in Ayurveda, Jamnagar, India
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Purpose: Amalaki Rasayana is a unique formulation mentioned in Charaka Samhita (Ayurvedic classical text). The main aim of the present study was to undertake comparative evaluation of three different preparations of Amalaki (*Phyllanthus emblica*), to find out which of the

three forms provides good anti-ulcer effect and what would be the probable mechanism of action.

Methods: Amalaki Rasayana samples were tested for their anti-ulcer effect in Charles Foster's strain albino rats and divided into 4 groups: Control and Ordinary Amalaki Rasayana (O.A.R.), Freeze Dried Amalaki Rasayana (F.D.A.R.), Freeze Dried Amalaki Churna (F.D.A.C.) (100mg/kg body weight, 7 consecutive days). Gastric ulcer was induced by oral administration of aspirin (400 mg/kg) and with ligation of the pyloric end of the stomach (Shay et al., 1945). After collection of the gastric juice, the stomach was opened along the greater curvature and the inner surface was carefully observed. A subjective score was assigned (S. K. Kulkarni & R. K. Goel 1996). The volume of gastric juice was measured, and the total and free acid (Varley, 1962), total carbohydrate (Nair, 1976), total protein (Lowry's method, 1951), and peptic activity in the gastric juice were estimated (Sanyal and Mitra, 1976).

Results: All three samples of Amalaki Rasayana did not exhibit significant anti-ulcer activity at the dose levels studied. F.D.A.R. had no effect, but a 12.05% decrease was observed in the F.D.A.C. administered group, suggesting that among the three samples only F.D.A.C. had moderate anti-ulcer activity. The drug, at the dose level, does not seem to be acting by enhancing gastric mucosal secretion. However, it produced a moderate decrease in the total acidity (54.26%), suggesting that at least part of the observed weak anti-ulcer activity is mediated through anti-acid activity of the test drug. However, F.D.A.R. produced higher anti-acid activity (61.2%).

Conclusion: O.A.R., F.D.A.R. and F.D.A.C. had mild to moderate anti-acid, anti-secretory and anti-ulcer activity.

P12

P01.12. Prophylactic effects of Lonicera japonica extract on dextran sulfate sodium-induced colitis in a mouse model by inhibition of the Th1/Th17 response

J Park^{*}, J Kim, B Ryu, S Ko, S Jongki, Y Bu

College of Oriental Medicine, Kyung Hee University, Seoul, Republic of Korea
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Purpose: Inflammatory bowel diseases (IBDs) are chronically relapsing inflammatory disorders of the intestine. Although some therapeutic agents, including steroids, are available for treatment of IBD, these agents have limited use. Therefore, dietary supplements have emerged as possible interventions for IBD. Japanese honeysuckle flower, the flower of *Lonicera japonica*, is a well-known dietary supplement and has been used to prevent or treat various inflammatory diseases.

Methods: In the current study, we investigated the effects of *L. japonica* on experimental murine colitis. Colitis was induced by 5% dextran sulfate sodium (DSS) in Balb/c mice. The water extract of *L. japonica* (LJE) at doses of 20, 100 or 500 mg/kg was orally administered to the mice twice a day for 7 days. Body weight, colon length and a histological damage score were assessed to determine the effects on colitis. Cytokine profiles were assessed to examine the effects on T helper (Th) cell-related immunological responses. In addition, CD4 + CD25 + FOXP3 T cells were analyzed *in vivo* and *in vitro* for investigating the effects on regulatory T (T_{reg}) cells.

Results: LJE showed dose-dependent inhibitory effects against colon shortening, weight loss and histological damage. LJE down-regulated interleukin (IL)-1 β , tumor necrosis factor α , interferon γ , IL-6, IL-12 and IL-17. However, LJE did not show any significant effects on IL-10, IL-23, transforming growth factor β 1 and T_{reg} cell populations.

Conclusion: In conclusion, LJE showed protective effects against DSS-induced colitis via the Th1/Th17 pathway and not via T_{reg} cell-related mechanisms.

P13

P01.13. Assessing cognitive decline and cardiac senescence in middle aged and elderly volunteers: implications for herbal medicine utilization

D Oh^{1*}, S Park¹, C Jo², H Yoo²

¹Cancer Research Center, Korea Inst. of Oriental Med. (KIOM), Daejeon, Republic of Korea; ²Internal Med., Dunsan Oriental Medical Hospital of Daejeon Univ., Daejeon, Republic of Korea
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Purpose: Although the aging process appears to be generally characterized, much attention has been paid to the specific target molecules to discover clinical surrogate markers of senescence. The present study is to investigate

the phenotypic profile of cognitive decline and functional cardiac senescence in healthy middle aged and elderly volunteers.

Methods: This study was conducted as an open, cross-sectional, single-center, comparative clinical study. The IRB-approved protocol of this study is in the process of being registered with the NIH (clinicaltrials.gov). The sample size was a total of 72 participants who had no past illness or had taken any concomitant medications. Participants were divided into two groups of middle aged (45-64) and elderly (over 65) participants. Each volunteer was given informed consent for checking cognition (Modified MMSE, ADAS-cog) and cardiac function (HRV). Blood and urine samples were collected to analyze genomic, proteomic, and metabolomic markers related to cognition (APOε4, type-3 metabotropic glutamate R) and cardiac function (CRP, cardiac troponin T).

Results: No demographic differences were observed between the two groups ($p = 0.336$). There was a significant difference between the two groups in terms of ADAS-cog total score (3.3 points, $p = 0.002$) and modified-MMSE, immediate and delayed recall, by 1 point ($p = 0.047$).

Conclusion: This study characterized the phenotypic difference of ADAS-cog and modified MMSE testing between healthy middle aged and elderly participants. The molecular findings from genomic, proteomic, and metabolomic analyses provide implication for herbal medicine and its application in modulating multi-target molecules which affect the senescence of specific organs. This study also provides implications for healthy elderly people as a historical control group for conducting studies enrolling patients with Alzheimer's disease.

P14

P01.14. Blood lead levels of children using traditional Indian medicine and cosmetics: a feasibility study

J Keosaiyan^{1*}, T Venkatesh², P Gardiner¹, R Saper¹

¹Boston Medical Center, Boston, USA; ²National Referral Centre for Lead Poisoning in India, Bengaluru, India

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Purpose: Traditional Indian or Ayurvedic medicines and cosmetics may contain lead. The relationship between cosmetic use (e.g. kohl) and blood lead levels (BLLs) in children has been well documented; however the impact of Ayurvedic use on BLL remains unclear. To begin to address this question, we conducted a pilot study to assess the feasibility of collecting BLLs in children attending Ayurvedic hospitals in India.

Methods: Our study took place over five days in the summer of 2010 at a large public Ayurveda hospital and a small pediatric clinic in southern India, facilitated by the assistance and buy-in of local community leaders. Using trained interpreters, we administered to parents of pediatric outpatients a standardized questionnaire in Malayalam assessing sociodemographics, Ayurvedic medicine use, kohl use (a traditional cosmetic product) and other potential risk factors for lead exposure. We measured BLL using a LeadCare® II portable lead analyzer.

Results: The study enrolled 29 children (average age 3.8 years, sd 3.1). Seventy-five percent of children used Ayurvedic medicine in the past two years and 55% reported kohl use. The mean BLL for all children was 6.7 µg/dL (sd 3.5, range 3.5-20.2). The difference in BLLs between Ayurvedic users and non-users was not found to be statistically significant (6.2 µg/dL, sd 2.8 vs. 8.5 µg/dL, sd 5.2, $p=0.31$). Kohl users had a higher BLL than non-users (7.9 µg/dL vs. 5.3 µg/dL; $p=0.03$).

Conclusion: This study demonstrates that is feasible to collect BLLs in pediatric Ayurvedic outpatient clinics in India. Relationships with community members and hospital staff were essential to conducting the study. Results suggest a relationship between kohl use and elevated blood lead levels consistent with other research findings. Larger studies are needed to investigate whether Ayurveda use is an independent risk factor for elevated BLL among Indian children.

P15

P01.15. Multiple Myeloma, chemotherapy and curcumin

E Panutich^{*}, H Zwickey

National College of Natural Medicine, Portland, USA

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Purpose: Multiple Myeloma is one of the hematological malignancies that is caused by an unregulated proliferation of a single clone of plasma

cells in the bone marrow leading to anemia, thrombocytopenia, bone destruction and pathological fractures. Accumulation of M-protein in the plasma suppresses normal level of immunoglobulins. Chemotherapy is based on the combination of alkylating agents, use of high dose of corticosteroids, combination of antimetabolic agents, proteasome inhibitors and immunomodulators. Large numbers of people with Multiple Myeloma are not sensitive enough to standard chemotherapy or develop severe side effects that lead to termination of conventional treatment. Curcumin is a polyphenolic compound of turmeric that has diverse pharmacological effects including anti-inflammatory, antioxidative, antiproliferative and angiogenic activities. Several studies showed that curcumin can prevent drug resistance and increase the effect of several chemotherapeutic agents.

Methods: We utilized a comprehensive review of mechanisms and biological activities of curcumin as a chemosensitizer and anticancerous compound through PubMed and other databases. Also, we analysed the reports and clinical trials which have examined specific effects of curcumin on different malignancies.

Results: The research within the last several years *in vitro* and *in vivo* (animal models) showed that curcumin can sensitize cancer cells to different chemotherapeutic agents that are commonly used for Multiple Myeloma treatment. Curcumin up regulates caspase family proteins and down regulates antiapoptotic genes such as Bcl-2 and Bcl-X. The mechanisms by which curcumin may mediate chemotherapy include down regulation of various growth regulatory pathways and specific genetic targets such as NF-κB and COX2. Another property of curcumin is the ability to activate NRF2 and induce the expression of antioxidant enzymes that are shown to protect normal tissue and organs during chemotherapy.

Conclusion: Preclinical studies on Curcumin and chemotherapeutic agents are expected to lead to clinical trials that will improve the treatment outcome for the patients with Multiple Myeloma.

P16

P01.16. A root extract of Helleborus niger possess cytotoxic properties in neuroblastoma cells

C Delebinski^{*}, G Kauczor, P Jesse, K Seeger, G Henze, G Seifert

Charité, CVK Berlin, Department of Pediatric Oncology/Hematology, Berlin, Germany

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Purpose: Helleborus niger (Ranunculaceae), commonly known as Christmas rose, is used in anthroposophically extended cancer therapy in the adjuvant treatment of different entities and reduction of chemotherapy-associated side effects. Although Helleborus niger is widely used in anthroposophic medicine, there is a lack of scientific clinical and preclinical data and until now it is applied on an empirical basis. Neuroblastoma is one of the most common extracranial solid tumors of childhood, and more than 50% of these children initially present with nonresectable primary tumors and disseminated metastasis to distant organ sites, predominantly bone marrow. In this study, we determined for the first time the cytotoxic properties of Helleborus niger Root (HNR) extract for neuroblastoma *in vitro*.

Methods: The cytotoxic effect of HNR on the neuroblastoma cell line NXS2 was determined using LDH-assay, mitochondrial membrane potential measurement and Annexin/PI assays. The mechanism of apoptosis was further analyzed by Western blot analysis, caspase inhibitors and mitochondria membrane isolation in more detail.

Results: We could show that HNR is able to inhibit cell proliferation in a time and concentration dependent manner in NXS2 cells. Furthermore, Annexin/PI and JC-1 assays indicated a dose-dependent induction of apoptosis as the main mechanism of cell death. While western blot analysis revealed a caspase-8 and -9 involvement of apoptosis induction, the incubation with caspase inhibitors did not prevent apoptosis. Moreover, we could detect Ca²⁺ influx from ER into the cytoplasm, which causes Ca²⁺ influx into mitochondria.

Conclusion: In summary, we demonstrate for the first time a dose- and time-dependent apoptosis induction of HNR in NXS2 cells. Our studies illustrate an involvement of the mitochondrial signaling pathway, whereas the role of caspases remains unclear. To clarify the apoptosis mechanism and the role of calcium and ER stress, further experiments are required.

P17

P01.17. Development of a biocrystallisation method for examining effects of homeopathic preparations on germinating cress seeds

S Baumgartner^{1*}, P Doesburg², C Scherr¹, J Andersen³

¹University of Bern, Institute of Complementary Medicine KIKOM, Bern, Switzerland; ²Crystal Lab, Ottersum, Netherlands; ³Biodynamic Research Association Denmark, Galten, Denmark

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Purpose: A major challenge of homeopathic basic research is to develop test systems that yield consistent results. Outcome of plant bioassays is usually based on growth parameters (e.g. germination rate, seedling length, leaf area). We aimed to evaluate the potential of a crystallisation method with additives ("biocrystallisation") as a complementary outcome measure. The method used is based on the crystallographic phenomenon that when crystallising watery solutions of dihydrate CuCl₂ in the presence of organic additions (juices/extracts), reproducible dendritic crystal structures are observed. The resulting biocrystallograms can be evaluated visually and/or by computerized image analysis.

Methods: Cress seeds (*Lepidium sativum* L.) germinated and grew *in vitro* in either Stannum met. 30x or water 30x. Per experiment, six coded (blinded) 30x preparations were applied in randomized order, representing three independent replicates of the two treatments. Seedlings grew for 96 hours in darkness and were subsequently processed into a watery extract. Biocrystallisation was performed on circular glass plates in 6-fold replication per treatment group, yielding 36 biocrystallograms per experiment. A total of 15 independent experiments were performed at two independent laboratories. Biocrystallograms were scanned and analysed by computerized texture image analysis, using 15 second-order parameters as outcome measure. 3-way-ANOVA with the independent parameters treatment (n=2), internal replicate (n=3), and number of experiment (n=15) was used to analyze the data.

Results: All 15 texture analysis variables yielded significant or highly significant results for the homeopathic treatment. Two variables yielded differences between the internal replicates, most probably due to a processing order effect. There were only minor differences between the results of the two laboratories.

Conclusion: The texture of biocrystallograms of homeopathically treated cress exhibited specific characteristics, differentiating water 30x and Stannum met. 30x. Thus, the biocrystallisation method seems to be a promising complementary outcome measure for plant bioassays investigating effects of homeopathic preparations.

P18

P01.18. Triterpene acid containing *Viscum album* L. extracts mediate apoptosis in paediatric solid cancer cells

G Kauczor^{1*}, C Delebinski¹, S Jäger², K Seeger¹, G Seifert¹

¹Charité, Department of Pediatric Oncology/Hematology, Berlin, Germany;

²Betulin-Institute, Darmstadt, Germany

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Purpose: Paediatric solid cancers such as osteosarcoma, Ewing's sarcoma, rhabdomyosarcoma and neuroblastoma are the most common cancers in children besides leukemia. These cancers have a poor prognosis, are highly metastatic and often resistant to current therapeutic approaches. *Viscum album* L. (mistletoe) is one of the most widely used complementary cancer therapies in Germany but little is known about its actual effects on paediatric solid cancers. Approved *Viscum album* L. extracts (VAE) basically contain water soluble compounds of the plant (lectins, viscotoxins). However, mistletoe also contains triterpene acids (mainly oleanolic- and betulinic acid) that are water-insoluble. The anti-tumorigenic properties of these solubilized triterpene acids are the subject of ongoing research. The aim of this study is to determine the effects of different VAE containing either lectins (viscum), triterpene acids (TT) or a combination thereof (viscum TT) on solid tumor models *in vitro* and *in vivo*.

Methods: Ewing's-, osteo- and rhabdomyosarcoma as well as neuroblastoma cell lines were treated with the above-mentioned different VAE. The cytotoxicity and the induction of apoptosis were determined using mitochondrial membrane potential measurements (JC-1) and Annexin/PI assays. The mechanism of apoptosis was further analyzed by Western blot

analysis and caspase inhibitors. *In vivo* efficacy was determined in the spontaneous NXS2 metastases model.

Results: First experiments have shown diverse but effective levels of sensitivity for triterpene acid containing mistletoe extracts among the tested tumor cell lines. The JC-1 assays revealed a mitochondria-dependent apoptosis induction. Results on the efficacy of treatment with VAE in neuroblastoma *in vivo* will be presented at the meeting.

Conclusion: We could demonstrate that *Viscum album* L. extracts inhibit cell proliferation in different paediatric solid cancers cell lines and in a neuroblastoma model *in vivo*, supporting the effectiveness of these extracts as adjuvant tumor therapy. Furthermore, the results revealed cell-line-specific differences of the apoptosis rate induced by VAE.

P19

P01.19. Oxytocin Receptor Gene (OXTR) variation is associated with enhanced affective and placebo conditioning to touch-based complementary interventions

S Jain^{1*}, K Aschbacher², N Bat³, P Mills⁴, W Jonas³, J Ives³, C Carter⁵, J Connelly⁶

¹Samueli Institute / University of California San Diego, San Diego, USA;

²Samueli Institute / University of California San Francisco, San Francisco, USA;

³Samueli Institute, Alexandria, USA; ⁴University of California San Diego, San Diego, USA;

⁵University of Illinois-Chicago, Chicago, USA; ⁶University of Virginia, Charlottesville, USA

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Purpose: Patients often report reductions in negative affect in response to biofield and touch interventions. While reasons for improvement remain unclear, current theory and evidence suggest the need to examine oxytocin as well as placebo mechanisms. We investigated changes in negative affect (NA) during an acute session of verum or touch-based healing, and related NA changes to placebo elements, plasma oxytocin changes, and the oxytocin receptor (OXTR SNP rs53576) polymorphism (which has been associated with psychological sensitivity to social context).

Methods: Thirty-two fatigued breast cancer survivors received 60-minute touch-based verum or mock-healing intervention. After receiving the first session, patients immediately rated their beliefs on treatment helpfulness in terms of fatigue, well-being, and immune function. Within a week, patients received a second session, during which pre-post session NA (Profile of Mood States) and blood draws were obtained and assayed for plasma oxytocin levels (ELISA) and OXTR genotyping. Data were analyzed using Pearson correlations and general linear models.

Results: Both verum and sham groups showed significant pre-post session decreases in NA (p=.005) with no group differences (p=.31). Pre-post session, NA decreases were marginally associated with increases in plasma oxytocin (r = -.35, p=.06). Pre-session NA and plasma oxytocin did not differ by OXTR genotype (p>.33). However, A-allele carriers showed significantly greater reductions in pre-post NA than G/G carriers (t(30)=2.702, p=.011, n=19). A-allele carriers also uniquely showed significant associations with belief and NA decrease, such that for A-allele carriers only, prior-rated belief in treatment helpfulness was associated with greater decreases in negative affect (r=-.473, p=.04, n=19).

Conclusion: OXTR rs53576 A-allele carriers show greater reductions in NA and unique associations with belief and NA reductions in response to touch-based interventions. Results suggest that psychological and placebo conditioning responses to touch-based interventions may be predicted by biological sensitivity to social context.

P20

P01.20. The effect of WIN-34B on cartilage protection and regeneration by chondrogenesis from subchondral bone *in vitro* and *in vivo*

J Huh^{*}, Y Park, B Seo, Y Baek, J Lee, D Choi, D Park

Kyung Hee University, Seoul, Republic of Korea

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Purpose: WIN-34B is a butanol fraction extract from the mixture of two oriental herbs, the dried *Lonicera japonica* flowers and the root of *Anemarrhena asphodeloides*. In previous studies, we identified that WIN-34B has analgesic, anti-inflammatory, gastroprotective and safety effects.

In this study, we measured the major components and investigated the efficacy of WIN-34B on cartilage protection and regeneration through the chondrogenesis of mesenchymal progenitor cells of subchondral bone for the treatment of osteoarthritis and development of new medicines.

Methods: The major chemical composition and quantification of WIN-34B was determined by high performance liquid chromatography. The therapeutic effect of WIN-34B was investigated using a collagenase-induced osteoarthritis (CIA) rabbit model and also by studying chondrogenesis from mesenchymal stem cell of subchondral bone of knee joints.

Results: In our *in vivo* study using a CIA rabbit model, oral administration of WIN-34B resulted in significant reduction of general clinical and histological scores, associated with a significant inhibition of cartilage loss evaluated by the measurement of the proteoglycan and collagen content. The oral administration of WIN-34B against cartilage destruction had more marked effectiveness than that of the specific COX-2 inhibitor, ETCP, Gluco-Hcl in the CIA rabbit model. Immunohistochemistry analysis of this study showed that oral administration of WIN-34B resulted in significant increases of CD105 and CD73, typical cell surface antigens known from MSCs. Type II collagen and aggrecan, typical cartilage matrix molecules, were also significantly positive.

Conclusion: These results suggest that WIN-34B may have shown cartilage protection and cartilage regeneration in a CIA rabbit model through the chondrogenesis of mesenchymal progenitor cells of subchondral bone.

P21

P01.21. Effect of acupuncture on isotonic contraction of elbow flexor

Y Kaneko*, E Furuya, A Sakamoto
Tokyo Medical University / Oriental Medicine Clinical Laboratory, Shinjuku, Tokyo, Japan

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Purpose: The aim of this study is to clarify the effect of acupuncture stimulation on muscular power of isotonic contraction of the elbow flexor.

Methods: Subjects are 20 healthy males. Maximum Voluntary Contraction (MVC) of elbow flexor was measured using a strain gauge prior to exercise (MVC1). Subjects received acupuncture stimulation before the exercise on their biceps brachii. The stimulation is either deep needling (targeting muscle; mACU) or superficial needling (sACU). The exercise protocol contains 5 sets * 10 repetitions of maximum contraction of elbow flexion at 50% MVC and 90 second intervals between sets. After the exercise subjects were measured for their MVC again (MVC2). The muscle power and the velocity of every contraction was measured using a dynamometer. Electromyogram (EMG) and muscle blood flow (MBF) were also observed during the exercise. Subjects did the same exercise and we measured the same parameter without any stimulation as control. The decrease of MVC between MVC1 and MVC2, muscle power and velocity among sets and repetitions were evaluated.

Results: MVC2 was significantly decreased compared to MVC1 in mACU and sACU and control. MVC1 of mACU seemed suppressed compared to control but no difference was observed at MVC2. Muscle power and velocity were also decreased in latter sets and repetitions in every group and the difference between mACU and sACU are under investigation.

Conclusion: It is suggested that acupuncture stimulation may have an affect on muscle power and velocity of repeated explosive isotonic contraction. At the field or bedside, acupuncturists should treat athletes carefully before exercise or sports events.

P22

P01.22. Identification of a peptide biomarker from bromelain, an extract of *Ananas comosus* Merr, using LC-SRM/MS

E Secor^{1*}, S Szczepanek², L Guernsey¹, L Silbart³, R Thrall¹, D Han⁴
¹University of Connecticut Health Center, Farmington, USA; ²Neag Cancer Center, UCHC, Farmington, USA; ³Department of Allied Health Sciences, Storrs, USA; ⁴Center for Vascular Biology, UCHC, Farmington, USA

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Purpose: Bromelain, a pineapple extract, is a complex mixture of proteases and protease inhibitors. Although bromelain (Br) has been used clinically for over 40 years, the active constituents that mediate its anti-inflammatory

activity are not thoroughly characterized and no biomarker exists to evaluate absorbed peptides and their potential therapeutic responses.

Methods: Stem Br (Vital Nutrients lot # 2890; Middletown, CT), was tested for authenticity and purity. Female C57BL/6J mice, (Jackson Laboratory; Bar Harbor, ME) received one bolus, i.p. injection of Br (12mg/kg) in 0.5ml of physiological saline and plasma collected at baseline 3, 6, 12 and 24 hours. All procedures were approved by the Animal Care Committee at University of CT Health Center. Post SDS-PAGE in gel digestion, samples (Br raw material, spiked plasma and plasma from i.p. treated animals) were analyzed via LC/MS/MS (Liquid Chromatography-Mass Spectrometry-Mass) and LC-SRM/MS (Liquid Chromatography-Selected Reaction Monitoring/Mass Spectrometry). Data were searched using Mascot and Scaffold algorithms.

Results: Within the Br raw material we identified 44 proteins of which several were Br-specific including nine proteases, one glycosidase and three protease inhibitors. In Br spiked plasma, 7 Br-specific proteins (anainin, Br inhibitor, comosain, cysteine proteinase precursor ANII, FB1035 precursor, FBSB precursor and jacalin-like lectin), similar to those found in the Br raw material, were identified. Within these 7 proteins, 21 Br-specific peptides were further identified and characterized based on their ion spectrum and fragmentation patterns including the unique peptide, DYGA VNEVK. Using SRM DYGA VNEVK was identified in plasma of Br-treated mice. The spectral count of DYGA VNEVK peaked at 6 hours and was undetectable by 24 hours.

Conclusion: This Br peptide could serve as a biomarker to standardize the therapeutic dose of Br and maximize its clinical utility.

P23

P01.23. Effects of unilateral facet fixation and facetectomy on muscle spindle responsiveness during simulated spinal manipulation

W Reed*, J Pickar

Palmer College of Chiropractic, Davenport, USA

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Purpose: There is mounting evidence that identification of spinal joint hypo- and hypermobility along with correspondingly tailored manual therapy treatment approaches for these clinical subgroups can lead to more successful therapeutic outcomes. Subjects with spinal joint hypomobility had higher therapeutic success rates with spinal manipulation than subjects with spinal joint hypermobility (Fritz et al. Arch Phys Med Rehab 2005;86:1745-52). We were interested in whether changes in segmental mobility affect proprioceptive signaling from paraspinal muscles during spinal manipulation having thrust durations similar to those delivered clinically (75,100,150, 250ms).

Methods: In the same anesthetized cat preparation, the L₅₋₆ facet joints remained intact bilaterally, were screwed together unilaterally with a 10mm dental screw (fixation) or were completely removed unilaterally (facetectomy). All fixated/facetectomized preparations had at least a 4% change (increase/decrease) respectively in joint stiffness compared to the intact condition. Single unit activity from longissimus or multifidus muscle spindles was recorded from the L₆ dorsal root. The L₆ vertebra was manipulated in the posterior-to-anterior direction using a computer-controlled feedback motor coupled to the L₆ spinous process through a pair of forceps.

Results: Compared to baseline discharge, average mean instantaneous discharge frequency (Δ MIF) changed as follows [mean (SD) in impulses per second]:

At each duration, compared with the intact condition Δ MIF during the manipulative thrust decreased with facet joint fixation but remained similar with facetectomy. In addition, the relationship between Δ MIF and changes in joint stiffness was not linear.

Conclusion: The data suggest that segmental hypomobility but not segmental hypermobility alters the responsiveness of paraspinal muscle spindles during clinically relevant high velocity spinal manipulation.

Table 1(abstract P23)

MANIPULATIVE THRUST DURATION:	75ms	100ms	150ms	250ms
Fixation (n=18):	102.8 (65.7)	85.5 (51.6)	61.0 (36.1)	46.6 (25.7)
Intact (n=18):	116.9 (60.4)	99.3 (55.1)	73.2 (34.5)	51.6 (22.6)
Facetectomy(n=8):	114.3 (54.5)	101.2 (68)	70.7 (36.1)	55.6 (27.1)

We speculate that difference in manipulation-evoked sensory input may relate to differences in spinal manipulation's effects in subjects with hypomobility versus hypermobility.

P24

P01.24. Central processing by electroacupuncture of vasodepression and bradycardia reflex responses

S Tjen-A-Looi¹, P Li, J Longhurst

University of California, Irvine, Irvine, USA

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Purpose: Electroacupuncture (EA) at P5-6 reduces sympathoexcitatory blood pressure (BP) reflex responses. Gamma-aminobutyric acid (GABA) receptors in the brainstem region rostral ventral lateral medulla (rVLM) contribute to modulation of sympathoexcitatory visceral reflexes during EA. Gastric distension in hypercapnic acidotic rats, by activating both sympathetic and vagal afferents, decreases BP and heart rate (HR) through a GABA_A mechanism in the rVLM. This study investigated the hypothesis that EA modulates gastric induced hemodynamic depressor responses through actions in nuclei that process both sympathetic and parasympathetic outflow.

Methods: Anesthetized and hypercapnic acidotic induced rats were used to examine the central processing of the actions of EA. An unstressed 2-cm diameter latex balloon attached to a polyurethane tube was inserted into the stomach through the mouth and esophagus to induce gastric distention. Acupuncture needles were placed near the wrist at P5-6 acupoints for 30-min EA (2 Hz, 0.2-0.4 mA, 0.5 ms).

Results: We observed repeatable decreases in BP and HR with gastric distention every 10 min. Bilateral EA at P5-6 for 30 min reversed the hypotensive response from -26±3 to -6±1 mmHg and the bradycardia from -35±11 to -10±3 beats/min for over 70 min. EA's action on decreased BP and HR, respectively, was inhibited by microinjection of gabazine, a GABA_A receptor antagonist, into the caudal-VLM (cVLM) or the nucleus ambiguus (NAmb). Gabazine microinjected into the rVLM reversed EA action on both depressor and bradycardia responses.

Conclusion: Thus, EA through GABA_A receptor mechanisms modulates reflex sympathoinhibition and vagal excitation leading to cardiovascular depression through actions in the rVLM, cVLM and NAmb. These data indicate that EA can normalize elevated and depressed blood pressure.

P25

P01.25. Classification of L6 muscle spindle afferents in the anesthetized cat

W Reed¹, J Pickar

Palmer College of Chiropractic, Davenport, USA

BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P25

Purpose: Patients with low back pain demonstrate proprioceptive difficulties including spinal repositioning errors and impaired lumbosacral proprioceptive acuity. Few data are available regarding proprioceptive properties of muscle spindles in the low back. Muscle spindle afferents can originate from 2 types of receptive endings which terminate and respond to mechanical changes in 3 types of intrafusal fibers. Receptive endings may be primary or secondary. They terminate on dynamic bag (b₁) static bag (b₂) and/or chain (c) intrafusal fibers. We sought to classify lumbar paraspinal muscle spindle afferents based upon their receptive endings and intrafusal terminations. Classification was based on their responses to ramp and hold vertebral movement before and after intrafusal activation using succinylcholine (SCH, 100-300 ug/kg.ia). Afferents terminating in primary endings are especially responsive to the dynamic ramp stimulus. During intrafusal activation, afferents terminating on b₁ fibers further increase their discharge to the dynamic ramp whereas those terminating on b₂ fibers increase their static resting discharge.

Methods: Electrophysiological recordings from spindle afferents (n=195) were obtained from L₆ dorsal root filaments with receptive fields in the L₆ longissimus and multifidus muscles in an anesthetized cat preparation. Controlled vertebral actuations that stretched the paraspinal muscles were applied to the L₆ spinous process in a dorsal-ventralward direction [1.5mm (n=120), 1.6mm (n=21), or 1.7mm (n=54)] using a feedback motor system. Instantaneous discharge frequency was averaged and compared over three ramp cycles pre- and post-SCH injection.

Table 1 (abstract P25)

	LONGISSIMUS			MULTIFIDUS		
	b ₁ c	b ₂ c	b ₁ b ₂	b ₁ c	b ₂ c	b ₁ b ₂
Primary	0	100	46	0	19	10
Secondary	0	0	0	0	4	1
Intermediate	0	5	0	0	1	0

Results: Conclusion: Almost all lumbar muscle spindle afferents showed static sensitivity responding as primary endings terminating on b₂ fibers. Approximately 1/3 of the afferents responded as primary endings terminating on both b₁ and b₂ fibers. No endings were exclusively sensitive to the dynamic ramp stimulus.

P26

P01.26. Traditional Chinese herbal formula HLXL controls ongoing arthritis by regulating the immune mediators of leukocyte trafficking and joint damage

S Nanjundiah⁴, D Lee¹, Z Ma¹, H Yu⁴, L Lao², H Fong³, B Berman², K Moudgil^{4*}, B Astry⁴

¹McLean Hospital, Harvard Medical School, Belmont, USA; ²Center for Integrative Medicine, Univ of Maryland School of Medicine, Baltimore, USA;

³Medicinal Chemistry and Pharmacognosy, Univ. of Illinois at Chicago, Chicago, USA; ⁴University of Maryland School of Medicine, Baltimore, USA

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Purpose: Rheumatoid arthritis (RA) is a debilitating autoimmune disease characterized by chronic inflammation of the synovial joints. Because of the high cost and adverse effects of the conventional anti-arthritis agents, there is an increasing trend towards using complementary and alternative medicine (CAM) products, including traditional Chinese medicine (TCM). Huo-luo-xiao-ling dan (HLXL) is a TCM herbal formula consisting of 4 herbs that has been used in China for centuries for the treatment of rheumatic diseases. We have modified the traditional herbal formula by adding 7 herbs. The objective of this study was to determine the mechanism of action of modified HLXL (mHLXL) using the rat adjuvant arthritis (AA) model of RA.

Methods: Arthritis was induced in the Lewis rat by subcutaneous immunization with heat-killed M. tuberculosis H37Ra (Mtb). Beginning at the onset of arthritis, rats were treated either with mHLXL (2.3g/Kg/d by gavage) or with the vehicle (water) and then continued throughout the disease course. At day 18 after disease induction, rats were sacrificed and their draining lymph node cells, synovium-infiltrating cells and sera were harvested for testing. Specific cytokines, chemokines and antibodies were tested using the appropriate methods. The results of the experimental and control groups were statistically analyzed and compared.

Results: Rats treated with mHLXL showed significantly reduced severity of arthritis compared to the control rats. The suppression of arthritis was associated with a reduction in the levels of pro-inflammatory and bone-damaging cytokines (e.g., IL-17, IL-1, and RANKL) as well as antibodies against the disease-related antigen, heat-shock protein-65. Also reduced were the levels of chemokines (e.g., RANTES) that play a vital role in leukocyte trafficking into the joints in AA and RA.

Conclusion: Thus, mHLXL is a promising anti-arthritis TCM formula that mediates its effect via downregulating the pro-inflammatory and osteoclastogenic cytokines and chemokines. Our results warrant that mHLXL be evaluated in RA patients.

P27

P01.27. Assessment of polyphenols on PSA expression in a human culture model of reactive prostate stroma cells and LAPC4 prostate adenocarcinoma cells

G Vollmer^{1*}, H Amri², J Arnold³

¹Technical University Dresden, Dresden, Germany; ²Georgetown University Medical Center, Washington, D.C., USA; ³NCCAM/NIH, Bethesda, USA

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Purpose: The reactive stromal phenotype in the prostate is mechanistically important for understanding prostate cancer progression and may be a

target for prevention. We mimicked the interaction of endocrine, paracrine, and immune factors on induced androgen metabolism in prostate stroma by coculturing human primary prostate stromal cells and LAPC-4 prostatic adenocarcinoma cells. The aim of the study was to use this model to investigate dose dependent effects of hop-derived polyphenols xanthohumol (Xan), isoxanthohumol (iXan), 8-prenylnaringenin (8-PN) and structurally-related compounds quercetin (Que), naringenin (Nar), and 6-dimethylallylnaringenin (6-DMAN) on PSA secretion.

Methods: Conversion of DHEA (D) by the reactive stroma to androgens following TGF-beta (T) stimulation was assessed by induced PSA secretion in LAPC-4 cells. Direct epithelial PSA secretion was induced using the non-metabolizable androgen R1881. The natural compounds were used in doses of 0.01-10 μ M (Nar, 8-PN, 6-DMAN) or 0.1-10 μ M (Xan, iXan, Que).

Results: All compounds tested dose-dependently attenuated epithelial PSA production resulting from stromal androgen metabolite production following D+T treatment (stromal-mediated response). Following direct epithelial stimulation by R1881 treatment ('epithelial response'), 8-PN and 6-DMAN also showed a dose-dependent response pattern. All other compounds inhibited this epithelial response only at the highest dose (10 μ M). Comparative studies with pure estrogen receptor agonists demonstrated the involvement of these receptors in mediating the response, however the high inhibition of the stromal response by Que, Xan, iXan and Nar cannot be explained by ER-dependent mechanisms only, as they are very weak estrogens.

Conclusion: In conclusion, hop-derived polyphenols, as well as structurally related compounds are very potent inhibitors of stromal conversion of androgenic prohormones. Only the two most potent estrogenic compounds showed the same inhibition of PSA induction in response to R1881 treatment. More studies are needed to examine the value of these compounds in prevention of prostate cancer progression.

P28

P01.28. The effect of 650nm and 10.6 μ m CO₂ laser irradiation on knee osteoarthritis C57 black mouse in serum prostaglandin E2 and hyaluronic acid

X Shen

Shanghai University of Traditional Chinese Medicine, Shanghai, China
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Purpose: To observe the effects of two different wavelength lasers exertion on Hyaluronic Acid (HA) and Prostaglandin E2 (PGE2) in serum when they were irradiated on Dubi (ST35) of C57 black mouse with knee osteoarthritis (KOA).

Methods: 60 healthy C57 black mice were randomly allocated to 6 groups including control group, model group, 10.6 μ m CO₂ laser group, 650nm laser group, combined laser group (combined 10.6 μ m CO₂ laser and 650nm laser) and sham group. Each treating group received irradiation from different lasers at Dubi (ST35) for 90s in a total of 15 sessions. The sham group also received treatment with the laser probe putting at Dubi (ST35) for 90s in a total of 15 sessions.

Results: Compared with the model group, the PGE2 in serum of the following three groups all significantly decreased ($p < 0.05$): 10.6 μ m CO₂ laser group, 650nm laser group and the combined laser group. The same significant decrease ($p < 0.05$) was found in the sham laser group. No significant differences of serum HA were found between the model group and control group. But compared with the model group, the serum HA significantly increased ($p < 0.05$).

Conclusion: There is an obvious effect of 10.6 μ m CO₂ laser, 650nm laser and combined laser group in reducing the serum PGE2. Yet the three lasers have no obvious effect on serum HA. However, the relation of the efficacy of those three lasers and the HA content in joint and serum is to be tested in the future.

P29

P01.29. Pre-polarization conductance at Jing-Well acupoints on the hand is correlated with blood flow measured by laser doppler flowmetry

S Lin^{*}, G Orenstein, A Frolloff, N Nguyen, D Unsworth, A Samadi, J Gartner

University of California, Irvine, Irvine, USA

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Purpose: "Blood is the mother of Qi" is a fundamental concept of Traditional Chinese Medicine. Since Qi is not a scientific term, we explored this relationship by measuring electrical flow as a surrogate marker when blood flow is changing under different conditions.

Methods: This study involved a dozen healthy subjects (age 20's to 60's). Blood flow/perfusion was measured with a Moor DRT4 laser Doppler flowmetry instrument. Electrical flow/pre-polarization conductance was measured with Motoyama's "single square voltage pulse" method using a continuous recording instrument kindly provided by California Institute for Human Science.

Results: We found that during Chen style Tai Chi "silk-reeling" exercises, the cyclic down/up hand movement (2X/minute) caused cycles of increase/decrease in blood flow measured at PC8 acupoint and electrical conductance at 7 jing-well acupoints on the hand. Similar results were obtained when subjects performed dance movements with similar down/up cycles of the hand. We also observed that cyclic increase/decrease in blood flow induced by subjects with arm fully stretched upwards being rocked by an assistant down/up on an inversion exercise table was accompanied by cyclic increase/decrease in conductance. During the above active or passive hand movement cycles, when blood flow to the hand was cut off by a pressure cuff on the arm, laser Doppler and conductance values both dropped to baseline, confirming lack of motion artifacts. Furthermore the cyclic changes in "flux" in all experiments coincided with "speed" values from laser Doppler flowmetry and with pre-polarization but not post-polarization conductance (galvanic skin response) measured at the acupoints.

Conclusion: This study shows that the increase/decrease in blood flow caused by gravitational pull on the blood in the hand as its level decreases/increases relative to the heart is accompanied by corresponding changes in electrical flow at acupoints, consistent with the belief in Traditional Chinese Medicine of a close relationship between blood and Qi.

P30

P01.30. The role of pH in cancer

I Robey

University of Arizona, Tucson, USA

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Purpose: Malignant tumors are acidic. The extracellular pH of tumors ranges from 6.5-6.9 versus 7.2-7.4 in normal tissue. Acid-producing tumors are more invasive and exhibit a greater metastatic potential. Tumor acidity is toxic to the surrounding tissue, induces the breakdown of the basement membrane around the tumor, and increases expression and activity of metastatic effectors. Therefore, it is thought that tumor acidity is a selective advantage in promoting cancer progression.

Methods: A corollary to these observations asserts that reversal or buffering of tumor acidity could inhibit tumor invasion or metastases. Buffering of tumor acidity can be achieved through systemic administration of a natural alkaline buffer. This has been demonstrated in tumor bearing mice using sodium bicarbonate drinking water.

Results: Systematic bicarbonate selectively raises the extracellular pH (pHe) surrounding tumors from acidic levels (6.8) to physiological levels (7.2). Mice bearing breast and prostate tumors had reduced metastases and significantly improved survival compared to untreated tumor bearing mice. The reduced activity of invasive mechanisms such as cathepsin B and significantly lower numbers of circulating tumor cells in the blood stream of mice maintained on oral bicarbonate supports the premise that buffering tumor acidity slows acid-mediated tumor invasion. The findings from these studies also indicate that chronic administration of bicarbonate does not affect the serum pH of mice or cause measurable acute or chronic adverse health effects.

Conclusion: Manipulation of the tumor microenvironment is a potential avenue for therapeutic approaches in cancer care. The use of natural alkaline compounds against cancer is relatively non-toxic and may provide benefit in specific cases. Sodium bicarbonate, for example, may be useful as an adjunctive therapy with other buffers or agents that reduce/inhibit tumor acidity. Additionally, there is potential utility for systemic bicarbonate as a safe method for alkalinizing highly protonated chemotherapeutics against acidic tumors.

P31

P01.31. Yoga therapy associated with increased brain GABA levels and decreased depressive symptoms in subjects with major depressive disorder: a pilot study

C Streeker^{1*}, P Gerbarg², R Saper¹

¹Boston University School of Medicine, Boston, USA; ²New York Medical College, Kingston, USA

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Purpose: It is hypothesized that imbalance of the autonomic nervous system (ANS) with decreased parasympathetic nervous system (PNS) activity and underactivity of the gamma amino-butyric acid (GABA) system contribute to symptoms in Major Depressive Disorder (MDD) and that yoga-based practices correct underactivity of the PNS and GABA systems which results in decreased depressive symptoms.

Methods: Normal subjects (n=19) and those with MDD (n=2) participated in two comparable 12-week manualized yoga asana interventions. Both groups had thalamic GABA levels measured by magnetic resonance spectroscopy before (Scan 1) and after the 12-week intervention (Scan 2). Depressive symptoms were measured using the Physicians Health Questionnaire (PHQ)-9 prior to each scan.

Results: MDD subjects (n=2) had PHQ-9 scores of 22 (severe depression) and 20 (moderately severe depression) at the beginning of the yoga intervention and scores of 7 (mild depression) and 4 (not depressed enough to be considered MDD) at the end of the study, respectively. The MDD subjects had mean thalamic GABA/Creatine ratios (GABA Levels) of 0.039 ± 0.004 for Scan 1 and mean GABA levels of 0.049 ± 0.010 for Scan 2 for a change of 0.014 ± 0.006 . Normal subjects had mean thalamic GABA levels of 0.065 ± 0.021 for Scan 1, and 0.061 ± 0.021 for Scan 2, for a change of -0.004 ± 0.017 .

Conclusion: The results from this small pilot study are consistent with the proposed theory that predicts 1) the lower GABA levels found in subjects with MDD, 2) MDD GABA levels increased towards those of normal subjects after the yoga intervention, 3) improved mood was associated with increased GABA levels, 4) subjects remained symptomatic with low GABA levels despite pharmacologic treatment until they received the yoga intervention that presumably corrected their PNS imbalance, after which GABA levels increased and depressive symptoms decreased.

P32

P01.32. Can homeopathic verum and placebo globules be distinguished by UV spectroscopy?

U Wolf¹, S Klein

University of Bern, Institute of Complementary Medicine KIKOM, Bern, Switzerland

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Purpose: Homeopathic preparations are used in homeopathy and anthroposophically extended medicine. Previous studies described differences in UV transmission between homeopathic preparations of CuSO₄ and controls. The aim of the present study was to investigate whether statistically significant differences can be found between homeopathic verum and placebo globules by UV spectroscopy.

Methods: Verum (aconitum 30c, calcium carbonate/querqus e cortice) and placebo globules used in two previous clinical trials were dissolved in distilled water at 10mg/ml 20-23 hours prior to the measurements. Absorbance was measured at 190 – 340nm with a Shimadzu UV-1800 double beam spectrophotometer. Duplicates of each sample were measured in a randomized order 4 times on each of the 5 measurement days. To correct for differences between measurement days, average absorbance of all samples on one day was deduced from absorbance of the individual samples. The Kruskal-Wallis test was used to determine group differences between the samples, and finally the coding of the samples was revealed.

Results: First analysis showed significant differences ($p \leq 0.05$) in average UV absorbance at 200 – 290nm between the samples and a tendency of a correlation ($p \leq 0.1$) between absorbance and globule weight. More results will be presented at the conference.

Conclusion: Since the absorbance of the samples at the wavelengths between 200 and 290nm was small, a number of aspects had to be considered and should be corrected for if they are present when performing

UV spectroscopy on homeopathic globules: (1) Exact weighing of the globules; (2) Measurement error of the spectrophotometer at small absorbances; (3) Drift of the spectrophotometer during a measurement day; (4) Differences between measurement days.

The question remains what caused the differences in absorbance found in these experiments; the use of the original material for the production of the verum globules, differences in the production of verum and placebo globules, or other context factors.

P33

P01.33. A new development of Triterpene Acids-containing extracts from *Viscum album* L. displays synergistic induction of apoptosis in childhood leukemia

C Delebinski^{1*}, S Jäger², G Kauczor¹, K Kemnitz-Hassanin¹, K Seeger¹, G Henze¹, H Lode³, G Seifert¹

¹Charité, Department of Pediatric Oncology/Hematology, Berlin, Germany;

²Betulin-Institute, Darmstadt, Germany; ³Department of Paediatric

Haematology and Oncology, Greifswald, Germany

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Purpose: Aqueous *Viscum album* L. extracts (VAE) are widely used in complementary cancer therapies. Due to their low solubility, triterpene acids, which are known to possess anti-cancer properties, do not occur in aqueous extracts in significant amounts. Using cyclodextrins it was possible to solubilize mistletoe triterpene acids and to determine the anti-cancer properties in different acute lymphoblastic (ALL) and myeloid leukemia cell lines (AML).

Methods: The experimental extracts contain either mistletoe lectin-I and viscotoxins (viscum) or solubilized oleanolic- and betulinic acids (TT) and more interestingly, a combination thereof (viscumTT). The cytotoxicity of increasing concentrations of VAE preparations was tested in NALM-6, U937 and HL-60 cells *in vitro*. Apoptosis was determined using mitochondrial membrane potential measurement, Annexin/PI, Western blot analysis and caspase assays. A C.B-17/SCID model of pre-B ALL/NALM-6 was used to test efficacy and mechanisms of treatment with lectin- and triterpene-containing preparations *in vivo*.

Results: All three cell lines have shown distinct apoptosis induction for viscum, TT and viscumTT. However, differences between ALL and AML cell lines toward the lectin and triterpene acids sensitivity were observed. Annexin/PI and mitochondrial membrane potential assays indicated that dose-dependent induction of apoptosis was the main mechanism. The combination (viscumTT) of lectin- (viscum) and triterpene acids-containing (TT) extracts showed the strongest apoptosis induction. Furthermore, caspase activity demonstrated that these extracts are able to induce apoptosis via caspase-8 and -9 dependent pathways. The *in vivo* experiment showed that treatment of mice with the viscumTT combination prolonged the mean survival significantly compared control group.

Conclusion: Taken together, we were able to show that this new formulation "viscumTT" of aqueous mistletoe extracts and triterpene acids can induce apoptosis in leukemia cells via the intrinsic and extrinsic signaling pathways. Based on these data we believe that *Viscum album* L. extracts containing triterpene acids may possess impressive therapeutic potential.

P34

P01.34. Use of plant bioassays in homeopathic basic research: a systematic review

S Baumgartner^{1*}, L Betti², P Heusser³, T Jäger⁴, V Majewsky⁴, U Wolf⁴

¹University of Bern, Bern, Switzerland; ²University of Bologna, Bologna, Italy;

³University of Witten-Herdecke, Herdecke, Germany; ⁴University of Bern,

Institute of Complementary Medicine KIKOM, Bern, Switzerland

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Purpose: Experimental research on the effects of treatments with homeopathic preparations on plants was last reviewed in 1990. The objective was to compile a systematic literature review on plant bioassays in homeopathic basic research using predefined criteria.

Methods: A literature search was carried out on publications that reported experiments with homeopathic preparations on whole plants, seeds, plant parts and cells from 1920 to 2010, in healthy, abiotically or biotically

stressed conditions. Outcomes had to be measured by established state-of-the-art procedures and statistically evaluated. Using a Manuscript Information Score (MIS), publications were identified that provided sufficient information for proper interpretation (MIS > 5). Further evaluation focused on the use of adequate controls to investigate specific effects of homeopathic preparations and on the use of systematic negative control experiments to ensure proper system performance.

Results: A total of 157 publications with plants were identified. The 157 publications described a total of 167 experimental studies. Eighty-four studies included statistics and 48 had a MIS > 5 allowing proper interpretation. Twenty-nine studies were identified with adequate controls to identify specific effects of homeopathic preparations, reporting significant effects of decimal and centesimal homeopathic potencies, including dilution levels beyond Avogadro's number. Studies that tested series of consecutive potency levels reported a non-linear and discontinuous relation between effect and potency level. There were many individual studies with diverse methods and very few replication trials. Ten studies reported use of systematic negative control experiments, yielding evidence for the stability of the experimental set-up.

Conclusion: Plant models appear to be a useful approach to investigate basic research questions on homeopathic preparations, but more independent replication trials are needed. Systematic negative control experiments should be implemented on a routine basis to exclude false-positive results.

P35

P01.35. Antidepressant effects of *Gastrodia elata* Bl. at the genomic level

L Sheen*, E Chen

Institute of Food Science & Technology, National Taiwan University, Taipei, Taiwan

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Purpose: Depression has been a serious issue as the annual worldwide suicide rate has been constantly increasing, according to the statistics published by WHO. In fact, WHO predicts that it will be the leading psychological disease by year 2020. Antidepressants in general, however, demonstrate serious side effects such as anxiety disorders, gastrointestinal problems, and sexual dysfunction in patients; therefore, it is important to find an effective way to prevent the occurrence of depression. *Gastrodia elata* Bl., an Oriental herb that has been shown to demonstrate an anti-depression effect, was investigated in the form of water extraction.

Methods: The water extract of *Gastrodia elata* Bl. (WGE) was orally administered to Sprague-Dawley rats at the dose of 0.5 g/kg body weight each day for 21 consecutive days. Forced swimming test (FST) was performed to induce depression in the rodent model. Total mRNA samples were then obtained from the frontal cortex hippocampus and striatum, after having sacrificed the rats after 21 days. In order to deduce a possible anti-depression pathway at the genomic level, cDNA microarrays were performed to generate *in situ* gene expression profiles of depression relevant brain regions: cortex, hippocampus, and striatum. To confirm the findings, real-time polymerase chain reaction (QRT-PCR) analysis of several neuroplasticity-related, differentially expressed genes was performed.

Results: The microarray data showed that WGE altered axonogenesis/neurogenesis, nervous system development, and dopamine secretion pathways in cortex and hippocampus, from the evidence that they yield the lowest p-values from all other pathway matches with the KEGG database. Results from qRT-PCR validated that genes involved in neurogenesis, such as Map1b, RhoA, profilin-1, and CRMP2 were significantly altered ($p < 0.05$) in the cortex and hippocampus.

Conclusion: Neuroplasticity might be the mechanism by which WGE takes, and the results can serve as the basis of future antidepressant development, especially in the area of WGE demonstrating anti-depressant effects in the aspect of genomics.

P36

P01.36. Assessment of commercial formulations of *mucuna pruriens* seeds for Levodopa (L-DOPA) content

A Soumyanath*, T Denne, A Peterson, L Shinto

Oregon Health & Science University, Portland, USA

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Purpose: *Mucuna pruriens* (*mucuna*) seeds contain 3-6% L-DOPA, and have been used in traditional Ayurvedic medicine to treat diseases resembling Parkinson's disease (PD). Pilot studies in PD show that *mucuna* seed powder has similar effects to conventional levodopa/carbidopa medication. Formulations of *mucuna* seed are readily available through the internet, and are used by some PD patients as an alternative to conventional levodopa/carbidopa medication. The purpose of this study was to examine the L-DOPA content of a range of popular *mucuna* products in order to assess the veracity of label claims.

Methods: Six different brands of *mucuna* product were ordered through the internet. Certificates of analysis were obtained where possible. A standard amount of each product was extracted using methanol: formic acid for analysis using reversed-phase high performance liquid chromatography (HPLC) with ultraviolet and fluorescence detection. L-DOPA content was calculated using a standard curve prepared using L-DOPA (Sigma-Aldrich) as reference.

Results: The claimed L-DOPA content ranged from 25 to 250mg per dose for the six products. HPLC analysis revealed that only two of the products had L-DOPA values close to the value claimed. The remaining products contained considerably less L-DOPA, <10% in two cases, than implied on the label. Certificates of analysis suggested that not all manufacturers routinely measure L-DOPA content of their *mucuna* product.

Conclusion: Four of six products examined showed a large discrepancy between label claim and L-DOPA content, independently measured by HPLC. This finding warrants further investigation as these deficiencies could impact both patients, and the outcome of clinical studies using these products.

P37

P01.37. The use of DNA barcoding for identification of medicinal plant products: an example from plants used in the Southern Texas-Mexico border region

A Schwarzbach*, H Aguilar

University of Texas, Brownsville, Brownsville, USA

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Purpose: DNA barcoding generates a unique identification tag for individual species based on the sequence of a short stretch of DNA. For this study we evaluated the potential of DNA barcoding methods for identification of medicinal plants using examples from the Lower Rio Grande Valley border region in Texas. Many plants that enter the supply chain are not evaluated for correct identification and better and faster methods are needed for identification of fragmented samples.

Methods: We sequenced several genomic regions, both nuclear and chloroplast, in order to assess variability and ability to identify highly fragmented plant material or otherwise incomplete specimens. Unidentified samples were compared with data available in Genbank and with an extensive collection of known reference materials.

Results: We successfully used phylogenetic techniques for correct placement of the unidentified samples and potential applications for this method are discussed. We compare this method with the Genbank-BLAST search technique that is widely used for sequence matching.

Conclusion: In conclusion, DNA barcoding can be effectively used as an identification method for medicinal plant preparations that allows fast and efficient control for distributors, provides information to customers, and, in case of a poisoning accident, might aid in determining correct treatment and countermeasures. Our studies also showed that comprehensive databases for reference materials need to be carefully assembled and curated to provide reliable information for comparisons. Currently existing databases do not fulfill this requirement leading to potential misidentifications.

P38

P01.38. Anti-cancer activity of extracts from *Rauwolfia vomitoria* and Pao Pereira

J Yu*, J Drisko, Q Chen

University of Kansas Medical Center, Kansas City, USA

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Purpose: To evaluate extracts from two medical plants Pao Pereira (Pao) and Rauwolfia vomitoria (Rau) for their anti-tumor effects in various types of pancreatic cancers and ovarian cancers.

Methods: Five pancreatic cancer and three ovarian cancer cell lines were tested that exhibited different resistance to the 1st line chemo-drug gemcitabine (Gem, for pancreatic cancer), and carboplatin (Cp, for ovarian cancer). Chou-Talalay's method was used to evaluate drug combination.

Results: Both Rau and Pao extracts induced dose-dependent cytotoxicities in all tested cancer cell lines, despite their inherent resistance to chemo-drugs. IC₅₀ values for Rau were 140-350µg/ml, and 120-350µg/ml for Pao, depending on the cells tested. Normal epithelial cell MRC-5 was much less affected compared to all the tested cancer cells. The differences of cell viabilities between cancer cells and normal cells were statistically significant (p<0.05), indicating possible low toxicity of these extracts. To test whether the treatments of Rau or Pao could enhance the cells' sensitivities to chemo-drugs, we combined either Rau or Pao with gemcitabine to treat pancreatic cancer cells, and with carboplatin to treat ovarian cancer cells. The combination treatments took Chou-Talalay's constant ratio design, with molar ratio set to IC₅₀extract: IC₅₀Chemo. The combined-treatments significantly enhanced cell death in cancer cells which were strongly resistant to gemcitabine or carboplatin (p<0.05). The results showed a left-shift in the dose-response curves of the combination treatments compared to the corresponding curves with either Gem or Cp alone in all tested cancer cells. Combination indices (CIs) were <1, indicating synergistic effects.

Conclusion: These results pave the way for *in vivo* studies of the anti-cancer effects of Rauwolfia vomitoria and Pao Pereira extracts, especially in gemcitabine-resistant pancreatic cancers and carboplatin-resistant ovarian cancers. Studies on mechanisms of the anti-cancer actions are also undergoing concerning apoptosis and cell cycle arrests.

P39

P01.39. Synergism of herbs in classical Chinese medicine: evidence from HPLC

K Shaw*, K Wright, J Wang, P Kalnins

National College of Natural Medicine, Portland, USA

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Purpose: Classical Chinese herbal therapy uses herb combinations within formulas based upon the belief that there is a synergistic effect between herbs. Herbal pairs and combinations may change the hydrophobicity and ion concentration of the decoction. These changes may increase extraction of constituents from other herbs within the formula. Furthermore, herbs may react within the decoction medium to create new chemical structures. The purpose of this study is to compare chemical signatures of individual Chinese herbs with paired herbal formulas, as they are used in Classical Chinese medicine.

Methods: This study investigates the synergism of licorice with two herbs (Bupleurum chinense and Zingiberis officinalis) commonly used in Classical Chinese Medicine. Each sample was decocted in de-ionized water for one hour at 100°C. Individual and paired decoctions were analyzed using High Performance Liquid Chromatography (HPLC) to evaluate differences in chemical signatures between extractions.

Results: Chemical constituent concentration varied between single herb and paired herb decoctions. In the paired decoctions, many chemical peaks increased in concentration. Interestingly, other peaks decreased in concentration, though none disappeared.

Conclusion: This preliminary data demonstrate that paired herbal decoctions contain increased levels of active components. Furthermore, a decrease in peaks within the paired decoction but not in the individual formulas suggests that herb decoctions generated new chemical structures. This study represents foundational research into synergistic relationships between herbs.

P40

P01.40. A new approach for quantifying chemosensitizing effects from herb-drug combinations: assessment of Tripterygium Wilfordii-Docetaxel in prostate cancer

Z Wang*, S Yeung, T Tran, Y Huang, M Chow

CADRE, College of Pharmacy, Western University of Health Sciences, Pomona, USA

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Purpose: Resistance to cancer chemotherapy is a major problem. Herb-drug combinations can offer a new potential to overcome such resistance. To quantitatively assess chemosensitizing effects of herb-drug combinations (HDC), a new approach that takes into account both the chemosensitizing effect (CE) and "safety" considerations of the HDC is proposed and used in describing the cytotoxic activity of Tripterygium wilfordii-docetaxel (TW-Dtx) combination on prostate cancer cell lines.

Methods: The effect of two extracts of TW with Dtx on Dtx resistant PC3 and DU145 cell lines were compared. Cell viability (cytotoxicity) was determined using sulforhodamine B assay after incubation of the cell line. The IC₅₀ of herb (H), drug (D) alone and in combination (IC₅₀H, IC₅₀D, and IC₅₀CD respectively) in resistant cells were obtained. CE and chemosensitizing utility index (CUI) were calculated as: CE=IC₅₀D/IC₅₀CD; CUI=CE (IC₅₀H/Con_H) whereas Con_H is the H concentration in the combination.

Results:

The values for CE (fold change), CUI (fold change), and IC₅₀CD (nM) from TW extract A-Dtx treatment in resistant PC3 cells were 3.8, 5.8, and 5.8, respectively versus 17.1, 22.0, and 1.5, respectively from TW extract B-Dtx treatment when low ConH relative to IC₅₀H was used. The corresponding values from extract A versus B-Dtx treatment in resistant DU145 cells were >1.3, >4.5 and 75.3 versus >27.6, >55.2 and 3.63, respectively. However, CE values can dramatically increase with higher ConH.

Conclusion: Based on the above CE, CUI or ICCD values, TW extract B-Dtx appeared to be consistently superior to extract A-Dtx combination. However, assessment based on CE value alone may be misleading since it can change dramatically with ConH used. CUI together with IC₅₀CD are preferred and may prove to be a useful practical tool for assessing chemosensitizing effect of other HDCs.

P41

P01.41. Melittin inhibits VEGF-A-induced tumor growth and angiogenesis through blocking VEGFR-2 and COX-2 in allograft tumor model and endothelial cells

J Huh*, J Kang, Y Baek, D Choi, D Park, J Lee

Kyung Hee University, Seoul, Republic of Korea

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Purpose: To evaluate the *in vivo* as well as *in vitro* anti-angiogenesis effects of melittin, a major polypeptide in bee venom, and to elucidate its molecular mechanisms with a special focus on VEGFR-2 mediated COX-2 and MAPK pathways in VEGF-A-induced Lewis lung cancer (VEGF-A-hm LLC) model and human lymphatic endothelial cells (VEGF-A-HLECs).

Methods: We investigated the functional specificity of melittin as an angiogenesis inhibitor using VEGF-A-induced *in vitro* models and an *in vivo* lung metastasis mouse model.

Results: Injection of 0.5mg/kg and 5mg/kg of melittin suppressed tumor growth by 25.30% and 56.92%, respectively; these results are superior to those obtained for mice treated with the COX-2 inhibitor, NS398. Melittin reduced tumor cell proliferation (PCNA), microvessel density (MVD), expression of cyclooxygenase-2 (COX-2), VEGF-A, and VEGFR-2, but did not affect VEGFR-1, in VEGF-A-induced hm LLC tumors. Similarly, the COX-2 inhibitor NS398 significantly inhibited proliferation, MVD, COX-2, VEGF-A, and VEGFR-2 expression in the tumor section, supporting the role of COX-2 in melittin-induced inhibition of angiogenesis. Melittin significantly inhibited VEGF-A-induced proliferation and tube formation in the endothelial cells. Melittin inhibited phosphorylation of ERK 1/2, JNK and p38 MAPK in a dose-dependent manner in VEGF-A-HLECs. p38 inhibitor SB203580 abolished the down regulation of COX-2 and VEGF-A and anti-proliferative activity induced by melittin.

Conclusion: These results suggest that melittin suppresses VEGF-A-induced tumor growth and angiogenesis via VEGFR-2 mediated COX-2 and the MAPK-dependent pathway.

P42

P01.42. Dose-dependent effects of massage-like loading in an animal model following eccentric exercise

T Best*, Y Zhao, D Jarjoura, X Zhang, C Haas

The Ohio State University, Columbus, USA

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Purpose: Determine the effects of duration, magnitude, and frequency of massage-like compressive loading on the recovery of active muscle properties (torque - joint angle) following a bout of damaging eccentric exercise.

Methods: Twenty-four New Zealand white rabbits were surgically instrumented and underwent a bout of damaging eccentric exercise to the tibialis anterior muscle. Rabbits were randomly assigned to a protocol with massage frequency of 0.25 or 0.50Hz at a compressive force of 5 or 10N for 15 or 30 minutes. The contralateral limb served as the exercised, non-massaged control. A torque-angle relationship was obtained for 21 tibiotarsal joint angles, pre- and post-exercise, and post four consecutive days of massage (applied by customized device). Peak isometric torque was the primary outcome variable. Muscle wet weight and histological analysis were also performed at the end of the protocol.

Results: Greatest recovery of peak isometric torque occurred at the 0.5Hz, 10N, 15 min condition showing a recovery index of 1.083 [RI]. Analysis showed a significant difference for the RI of the massaged hindlimb between the two magnitudes (5 and 10 N; $p=0.004$) and the two frequencies (0.25 and 0.5Hz; $p=0.012$) but no difference for the two durations (15 min and 30 min). Muscle wet weight showed massaged animals tissue weighing ($n=12$) 3.22 +/- 0.61g, while the control (non-massaged) tissue weighed ($n=9$) 3.74 +/- 0.65g ($p<0.05$). Histology verified the beneficial effects of massage through decreased myofiber damage and cellular infiltration.

Conclusion: There is a dose-response effect with respect to magnitude and frequency of massage-like compressive forces on recovery of active muscle properties following eccentric exercise in an animal model. These results may help to explain the variability in human studies evaluating the efficacy of this therapy for recovery from intense exercise.

P43

P01.43. The calm mouse: an animal model of stress reduction

B Gurfein^{1*}, A Stamm¹, P Bacchetti¹, M Dallman¹, N Nadkarni², J Milush², C Touma³, R Palme⁴, C Pozzo Di Borgo², G Fromentin², R Lown-Hecht¹, J Konsman⁵, M Acree¹, M Premenko-Lanier¹, N Darcel², F Hecht¹, D Nixon¹
¹University of California, San Francisco, San Francisco, USA; ²AgroParisTech, Paris, France; ³Max Planck Institute of Psychiatry, Munich, Germany; ⁴University of Veterinary Medicine, Vienna, Austria; ⁵Victor Segalen Bordeaux 2 University, Bordeaux, France

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Purpose: Chronic stress is associated with negative health outcomes and is linked with neuroendocrine changes, suppressed immunity, and central nervous system neuropathology. While human studies have illustrated the benefits of stress reduction, mechanistic understanding of how decreasing stress affects health and disease progression remains unclear. Furthermore, prior animal studies have focused primarily on increasing stress, and few animal models of stress reduction have been fully developed.

Methods: We have developed a "calm mouse model" with caging enhancements designed to reduce murine stress. Male BALB/c mice were divided into four groups ($n=10$ /group): Control (Cntl), standard caging; Calm, large caging to reduce animal density, a cardboard nest box for shelter, paper nesting material to promote innate nesting behavior, and a polycarbonate tube to mimic tunneling; Control Exercise (Cntl Ex), standard caging with a running wheel, known to reduce stress; and Calm Exercise (Calm Ex), Calm caging with a running wheel.

Results: Calm, Cntl Ex, and Calm Ex animals exhibited significantly less corticosterone production than Cntl (Day 49: Calm, $M>20.5$ ng corticosterone metabolites/0.05g feces (CM), $CI95$ 11.7 to 29.4, $p<0.0001$; Cntl Ex, $M>22.5$ ng CM, $CI95$ 13.4 to 31.5, $p<0.0001$; Calm Ex, $M>21.8$ CM, $CI95$ 11.7 to 32.0, $p=0.0003$). Calm animals gained greater body mass than Cntl, although they had similar weekly energy intake. We also observed changes in body composition, behavior, spleen mass, and immune function. Lastly, our *in vitro* studies showed that Calm Ex animals had innate and adaptive immune responses that were more sensitive to acute stress.

Conclusion: Our data indicate that both Calm and exercise caging generated reductions in physiologic stress measures in mice. Collectively, the Calm model represents a promising approach to studying the biological effects of stress reduction in the context of health and in conjunction with existing disease models.

P44

P01.44. In vivo immune modulating effects of Ashwagandha (Withania somnifera)

A Erlandsen^{*}, J Mikolaj, A Murison, S Mukherjee, H Zwickey
Helfgott Research Institute, National College of Natural Medicine, Portland, USA

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Purpose: The herb Ashwagandha (*Withania somnifera*, Dunal), has been used for centuries in Ayurveda as rasayana – promoter of longevity, well-being, and disease prevention. Traditional use combines the herb with a carrier substance called "anupana," believed to help aid in bioavailability and absorption. To compare the effects of Ashwagandha root extract plus anupana on human immune activation to Ashwagandha extract without anupana, anupana plus sham extract, and sham extract only.

Methods: Twenty participants were divided into four groups: Group 1 Ashwagandha root extract only; Group 2 Ashwagandha root extract plus anupana; Group 3 sham extract plus anupana; and Group 4 sham extract only. Participants took 3mL of their assigned extract twice daily for five days. Organic cow's milk was used as anupana; Groups 2 & 3 consumed 8 fl.oz. of milk with each dose of extract. Sham extract was 45% grain alcohol: 55% spring water, analogous to the Ashwagandha extract solvent. Four types of lymphocytes were isolated from peripheral blood samples taken at baseline, 24 hours, and 96 hours and compared for differences in surface receptor expression of CD4, CD8, CD19, CD56, and CD69. Data were collected using FACScan flow cytometry. Statistical analyses were completed using ANOVA to investigate between-group effects and by student t-test to investigate within-group effects.

Results: ANOVA revealed no significant between-group effects. No significant within-group effects were seen in Groups 1, 3, or 4. Within-group analysis of Group 2 from baseline to final demonstrated statistically significant increases in CD69 expression ($p<0.009$) and an increase in the absolute number ($p<0.05$) of CD8 T cells. There was also a trend toward increased activation of CD4 T cells after 24 hours.

Conclusion: Possible clinical implications of these results include prophylaxis and treatment of infectious agents (specifically intracellular parasites and viruses), adjuvant therapy against tumor cells, and effects on hypersensitivity and inappropriate immune balance.

P45

P01.45. Activated neuropathway from nucleus tractus solitarius to rostral ventrolateral medulla during electroacupuncture

Z Guo^{*}, J Longhurst
University of California, Irvine, Irvine, USA

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Purpose: Our previous studies have shown that electroacupuncture (EA) at the Jianshi-Neiguan acupoints (P5-P6, overlying the median nerve) attenuates sympathoexcitatory responses through its influence on neuronal activity in the rostral ventrolateral medulla (rVLM). Nucleus tractus solitarius (NTS) receives inputs from somatic nerve stimulation. However, there is no information on the activation of NTS neurons by EA at P5-P6 acupoints, which subsequently affects the rVLM. Thus, the present study evaluated neuronal activation of NTS in response to EA, with regard to their projections to the rVLM.

Methods: Seven to ten days after unilateral microinjection of a rodamine-conjugated microsphere retrograde tracer (100 nl) into the rVLM, rats were subjected to EA or served as a sham-operated control. EA was performed for 30 min at P5-P6 acupoints bilaterally.

Results: Perikarya containing the microsphere tracer were found in the NTS of both groups. Compared to controls (needle placement without electrical stimulation, $n=4$), c-Fos immunoreactivity and neurons double-labeled with c-Fos, an immediate early gene and the tracer were more frequently found in the NTS of EA-treated rats ($n=5$), particularly, in the medial and lateral subdivisions of caudal and intermediate NTS extension.

Conclusion: These results suggest that EA at P5-P6 acupoints activates NTS neurons. Furthermore, EA-activated NTS neuron can directly project to the rVLM, which is known to participate in EA-modulation of sympathetic activity.

P46

P01.46. Assessment of autonomic tone at rest and during meditation in a longitudinal study of an eight-week meditation intervention

G Desbordes^{1*}, R Barbieri², L Citi², S Lazar², L Negi³, C Raison⁴, E Schwartz¹

¹Boston University, Boston, USA; ²Massachusetts General Hospital, Boston, USA; ³Emory University, Atlanta, USA; ⁴University of Arizona, Tucson, USA
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Purpose: Measures of heart rate variability (HRV) and respiratory sinus arrhythmia (RSA), which are the healthy fluctuations in heart rate that reflect autonomic influences on cardiac activity, have been proposed as indicators of physical and psychological health. Previous studies suggest that HRV increases during some meditative states, but it is not clear how autonomic tone is affected either in the short term during meditative states, nor as a long-term result of meditation practice. Here we test two hypotheses: (1) eight weeks of meditation training will improve autonomic tone, in the form of increased overall HRV and decreased low-frequency HRV to high-frequency HRV (LF/HF) ratio; and (2) RSA increases during the meditation state compared to rest.

Methods: We collected electrocardiogram recordings as part of a larger randomized controlled trial of the effects of an eight-week meditation training intervention on healthy adults without prior meditation experience. Here we report data from eight subjects before and after the "mindful-attention" meditation intervention and the control intervention. The recordings were performed while the subjects were lying supine, at rest (for both groups) and in a meditative state (for the meditation group only). We computed measures of HRV and RSA across a 3-minute epoch using a point-process model of heart beat dynamics.

Results: We found a longitudinal increase in HRV and a longitudinal decrease in LF/HF ratio (i.e., a more predominant vagal tone), both consistent with improved autonomic function, in the meditation group but not in the control group. We also found a marked increase in RSA during meditation compared to rest.

Conclusion: These preliminary outcomes, although derived from a small sample, support our hypotheses. They suggest that measures of RSA might be useful markers of the meditative state, and encourage further investigation on the efficacy of HRV measures to indicate a general improvement of autonomic health after meditation interventions.

P47

P01.47. Analgesic and antiedematogenic effect of EnergyCare™ in the mice model of ischemia-reperfusion of the paw: involvement of anti-inflammatory cytokines

F Cidral-Filho^{1*}, D Martins², L Mazzardo-Martins¹, A Soares dos Santos¹

¹Federal University of Santa Catarina, Florianópolis, Brazil; ²University of the South of Santa Catarina - UNISUL, Florianópolis, Brazil

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Purpose: Evaluate (1) the possible analgesic and antiedematogenic effect of EnergyCare™ (EC) in the mice model of ischemia-reperfusion of the paw (IR) and (2) the levels of anti-inflammatory cytokines (paw).

Methods: Male Swiss mice were used in the experiments. All procedures were approved by the University Animal Ethics Committee (CEUA/Unisul - protocol n# 11.022.4.08.IV). For induction of IR an elastic ring (1.2mm diameter) was positioned in the right ankle of anesthetized mice (chloral hydrate - 7%, 0.6ml/kg, ip). After three hours the ring was cut allowing reperfusion. Experimental groups were: Sham (anesthetized but not subjected to IR), IR, Sham + EC, and IR + EC. For treatment, EC "Dream Pillow" or "Sham Pillow" was placed in the bottom of the animals boxes on the 3rd - removed on the 10th and replaced on the 11th postoperative (PO) day. Mechanical hypersensitivity was determined as response frequency to 10 presentations of a 0.4g von Frey filament. Paw volume was assessed with a plethysmometer. Interleukin (IL)-10 and IL-1ra levels (paw skin and intraplantar muscles) were determined by enzyme-linked immunosorbent assay on the fourth day PO after 24h exposure to EC.

Results: Two-way ANOVA followed by Bonferroni denoted statistical difference between EC and IR groups in (1) mechanical hypersensitivity [all treatment days (p<0.05 - p<0.001)] and (2) paw volume [PO day 4, 5 (p<0.001) and 6 (p<0.05)]. One-way ANOVA followed by Newman-Keuls indicated increase in the levels of IL-10 [Sham vs Sham + EC (p<0.01), IR

vs IR + EC (p<0.05)] as well as IL-1ra (Sham vs Sham + EC and IR vs IR + EC (p<0.05)).

Conclusion: EnergyCare™ presented analgesic and antiedematogenic effects in the mice model of IR of the paw, as well as induced increase of IL-10 and IL-1ra cytokine levels (paw skin and intraplantar muscles).

P48

P01.48. Biomechanical responses to the mechanical characteristics of a spinal manipulation: effect of varying segmental contact site

T Edgecombe^{1*}, G Kawchuk¹, C Long², J Pickar²

¹University of Alberta, Edmonton, Canada; ²Palmer Center for Chiropractic Research, Davenport, USA

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Purpose: Spinal manipulative therapy (SMT) is a common intervention used to treat low-back pain. Some prior investigations report decreased spinal stiffness following SMT; others report no effect. Given that the efficacy of many therapies (e.g. pharmaceuticals, injections) depend on choice of application site and outcome metric (e.g. fasting vs non-fasting blood sugar), potential explanations for mixed SMT results include variability in SMT application site and the method of computing stiffness. Based on these considerations, our goal was to determine the influence of SMT application site and stiffness computation on SMT-induced changes in spinal stiffness.

Methods: In an anesthetized cat preparation (n=8), simulated SMT was delivered by a validated mechanical apparatus to the intact lumbar spine at 4 sites: L₆ spinous process, left L₆ lamina, left L₆ mammillary process, and L₇ spinous process. To obtain stiffness data, the apparatus slowly displaced the L₆ spinous process to 16N; force and displacement were recorded continuously. Three metrics were calculated from the resulting force-displacement curve: Terminal Instantaneous Stiffness (TIS, stiffness at the end point of the curve), k (average stiffness), and Regional Stiffness (RS, average stiffness in each 10% interval of the curve). SMT-induced changes in each metric were determined for each application site using an ANOVA model controlling for SMT presentation order.

Results: SMT applied at the L₆ spinous decreased TIS (-0.48N/mm [-0.86, -0.09] upper, lower 95%CI). SMT applied at the L₆ lamina also decreased TIS (-0.44N/mm; [-0.82, -0.05]). SMT applied to the L₆ spinous increased k (0.44N/mm, [-0.01, 0.88]). SMT applied at L₆ spinous process and L₆ lamina decreased RS during some, but not all intervals.

Conclusion: These results suggest that previous reports on SMT's effect on spinal stiffness may be influenced by the choice of SMT application site and stiffness metric.

P49

P01.49. Development of quality control methods for some Indian integrative medicines by use of markers

A Mohammad^{*}, Swarnlata Saraf, Shailendra Saraf

University Institute of Pharmacy, Raipur, India

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Purpose: In the present study quality control methods for two Indian integrative medicines included in the Ayurveda system, Balchaturbhadrika churna and Shyngyadi churna, were established with the help of a standard marker compound. These preparations are widely used in India for the treatment of diarrhea, fever, cough, and asthma.

Methods: Stated formulations contain the common crude drug named piper longum. As we know that piperine is the key active plant ingredient of the drug and responsible for its therapeutic activity, both formulations have been standardized through high performance thin layer chromatography with respect to this marker compound (piperine). The stationary phase used was precoated silica gel 60F 254. The mobile phase containing toluene and methanol in proportion of 80:10 v/v was used to separate the spot of piperine. The detection of the spot was carried out at 345.5 nm. The proposed HPTLC method can be used for quality control of the raw material as well as the formulations.

Results: In the chromatogram of the formulations, one spot matched with the R_f value of standard piperine and had the same max (345.5 nm), which indicates the presence of piperine in the formulations. The low percent

residual standard deviation values indicate the suitability of this method for routine analysis of piperine in both formulations.

Conclusion: Rapid, reproducible, and accurate methods for the qualitative and quantitative estimation of piperine in both Ayurvedic medicines have been developed, which can be very useful for the routine quality control analysis of these formulations and to increase their global acceptance.

P50

P01.50. Influence of dietary red palm oil on antioxidant status in male Wistar rats

A Ayeleso^{1*}, O Oguntibeju¹, N Brooks²

¹Cape Peninsula University of Technology, Dept of Biomedical Sciences, Bellville, South Africa; ²Dept of Wellness Sciences, Cape Peninsula University of Technology, Cape Town, South Africa

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Purpose: The study was carried out to evaluate the antioxidant status in male rats following the dietary consumption of red palm oil.

Methods: Male wistar rats were randomly divided into three groups. Group 1 (n=5) received no supplementation and served as the control while group 2 (n=6) and 3 (n=6) received 2ml and 4ml red palm oil (RPO), respectively. Plasma total polyphenols, plasma antioxidant capacity [i.e. oxygen radical absorbance capacity (ORAC)], ferric reducing antioxidant power (FRAP) as well as levels of antioxidant enzymes [catalase (CAT), glutathione peroxidase (GPx) and superoxide dismutase (SOD)] were determined using established techniques.

Results: There were no significant differences (p<0.05) in total polyphenols, ORAC, and FRAP in palm oil fed groups when compared with the control group. Catalase levels significantly increased (p<0.05) at both 2ml and 4ml RPO in the liver and erythrocyte. There was no significant difference in the liver GPx levels in palm oil fed groups while erythrocyte GPx level significantly increased at 4ml RPO when compared with the control group. Red palm oil did not significantly increase (p<0.05) liver and erythrocyte SOD levels in all the groups when compared with the control group.

Conclusion: Red palm oil did not significantly increase the total antioxidant capacity in the plasma. However, RPO significantly increased the levels of liver and erythrocyte catalase as well as erythrocyte glutathione peroxidase level and hence, its dietary consumption could help to boost antioxidant status in the body and thus promote good health.

P51

P01.51. Light-emitting diode therapy reduces mechanical hypersensitivity induced by plantar incision model in mice via opioid mechanism

F Cidral-Filho^{*}, L Mazzardo-Martins, D Martins, A OO Moré, A Soares dos Santos

Federal University of Santa Catarina, Florianópolis, Brazil

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Purpose: Evaluate the antihypersensitivity effect of Light Emitting Diode Therapy (LEDT) in the plantar incision (PI) model in mice as well as investigate the possible involvement of the opioid system in this effect.

Methods: The experiments were approved by the institution ethics committee under protocol n. 23080.006492/2011-61. Male Swiss mice were randomly divided in the following groups (n=8): naive, control (not treated), Off (LED device turned off), LEDT 1, 3, 5, 7 and 9 (treated with energy densities of 1 through 9 J/cm²). Control, Off and LEDT groups were submitted to a 5mm longitudinal PI (right hindpaw) under anesthesia (1-2% isoflurane). Mechanical hypersensitivity (MH) was assessed as withdrawal frequency percentage to 10 presentations of a 0.4g von Frey filament. Evaluations were conducted before and on day 1 through 5 after PI. LEDT (MOLIMEDpen® device; 950 nm wavelength, 80 mW/cm² irradiance; 1 to 9 J/cm² energy density) was applied directly to the skin of the incision site.

Results: Results demonstrate that LEDT reduced MH in a dose-response manner with best results obtained with 9 J/cm² (inhibition of 55±10% and effect lasting for 1 hour). Treatment with 1 J/cm² and with LED device turned off did not reduce MH. Furthermore, LEDT as well as morphine (5 µg/site i.pl.) effects were blocked by intraperitoneal (i.p.),

intraplantar (i.pl.) or intrathecal pre-administration of naloxone (1 mg/kg i.p.; 5 µg/site i.pl. or 5 µg/site i.t.) 20 minutes prior to LEDT or morphine treatment.

Conclusion: LEDT reduced hypersensitivity induced by PI in mice via peripheral as well as central opioid mechanisms.

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P52

P01.52. Comparative study of two bioassays with stressed duckweed and yeast treated with homeopathic preparations

T Jäger¹, C Scherr¹, M Simon², P Heusser³, S Baumgartner^{4*}

¹University of Bern, Institute of Complementary Medicine KIKOM, Bern, Switzerland; ²University of Oldenburg, Oldenburg, Germany; ³University of Witten-Herdecke, Herdecke, Germany; ⁴University of Bern, Bern, Switzerland
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Purpose: In homeopathic basic research the question of the most adequate test systems and apt methodology is still open. We compared two arsenic (As³⁺) stressed bioassays with duckweed (*Lemna gibba*, a multi-cellular autotrophic organism) and yeast (*Saccharomyces cerevisiae*, a single-cellular heterotrophic organism) regarding their response towards homeopathic preparations.

Methods: For duckweed, growth rates of leaf area and leaf number were evaluated. For yeast, growth kinetics were determined by measuring slope, yield, and Et50 (point in time when yield was half maximum) of the sigmoid growth curve. The experiments with duckweed and yeast were performed in parallel (same day, same location and identical homeopathic preparations). After screening 17 substances, three homeopathic preparations (Arsenicum album, nosode, gibberellic acid) were chosen for repeated experimental series. Five independent experiments were conducted for each remedy with both bioassays in parallel. Potency levels used were in the range of 17x–33x for duckweed and 17x–30x for yeast. As controls, unsuccessful and successful water were used. To examine test system stability, systematic negative control experiments were conducted over the complete experimentation period. All experiments were blinded and randomized.

Results: The systematic negative control experiments did not yield any significant effects, meaning that the test systems were stable and did not show false positive results. Application of potentized Arsenicum album in the duckweed bioassay yielded growth stimulating effects compared to water controls for the parameters leaf area and leaf number (p<0.001), even using ultramolecular preparations. Potentized nosode preparations also had significant effects on duckweed's leaf area and leaf number (p<0.01). In the yeast system the three homeopathic remedies did not show any significant effects on any growth curve parameter.

Conclusion: Arsenic stressed duckweed seems to be a promising bioassay for homeopathic basic research. After verifying external reproducibility in independent laboratories, this bioassay might develop into a valuable tool for basic pharmaceutical questions.

P53

P01.53. Spheroid formation and axonal severing in adult neurons during oxidative stress: role of calcium

A Barsukova-Bell^{1*}, M Forte², D Bourdette³

¹Oregon Health & Science University, Department of Neurology, Portland, USA; ²Vollum Institute, Oregon Health & Science University, Portland, USA; ³Department of Neurology, Oregon Health & Science University, Portland, USA

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Purpose: Axonal severing is critical to the irreversible disability that occurs over the course of multiple sclerosis (MS). Reactive oxygen species (ROS) are implicated in neurodegenerative aspects of MS: axonal spheroid formation, severing, and axoplasmic Ca²⁺ elevation. However, the exact role of Ca²⁺ in spheroid formation remains unclear. The mechanism of action of natural anti-oxidants such as lipoic acid, which provide neuroprotection during oxidative stress in MS model, also remains unclear.

Methods: Primary cortical neurons from adult mice were subjected to physiologically-relevant levels of H₂O₂. Ca²⁺ dynamics and its sources

were examined during spheroids formation using real time imaging, ratiometric Ca^{2+} indicators and immunocytochemistry.

Results: Exposure to ROS led to a 3.5 fold increase in axoplasmic Ca^{2+} by 30 min. Onset of axonal spheroid formation began at 15 min when Ca^{2+} increase was 2.2 fold. Axonal severing occurred at sites of spheroids around 90-120 min. Analysis of small axonal segments revealed an uneven distribution of Ca^{2+} during exposure to H_2O_2 . Micrometers apart, focal Ca^{2+} increases in small axonal domains ranged from 2.8 to 4.4 fold. Domains with a 3.8 to 4.4-fold increase correlated with the sites of spheroids, suggesting high focal extracellular Ca^{2+} influx at these sites. Several treatments significantly attenuated Ca^{2+} increase and completely abolished spheroid formation under ROS: removal of extracellular Ca^{2+} ; N-type Ca^{2+} channel blocker omega-conotoxin GVIA; L-type Ca^{2+} channel blocker amlodipine; and reverse $\text{Na}^+/\text{Ca}^{2+}$ exchanger (NCX1) blocker KB-R7943. Aggregation of reverse NCX1 and N-type voltage-gated Ca^{2+} channel was detected at spheroids.

Conclusion: Our results reveal a correlation between focal axoplasmic Ca^{2+} and spheroid formation and suggest that focal aggregation of the reverse NCX1 and N-type Ca^{2+} channel plays central role in high focal Ca^{2+} increase during oxidative stress. These findings provide a basis for investigating the neuroprotective mechanism of the natural anti-oxidant lipolic acid during oxidative stress.

P54

P01.54. Electrical potential of acupuncture points: use of a Scanning Kelvin Probe

A Ahn^{1*}, B Gow¹, S Smith¹, I Baikie²

¹Massachusetts General Hospital Martinos Center for Biomedical Imaging, Charlestown, USA; ²Kelvin Probe Technology, Wick, United Kingdom
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Purpose: According to conventional wisdom within the acupuncture community, acupuncture points are distinguishable by their electrical properties. However, confounders arising from skin-to-electrode contact (such as electrode pressure and skin moisture) have contributed to controversies over this claim. Because the Scanning Kelvin Probe relies on capacitive coupling and thus measures electrical potential without actually touching the skin, it is ideal for assessing the electrical characteristics of acupuncture points. In this study, we evaluate the electrical potential profiles of acupoint LI-4 and PC-6 and their adjacent controls. We hypothesize that acupoints are associated with a potential maximum, while adjacent controls are not.

Methods: Three healthy individuals were recruited for this study (towards an anticipated total of 24). The right arm was immobilized and positioned for measurements. Acupuncture points LI-4 and PC-6 and their adjacent controls (1.0 cm radial) were investigated. A 2-mm probe tip was placed over the predetermined skin site and adjusted to a tip-to-sample distance of 100 μm under tip oscillation settings of 94.8Hz frequency. A 6x6 surface potential scan spanning a 9mm x 9mm area were obtained.

Results: In two of three subjects, a potential maxima of greater than 60 mV above the mean of the scanned area was seen at LI-4. This maxima was approximately 2mm in diameter and reproducibly seen with separate consecutive scans. No such maxima was seen in its adjacent control. No identifiable maxima was seen with either PC6 or its control.

Conclusion: Preliminary data suggests that acupoint LI-4 is associated with a 60 mV peak in surface potential while no such peak was identified at PC-6. Additional data will be collected in additional subjects to assess the generalizability of this finding.

P55

P01.55. Turmeric inhibits parathyroid hormone-related protein (PTHrP) secretion from human rheumatoid synoviocytes

J Frye², B Timmermann¹, J Funk^{2*}

¹University of Kansas, Lawrence, USA; ²University of Arizona, Tucson, USA
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Purpose: Excessive production of parathyroid hormone-related protein (PTHrP) by tumor-like synoviocytes contributes to joint destruction in rheumatoid arthritis (RA). Having previously demonstrated that curcuminoid-

only and essential oil-only fractions of turmeric prevent joint destruction in an animal model of RA, we hypothesized that synoviocyte PTHrP production could be one signaling pathway targeted by turmeric (*Curcuma longa* L.) in RA.

Methods: Two turmeric extracts were isolated from dried turmeric rhizomes and chemically characterized by HPLC, an essential oil-free curcuminoid-containing fraction and an essential oil-only fraction. Their effects on IL-1 β stimulated PTHrP secretion from human rheumatoid synoviocytes were assessed using a commercial PTHrP ELISA and primary cultures of synoviocytes isolated from patients with RA, as defined by the American College of Rheumatology.

Results: Both turmeric fractions inhibited IL-1 stimulated PTHrP secretion from human rheumatoid synoviocytes in a dose-dependent fashion. The curcuminoid-containing fraction, which had no effect on constitutive PTHrP secretion, inhibited IL-1 stimulated PTHrP secretion with a least effective concentration (LEC) of 3 $\mu\text{g}/\text{ml}$. The essential oils, while slightly but significantly increasing constitutive PTHrP secretion, were potent suppressors of IL-1 stimulated PTHrP secretion (LEC = 1 $\mu\text{g}/\text{ml}$).

Conclusion: Curcuminoids and essential oils of turmeric are both potent suppressors of cytokine-stimulated PTHrP secretion from human rheumatoid synoviocytes. When coupled with our previous *in vivo* studies demonstrating protective effects of both extracts in an animal model of rheumatoid arthritis, these findings suggest that both secondary metabolites of turmeric may have medicinal effects in the treatment of rheumatoid arthritis.

P56

P01.56. Does practicing Reiki alter the electromagnetic field of heart and hands of practitioners?

A Baldwin^{1*}, W Rand², G Schwartz¹

¹University of Arizona, Tucson, USA; ²Center for Reiki Research, Michigan, USA
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Purpose: This study attempted to repeat experiments performed 20 years ago that detected exceptionally high strength electromagnetic fields (100 nT) from the hands of several energy healers. The equipment utilized in this replication attempt was far more sensitive, and the magnetic shielding used to block confounding fields from electrical lines far more effective, than in the original studies.

Methods: Using a Magnes 2500 WH SQUID at Scripps Research Institute, San Diego, the electromagnetic field from the hands and heart of each of 3 Reiki masters was measured for 5 minutes when they were: (i) not practicing Reiki; (ii) sending Reiki to a distant person; and (iii) sending Reiki to a person in the room. Similar measurements were made on 4 Reiki-naïve volunteers before and after they received Reiki attunements enabling them to run Reiki energy through themselves.

Results: For all subjects, under all conditions, sensors closest to the heart and the hands produced spikes of 2pT corresponding to the heartbeat. Recordings from two Masters and one volunteer showed a low intensity sine wave oscillation of 0.25-0.3Hz (intensity 0.1-0.5pT) whether or not they were practicing Reiki. This oscillation probably reflected respiratory sinus arrhythmia, as judged by comparison with recent previous studies. These signals were not detected in the original studies. No segments of electromagnetic field intensity greater than 3pT were seen in any recording in the current study.

Conclusion: These results suggest that practicing Reiki does not routinely produce high intensity electromagnetic fields from the palms. The previous findings could have been from a few exceptional healers. Alternatively, it is possible that energy healing is stimulated by attunement to an external environmental radiation, such as the Schumann resonance, which was blocked in the present study by the strong magnetic shielding in the room containing the SQUID.

P57

P02.01. A dietary approach for treating dyslipidemia and hyperglycemia

J Feuerstein^{1*}, L Bautista², W Bjerke³

¹Stamford Hospital, Columbia University, Stamford, USA; ²Optimus Healthcare, Stamford, USA; ³Sacred Heart University, Fairfield, USA
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Purpose: Elevated LDL cholesterol and impaired fasting glucose are significant risk factors for cardiovascular disease; the most prevalent cause of mortality in the USA. Many dietary approaches have been examined to help combat these medical problems. Each type of diet typically places a particular emphasis on the relative proportions of the three macronutrients; fat, carbohydrate and protein.

Methods: We report on a case series of 41 patients who were placed on an 1100-calorie diet reduced in starch and emphasizing lean proteins, mono and polyunsaturated fats and fiber with a unique composition of macronutrients for four months in an effort to improve cholesterol and fasting glucose indices.

Results: 28 of the 41 (68%) patients complied with the protocol over a four-month period. In the compliant group, statistically significant reduction ($p < 0.05$) in the following mean variables were seen: Weight (2.3kg), Total Cholesterol 22% (53 mg/dL), LDL 23% (43 mg/dL), HDL (4 mg/dL), TAG (21 mg/dL) and fasting serum glucose (12 mg/dL), after 4 months on the dietary regimen. In the non-compliant/comparison group, statistically significant increases ($p < 0.05$) in the following variables were seen at the end of 6 months: Total Cholesterol (24 mg/dL), LDL (14 mg/dL) and TAG (29 mg/dL).

Conclusion: This magnitude of reduction in Total and LDL Cholesterol is significantly greater than that seen in the recent large dietary intervention trials and is comparable to that seen in the 'eco-Atkins' trial, which was far more restrictive in nature and shorter in duration.

P58

P02.02. Efficacy of a topical 0.1% Capsaicin hydrogel patch to treat chronic neck pain: a double-blind randomized clinical trial

M Brodsky^{1*}, J Cho², J Fang³, E Kim², Y Cho², M Song²

¹Stamford Hospital, Columbia University, Stamford, USA; ²Kyung Hee University, Oriental Rehabilitation Medicine, Seoul, Republic of Korea; ³Chang Gung University, Pharmaceuticals Laboratory, Teipai, Taiwan

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Purpose: Myofascial trigger points are a common component of musculoskeletal neck pain. Capsaicin, a vanilloid 1 (TRPV1) receptor agonist, has been shown to induce pain in human tendon tissues and to increase trigger point sensitivity in humans. TRPV1 receptor agonists, with repeated use, inhibit the initiation of transmission of pain-related neurotransmitters and may alleviate pain. This study evaluated the efficacy of a hydrogel patch containing capsaicin 0.1% compared to a placebo hydrogel patch without capsaicin to treat chronic myofascial neck pain.

Methods: Sixty-one subjects between the ages of 18 and 65 years old with at least 3 months of myofascial neck pain were recruited. Participants were randomized to apply either capsaicin 0.1% (500mcg) hydrogel patches or hydrogel control patches without capsaicin to each side of the neck and shoulder girdle area for 12 hours each day for a 4-week treatment period. The following instruments were administered at baseline, at 2-weeks after the start of treatment, at the conclusion of the 4-week treatment, and 4 weeks after the treatment period: (1) change on a visual analogue scale (VAS), the primary outcome measure; (2) Neck Disability Index (NDI); (3) Beck's Depression Inventory (BDI); (4) Short Form 36 (SF-36) Korean version; and (5) Euroqol 5-D(EQ-5D) Health Questionnaire.

Results: Fifty-seven subjects completed the study. The mean VAS scores were significantly decreased at 2, 4 and 8 weeks after the start of the intervention in both groups. However, there was no significant difference in VAS score between the two groups or in any of the other outcome measures.

Conclusion: Given the finding that subjects had a statistically significant improvement with the 0.1% capsaicin hydrogel patch compared to baseline, further studies may be warranted. Future investigation may assess capsaicin as an adjunct to the treatment of myofascial neck pain with other self-care, medication, and office based approaches.

P59

P02.03. Decreased medication use and cost savings in inpatient oncology through a yoga-based integrative medicine approach

J Friedman^{*}, B Kligler, P Hommel, W Merrell

Beth Israel Medical Center, Department of Integrative Medicine, New York City, USA

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Purpose: The Urban Zen (UZ) Initiative at Beth Israel Medical Center was a pilot project evaluating the impact of a multi-faceted "optimal healing environment" intervention on quality of life and cost outcomes for inpatients on a medical oncology floor. Little research exists on the question of potential cost savings. This poster presents a summary of our findings on cost outcomes from this Initiative.

Methods: The UZ intervention included: (1) remodeling physical space; (2) holistic nursing techniques training for the nursing staff; (3) yoga therapists on the unit to work with patients using breathing and yoga techniques; (4) "patient navigator"; and (5) audiovisuals demonstrating yoga and relaxation techniques for patients to use in bed. We compared a control group admitted prior to UZ implementation to a treatment group of patients admitted after the intervention was implemented. Inclusion criteria were age 18-85, Karnofsky score ≥ 60 , life expectancy ≥ 6 months, and English-speaking.

Results: UZ group had lower mean medication costs. Total medication costs were significantly higher for the baseline group (\$889) versus the UZ group (\$420) for a cost savings on average of \$469 per patient. Significant differences in favor of the UZ group were seen with regard to anti-nausea medications and anti-anxiety medications.

Conclusion: A significant decrease in medication costs in the UZ group was observed compared to controls, on the order of \$152 per patient. If we extrapolate this savings of approximately \$50.66 per patient per day to a total of 8760 patient days per year (24 beds x 365 days), this results in a total savings to the hospital of \$443,781 annually. This type of innovative, patient-centered, "optimal healing environment" intervention in the inpatient setting has the potential to significantly reduce patients' need for medication to treat anxiety, sleep, nausea and pain. This decreased use of medications can create substantial cost savings for hospitals in the care of oncology patients.

P60

P02.04. Internet survey confirms strong interest in Yoga among fibromyalgia patients

J Carson, R Bennett, K Jones, S Mist^{*}

Oregon Health & Science University, Portland, USA

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Purpose: Studies in circumscribed clinical settings have reported that yoga has been adopted by fibromyalgia (FM) patients of many cultural backgrounds. However, yoga styles vary in the methods they emphasize, and it is unclear from existing studies which types of practices FM patients are typically engaging in, and the extent to which they experience yoga as helpful or not. The purpose of this study was to survey FM patients in many different regions to inquire about their engagement in various yoga practices, perceived benefits, and obstacles to further practice.

Methods: We conducted a 16 question internet survey of persons self-identified as FM patients who were subscribers to electronic newsletters on the topic of FM. Respondents (N=2543) replied from all 50 U.S. states and also Canada, Australia and the United Kingdom.

Results: The average age of respondents was 57 years, 96% were female, and average time since diagnosis was 13 years. Of these, 80% had considered trying yoga and 58% had attended ≥ 1 yoga class. Their classes typically focused almost exclusively on yoga poses, with minimal training in meditation, breathing techniques or other practices. The most commonly cited benefits were reduced stiffness, relaxation, and better balance. The most frequently cited obstacles were fear that the poses would cause too much pain, concerns about the poses being too physically demanding, or not being able to do the poses correctly.

Conclusion: These findings confirm strong interest in yoga across a geographically diverse range of FM patients. However, concerns about yoga-induced pain and yoga poses being too difficult are common reasons that FM patients do not engage in yoga exercises. This study supports the need for yoga programs tailored for FM that include modification of poses to minimize aggravating movements, and substantive training in meditation and other yoga-based coping methods to minimize pain-related fear.

P61

P02.05. Clinical practice outcomes of an individualized integrative intervention for chronic pain: results from the BraveNet PBRN

D Abrams¹, BraveNet Practice Based Research Network
University of California, San Francisco, San Francisco, USA
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Purpose: Chronic pain is one of the main conditions for which patients seek integrative medicine care. Many integrative medicine centers rank chronic pain as the complaint that they treat most effectively. We evaluated the impact of an individualized integrative intervention for chronic pain.

Methods: Patients seeking their initial treatment for chronic pain at one of the nine centers in an integrative medicine practice-based research network were eligible. Enrolled patients received a personalized integrative medicine intervention over the 24-week study period. In addition to the Brief Pain Inventory (BPI), participants also completed the SF-12, PSS-4, CES-D 20 and various numerical rating scales. Repeated measures analyses were used to assess data from baseline, week 6, week 12 and week 24 visits.

Results: 252 participants completed the 24-week study. Participants were predominantly female (74%) with an average age of 49.8 years and 8.6 years of chronic pain. Pain was mainly in the axial skeleton, shoulders, knees and hips. The integrative intervention included combinations of acupuncture, massage, chiropractic manipulation, yoga, supplements (especially vitamin D3 and fish oil) and others. At baseline, median BPI Severity and Interference scores were both 5 (5=moderate, scored on 0-10 scale). By 24 weeks, BPI Severity decreased 20% to 4 ($p=0.0006$) and Interference decreased 40% to 3 ($p<0.0001$). Where 52% had symptoms suggestive of depression at baseline, only 35% did at week 24 ($p<0.0001$). Both the mental and physical components of the SF-12 improved significantly ($p<0.0001$) as did perceived stress ($p<0.0001$), sleep ($p<0.006$), fatigue ($p<0.0001$) and sense of control ($p<0.0001$).

Conclusion: An individualized integrative medicine intervention successfully decreased chronic pain in participants with long-standing symptoms. Consistent with the suggestion that integrative interventions frequently impact on more than one endpoint, significant and consistent improvement was also documented in symptoms of depression, stress, and fatigue with positive effects on quality of life and sense of control.

P62

P02.06. The effect of massage therapy for breast surgery patients

N Drackley¹, B Bauer
Mayo Clinic, Rochester, USA
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Purpose: Massage therapy is used as an adjunct to conventional medical therapy. The goal of this pilot was to evaluate the effect of massage therapy on pain, anxiety, tension and overall wellbeing after breast surgery. The secondary goal was to evaluate the feasibility of a fee-for-service delivery model in a hospital setting.

Methods: A 3-month pilot was performed offering massage therapy to postoperative breast surgical patients. A certified massage therapist approached patients the day after surgery. Massage duration was determined by discussion between the therapist and patient. Massage was offered at a fee of \$1/minute and billed through the institutional billing system. Pain, anxiety and tension levels were documented pre and post massage. Patients completed an anonymous survey regarding their experience.

Results: Of 64 patients seen during the pilot, 46 patients (72%) elected to have massage. Eighteen patients declined due to: cost ($n=2$), too ill ($n=3$), not interested ($n=11$), dismissed ($n=2$). The mean duration of therapy was 23 minutes (range 8 – 45). Patients reported massage as very effective for: stress relief (76%), relaxation (82%), pain relief (64%), and somewhat effective for: stress relief (21%), relaxation (18%) and pain relief (31%). In terms of general feelings of wellness, 83% of patients reported massage as very effective. Patient comments regarding the experience were positive. Seventy-nine percent of patients returned post massage surveys and 100% were satisfied (91% very satisfied and 9% satisfied) and 100% would recommend postoperative massage to other surgical patients.

Conclusion: A massage therapy program can be integrated into a busy surgical unit for postoperative breast surgery patients and may complement surgical therapy to assist with pain, anxiety, relaxation, and overall well-being in the postoperative setting.

P63

P02.07. A study to assess the validity of applied kinesiology (AK) as a diagnostic tool and as a nonlocal proximity effect

S Schwartz^{1*}, J Utts², S Spottiswoode³, C Shade⁴, L Tully⁵, W Morris⁶, G Nachman⁷
¹Samueli Institute, Langley, USA; ²Professor, Department of Statistics, University of California – Irvine, Irvine, USA; ³Managing Director and Chief Scientist, The Resource Group, Beverly Hills, USA; ⁴Director of Int. Scientific Advisory Board, Applied Biophysics Found., Boulder, USA; ⁵Chief Scientist, Quicksilver Scientific, Boulder, USA; ⁶Professor of Osteopathic Manipulation Medicine, A.T. Still Univ., Mesa, USA; ⁷Medical Writing Scientist, Quintiles Transnational Corporation, Raleigh-Durham, USA
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Purpose: 1. Is there a difference in muscular strength when an individual holds a substance inimical to life processes compared to a substance essential for life? 2. Does the effect involve input from the person being measured, and the kinesiologist doing the measurement, or only the person measured? 3. Is the result the same when different kinesiologists take measurements, or when no kinesiologist is involved? 4. Does belief, expectation, gender, or time perception play a role?

Methods: Fifty-one participants each participated in 3 trials: a woman kinesiologist, a male kinesiologist, and no kinesiologist with testing using a hand dynamometer. The woman kinesiologist was replaced by another woman part way through study. Results were examined across all three and by practitioner. Each trial used unique pairs of visually identical, randomly numbered, sealed vials; one vial in each pair contained saline solution; the other contained saline solution plus ionic hydroxylamine hydrochloride (NH₃OH)⁺. Both trial vials were independently muscle tested using accepted AK techniques. All present were blind to which vial contained ionic hydroxylamine. Kinesiologist force was measured via a pressure pad system. Practitioner and patient independently designated by number the vial in each trial producing the weak response. In the dynamometer trial, muscle weakness was assessed by hand strength.

Results: Of the 151 sets of trials, the hydroxylamine vial was identified correctly in 80 of them (53%), resulting in a one-tailed exact binomial p -value of 0.258. Results for two of the kinesiologists were almost exactly at chance. For the third kinesiologist there was a one-tailed exact binomial p -value of 0.18 (unadjusted for multiple testing). Results for the dynamometer were also almost exactly at chance. Testing whether there was a significant difference in proportions for whom the AK test worked, based on a belief about whether it would work, resulted in non-significant chi-square values of 0.6 ($p = 0.44$) for the trials with one kinesiologist, and 2.222 ($p = 0.14$) for the hand dynamometer trials. The final variable examined was gender. While there was no significant difference in performance for males or the hand dynamometer, the combined data for the two female kinesiologists did reveal a difference. Of the 33 sessions with females, only 15 were successful (45%) while for the 18 sessions with males, 14 were successful (78%) resulting in a chi-square statistic of 4.96, $p = 0.026$.

Conclusion: Study and review of the AK literature using QUADAS, STARD, JADAD and CONSORT suggest that research published by the AK field fails accepted scientific standards. AK in this study fails as a reliable diagnostic tool upon which health decisions could be based.

P64

P02.08. Patient reported outcomes from complementary, alternative, and integrative medicine (PROCAIM): a feasibility practice network study

D Ackerman^{1*}, L Shinto², M Hardy³, A Heyman⁴, L Nguyen⁵, A Senders², D Abrams⁶, A Ali⁷, B Enebo⁸, P Home⁹, R Horowitz¹⁰, M Reardon¹¹, C Torkelson¹²
¹Oregon College of Oriental Medicine, Portland, USA; ²Oregon Health & Science University, Portland, USA; ³University of California, Los Angeles, Los Angeles, USA; ⁴University of Michigan, Ann Arbor, USA; ⁵National College of Natural Medicine, Portland, USA; ⁶University of California, San Francisco, Osher Center, San Francisco, USA; ⁷Yale University, Integrative Medicine Center at Griffin Hospital, Derby, USA; ⁸University of Colorado School of Medicine, Denver, USA; ⁹Albert Einstein College of Medicine, Bronx, USA; ¹⁰University of Arizona, Center for Integrative Medicine, Tucson, USA; ¹¹University of Vermont College of Medicine, Burlington, USA; ¹²University of Minnesota, Minneapolis, USA
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Purpose: To assess the feasibility of utilizing a web-based data collection system as the research infrastructure for conducting multi-site outcomes research to evaluate complementary, alternative, and integrative medicine.

Methods: The study was a longitudinal observational, cohort study with data collected at baseline and three months. Nine integrative medicine clinics housed at academic health centers that were members of the Consortium for Academic Health Centers for Integrative Medicine (CAHCIM) were invited to participate. Each academic health center was asked to obtain IRB approval for the study. Clinic patients enrolled in the study were given instructions for logging on to the project website to complete the following questionnaires: demographic, quality of life (SF-12), brief pain inventory, and an evaluation of the web-based system. Three months after completing baseline questionnaires patients were notified by email with instructions to complete final quality of life and pain questionnaires. Change in quality of life and pain were analyzed by paired t-test.

Results: All nine centers obtained IRB approval and subjects gave informed consent. Eighty patients from eight centers were enrolled and 48% (38/80) completed the baseline questionnaires. Of those that completed baseline questionnaires, 58% (22/38) completed the 3-month questionnaires. Eighty-four percent (32/38) at baseline completed the evaluation rating their experience with the system and 74% (28/38) responded that the web-based system was easy to navigate. Only 16 participants completed both baseline and 3-month quality of life and pain questionnaires, limiting interpretation of this data. Significant improvements in the mental health component of SF-12 (MCS, $p=0.034$), pain severity ($p=0.02$) and pain interference ($p=0.01$) were observed.

Conclusion: The study shows the feasibility of web-based data collection from multiple sites. Limited study resources likely contributed to a significant number of enrolled participants not completing surveys. Although limited, the data showing improvements in MCS and pain warrant further investigation.

P65

P02.09. An open label pilot study of homeopathic treatment of Attention Deficit Hyperactivity Disorder (ADHD)

D Brulé¹*, H Boon²

¹Riverdale Homeopathic Clinic, Toronto, Canada; ²University of Toronto, Toronto, Canada

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Purpose: The objectives of this open label pilot study of the homeopathic treatment of Attention Deficit Hyperactivity Disorder (ADHD) are to: (1) Develop preliminary estimates of treatment effects including magnitude, direction, variability and standard deviation in order to determine potential for future study; (2) Determine the length of time and number of remedies needed to achieve a 25% reduction in ADHD symptoms as measured using the Conners 3 Parent questionnaire; (3) Assess the feasibility of the recruitment plan and the outcome measure schedules.

Methods: Participants age 6-16 with ADHD (confirmed by the study psychiatrist) of any subtype were invited to participate if they were on a stable medication dose for a minimum of six weeks. Participants with severe psychiatric co-morbidities were excluded. Participants received 10 homeopathic consultations from one of two experienced homeopaths over 9 months who prescribed single homeopathic remedies on an individualized basis from a list of 115 potential substances. Remedies, potencies, and dosing frequencies could be changed at any of the appointments. Outcomes, including Conners 3 Parent questionnaire, were measured at baseline and at each follow-up appointment.

Results: Thirty-six participants (including six females) were recruited over an 11-month period with a mean age of 9.5 (range 6-16). Two participants have withdrawn to date. Of the 15 participants who have completed 8 or more consultations, 11 (73%) have had at least a 25% reduction in their symptoms. Of those participants who have had a 25% reduction, the average time to reach that threshold was 2.6 months and they tried on average 2.2 remedies. Data collection for the majority of the participants will be complete by May 2012.

Conclusion: Preliminary findings from this open-label pilot study indicate that proceeding with the design and conduct of a randomized controlled trial investigating the effects of homeopathic treatment of ADHD is warranted.

P66

P02.10. 10-year experience from an integrative pediatric oncology centre: a retrospective analysis

A Laengler¹*, R Seiler², T Zuzak², T Ostermann², G Kameda¹, P Heusser²

¹Centre for Integrative Pediatric Oncology Gemeinschaftskrankenhaus, Herdecke, Germany; ²Witten Herdecke University, Witten, Germany;

³University of Essen Pediatric Oncology, Essen, Germany

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Purpose: Complementary and alternative therapies (CAM) are widely used in pediatric oncology. Till now there are no published data on the clinical practice of integrating CAM into standard pediatric oncology (PO) care.

Methods: We performed a retrospective analysis of patient records of all PO-patients treated in our integrative pediatric oncology centre (IPOC) with 1st admission between January 1st 1999 and December 31st 2008. Inclusion-criteria were: age 0-18 years; proven cancer-diagnosis; and at least one conventional intervention (chemotherapy, operation, radiation) in our hospital.

Results: A total of 116 cases (39% female) were analysed. Seventy-eight percent were admitted with their 1st cancer-diagnosis, 22% with any relapse. Fifty-eight percent received their diagnosis in our hospital, 42% in another hospital (9% of them outside Germany). The spectrum of diagnosis was the same as in the German PO-population. Along with a standard conventional therapy according to actual treatment-plans within the GPOH-and/or SIOP-framework, 91% of our patients received some form of CAM-medication (e.g. 75% mistletoe-preparations), most out of the spectrum of Anthroposophic Medicine (AM). We could identify a Top 10 of AM remedies prescribed to most patients. The most used non-pharmacological CAM-interventions were: 63% eurythmy therapy, 56% art-therapies (painting, sculpturing), 51% music therapy, 46% external embrocations and compresses. There were no reported serious adverse events for any of the pharmacological or non-pharmacological CAM interventions.

Conclusion: It is possible to integrate CAM into an IPOC within the standard-spectrum of PO-diseases. In a retrospective analysis over a 10-year-period we found no indices for relevant toxicities. Statements regarding the effectiveness of this approach cannot be drawn from this retrospective analysis. Further prospective studies of this approach are necessary.

P67

P02.11. Adherence and satisfaction with the experimental mind and body intervention in the LIFE weight loss maintenance study

C Elder¹*, L DeBar¹, K Funk¹, W Vollmer¹, N Lindberg¹, C Ritenbaugh², G Meltesen¹, C Gallison², V Stevens¹

¹Kaiser Permanente Center for Health Research, Portland, USA; ²University of Arizona, Tucson, USA; ³Healing Touch Acupuncture, Portland, USA

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Purpose: To provide an in depth analysis of adherence and satisfaction with the mind and body intervention for participants in the LIFE weight loss maintenance trial.

Methods: We performed a secondary analysis of 142 obese participants who had lost at least 10 pounds in a conventional weight loss program and who were randomized to the experimental weight loss maintenance intervention. This experimental intervention consisted of instruction and application of an energy psychology intervention, Tapas Acupressure Technique (TAT®). TAT practice combined self-acupressure with a prescribed set of mental steps. Participants were advised to practice TAT at home daily. The main outcome measure was self reported frequency of TAT practice.

Results: Sixty-six percent of TAT participants attended at least six of the eight intervention sessions, and the drop out rate was 3.5%. Almost half of TAT participants reporting practicing TAT at home on average for 2-3 days per week, while 8% reported on average zero days per week of TAT practice and 2% reported daily TAT practice. Sixty-two percent reported practicing less than 10 minutes/session, while 27% reported practicing 10-20 minutes/session. Satisfaction was significantly correlated with less weight regain ($p=.001$), and a majority of participants reported that they were at least somewhat likely to continue using TAT. Frequency of TAT

home practice was not significantly associated with changes in weight, stress, insomnia, depression, or quality of life.

Conclusion: The data suggest moderate acceptance and adherence with the TAT intervention. However our analyses showed no association between frequency of TAT home practice and clinical outcomes. Further research is required toward identifying and achieving optimal levels of home practice in clinical trials of energy psychology techniques.

P68

P02.12. Temporal dynamics of symptom and treatment variables in a lifestyle-oriented approach to anxiety disorder: a single-subject time-series analysis

R Hoenders^{1*}, E Bos¹, P de Jonge²

¹Center for Integrative Psychiatry, Lentis, Groningen, Netherlands;

²Interdisciplinary Center for Psychiatric Epidemiology, RuG, UMCG, Groningen, Netherlands

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Purpose: Although there is increasing evidence for the positive effects of a healthy lifestyle on mental health, most studies only take into account a single lifestyle factor, ignore the possibility of bidirectional causality, and focus on average group results.

Methods: In the present single-subject study, we used multivariate time-series analysis (Vector Auto Regressive modeling) to unravel the dynamic interplay between symptom and treatment variables in a multi-component treatment of anxiety disorder. Main treatment variables were two lifestyle factors (physical activity and relaxation).

Results: The patient in this study recovered completely. Time-series analysis revealed an intricate pattern of dynamic relationships between symptom and treatment variables. Relaxation was predictive of symptom reduction but physical activity surprisingly worsened the symptoms. Changes in energy predicted changes in anxiety. Evidence for bidirectional causality was present as well, with changes in relaxation predicting changes in energy and vice versa, indicating a positive feedback loop.

Conclusion: This study aimed to unravel the dynamic relationships between psychological symptoms and the health-related behaviors intended to improve these symptoms. These relationships turned out to be characterized by bidirectionality, lagged influences, indirect effects, and feedback loops, both between symptoms and behaviors as well as among them. This patient's symptoms and behavior were interrelated in an intricate way. This type of research seems useful for gaining insight into the causal mechanisms underlying the effects of a healthy lifestyle on mental health.

P69

P02.13. Improving stress and resilience for military healthcare providers: results from a pilot study

M Bingham^{1*}, A Inman², J Walter¹, W Zhang¹, W Peacock²

¹Samueli Institute, Alexandria, USA; ²Brooke Army Medical Center, Fort Sam Houston, San Antonio, USA

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Purpose: Healthcare providers (HCP) who care for traumatically injured service members are at risk for stress, burnout, and decreased clinical effectiveness. After two decades of war, the intensive work environment and stress associated with caring for these service members and their families are damaging the emotional and physical well-being of our military HCPs. This pilot study explored the effects of an Integrative Restoration (iRest®) intervention in HCPs at a large military medical center.

Methods: Volunteers from a military medical center were asked to participate in an intervention developed and tailored for military HCPs. Participants were asked to attend 6 one-hour weekly sessions (offered 2 times/week) and practice at home once a week. Outcome measures included stress, sleep disturbance, resilience, burnout, compassion and satisfaction. Goals were to assess interest, feasibility, and logistics of the intervention and measure stress and resilience (pre-post intervention). Using a mixed methods approach, self-report instruments, home practice diaries, and written/oral feedback were collected to measure acceptability and satisfaction.

Results: Overall, 14 participants completed the study (74%). The majority was female (80%), nursing providers (85%). Perceived stress decreased significantly from pre to post intervention ($p=.0005$) and also secondary traumatic stress ($p<.01$). Although resilience, sleep, and burnout measures did not change significantly, they all trended in the desired directions, a promising sign for a small pilot study. Qualitative findings from diaries and feedback will also be presented.

Conclusion: The study demonstrates an accepted and effective intervention for military HCPs with significant changes in stress levels, despite a small sample size. Given the ever-increasing demands placed on military HCPs, evidence-based interventions contributing to the resilience of these staff warrant further attention. Results of this study informed a 3-year funded RCT with military couples. Status and details of this new study will also be discussed; recruitment began in June 2011.

P70

P02.14. Efficacy of ah shi point acupuncture on acne vulgaris

B Son, Y Yun*, I Choi

Kyung Hee University Hospital at Gangdong, School of Oriental Medicine, Seoul, Republic of Korea

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Purpose: Ah shi point acupuncture involves inserting needles at painful or pathological sites. The purpose of this study is to evaluate the efficacy of ah shi point and general acupuncture point treatment of acne vulgaris.

Methods: Thirty-six subjects were recruited and randomised in a double-blind (patient-blind and observer-blind) controlled trial to receive acupuncture either at general acupuncture points only or at both general acupuncture points and ah shi points 12 times over 6 weeks. The subjects were evaluated using the following outcome measurements: an inflammatory lesion count; a quality-of-life scale (Skindex-29); and a subjective symptom score.

Results: After 12 treatment sessions, there was a significant reduction in the inflammatory acne lesion counts, the Skindex-29 scores and the subjective symptom scores from baseline in both groups, but no significant difference between groups.

Conclusion: Acupuncture treatment of moderate acne vulgaris was associated with reduction of inflammatory lesions and improvement in quality of life.

P71

P02.15. Acupuncture improves *in vitro* fertilization live birth outcomes: a retrospective chart review

L Hullender Rubin^{1*}, M Opsahl², D Ackerman¹

¹Oregon College of Oriental Medicine, Research Department, Portland, USA;

²Northwest Center for Reproductive Medicine, Kirkland, USA

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Purpose: The effectiveness of adjuvant acupuncture on the day of embryo transfer (ET) to improve *in vitro* fertilization (IVF) outcomes is unclear. Most trials thus far have shown some or no effect. In this retrospective chart review, we investigated if a unique acupuncture protocol had any effect on IVF live births.

Methods: From 2008–2009, patients at a private infertility clinic in Kirkland, WA could elect onsite adjuvant acupuncture on the day of ET. Of 464 patients who received ET, 188 elected acupuncture (Acu) and 276 did not (No Acu). The Acu group received two standardized acupuncture treatments. Prior to ET, the following points were needed: GV20, PC6, ST29, SP8, LV3 and R6 with Shenmen and Brain on the left ear and Uterus and Endocrine on the right ear. Post ET, the same points on opposite ears and LI4, SP10, ST36, and SP6 were needed. Live birth outcomes were analyzed using logistic regression with age and follicle stimulating hormone (FSH) as covariates. Differences across categories of maternal age were evaluated with crude risk ratios.

Results: There were 106 (56%) live births in the Acu group and 126 (35%) in the No Acu group (OR=1.68, CI=1.14–2.46, $p<0.001$). Live births associated with acupuncture were significantly higher in the 35–37 age group (RR=1.86, CI=1.18–2.94, $p=0.01$) and the 38–40 age group (RR=1.79, CI=1.02–3.15, $p=0.04$). In the under 35 and over 40 age groups, there

were somewhat more live births in the Acu groups although the differences did not reach statistical significance.

Conclusion: IVF live birth outcomes may be improved with this unique acupuncture protocol. This finding should be taken cautiously as more rigorous research is needed.

P72

P02.16. Fifteen minutes of yoga postures or guided meditation in the office can elicit psychological and physiological relaxation

G Melville¹, D Chang^{1*}, B Colagiuri², P Marshall¹, B Cheema¹
¹University of Western Sydney, Sydney, NSW, Australia; ²School of Psychology, University of New South Wales, Sydney, Australia
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Purpose: Psychological stress in the workplace is an independent risk factor for cardiometabolic diseases and related mortality. This exploratory study compared the effect of acute (15 min) yoga postures and guided meditation practice, performed while seated in the office workspace, on psychological and physiological markers of stress.

Methods: A within-subjects crossover design was utilized. Each participant completed three conditions, including yoga postures, meditation, and control (usual work), separated by >24hrs. Perceived stress and blood pressure were evaluated before, immediately after, and at 3x 5-min intervals post intervention. Heart rate, respiratory rate and parameters of heart rate variability (HRV) were collected continuously, before, during and post intervention. Twenty adults (39.6±9.5yr) completed the study.

Results: The yoga and meditation interventions significantly reduced perceived stress versus control. This effect was maintained throughout the 15-min post-intervention period. Yoga postures increased heart rate while meditation reduced heart rate versus control (both $p < 0.05$). Respiratory rate was reduced during both yoga and meditation versus control ($p < 0.05$). Time and frequency domains of HRV (i.e. SDNN and log-total power) were significantly improved during yoga versus control. Additional HRV outcomes (LF and LF:HF) indicated increased parasympathetic modulation during yoga versus control. Meditation improved HRV outcomes versus control only during the initial 5-minutes of the 15-min intervention period. All physiological parameters generally regressed to baseline during the post intervention period. Blood pressure indicated normotension during the baseline recording in all conditions and did not improve in yoga versus control. Meditation induced a reduction in both systolic and diastolic blood pressure at 5-min post intervention versus control ($p < 0.05$).

Conclusion: Yoga postures or meditation performed in the office environment can acutely improve several psychological and physiological parameters associated with the stress response. Use of such practical interventions to mitigate stress in the workplace may reduce the risk of cardiometabolic diseases and enhance job satisfaction and productivity.

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P02.17. Building a database of validated pediatric outcomes: an investigation of compliance with established reporting standards

D Adams^{1*}, Y Liu¹, S Surette¹, L Hartling², S Vohra¹
¹University of Alberta, Edmonton, Canada; ²ARCHE, Dept of Pediatrics, University of Alberta, Edmonton, Canada
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Purpose: Many pediatric trials are published annually, but criticism exists regarding outcome measures used and their reporting. Reporting standards set out by the Consolidated Standards of Reporting Trials (CONSORT) group require accurately defined outcomes, and apply equally to studies of conventional or complementary and alternative medicine (CAM). The objective of this study was to conduct a systematic review to identify gaps in outcome reporting in pediatric randomized controlled trials (RCTs).

Methods: Ten journals with the highest impact factors were searched for pediatric RCTs published between 2000-2010. Two independent reviewers conducted screening and data extraction on 20% of randomly selected included studies. Variables extracted included:

journal, sample size, participant age, condition under study, intervention, control, and details of primary outcome and outcome measurement tools.

Results: Searches identified 2229 unique references. Screening of a random sample of 2.5% determined that most (97%) were RCTs, thus full text for all references were obtained. Inclusion screening was carried out simultaneously with data extraction. Of the 446 articles screened to date, 66% were included. Participant age ranged from 20 weeks gestation to 20 years. Most (65%) were of treatment rather than prevention. Commonly used controls included placebo (35%) and another intervention (33%). With respect to primary outcome reporting, 34% of trials did not identify a primary outcome. Half (53%) reported at least one primary outcome; of these, 55% described one outcome as primary and 38% identified more than one outcome as primary. One quarter of the trials that included only one primary outcome used a questionnaire or scale-based tool and of these, only 26% presented information on tool clinometrics.

Conclusion: This project will help identify gaps in the quality of outcome reporting in pediatric trials published in top journals over the past 10 years, leading to recommendations for improvements in reporting standards.

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P02.18. Clinically meaningful differences in pain and disability after cupping treatment for chronic neck pain: reanalysis of 4 randomized controlled trials

R Lauche^{*}, G Dobos, H Cramer
University of Duisburg, Essen, Germany
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Purpose: The assessment of clinically meaningful differences in patients' self-reported outcomes has become more important when interpreting the results of clinical studies. In conventional medicine these assessments are common; however, there is still doubt whether these results apply to complementary trials. The aim of this analysis is the determination of minimal clinically important differences (MCID) and substantial clinical benefits (SCB) in patients with chronic non-specific neck pain after cupping treatment. The MCID and SCB for pain intensity (VAS) and neck disability index (NDI) were estimated using common anchor-based methods.

Methods: The data set comprises a total of 200 patients participating in clinical trials on cupping therapy. The MCID and SCB for VAS and NDI were determined using receiver operating characteristic (ROC) curve analysis with an adapted assessment of change in health status (SF36) as an anchor. This item asks the patients how they would rate their health in general now, compared to before treatment. Answer categories ranged from "much better", "somewhat better", "about the same", "somewhat worse" to "much worse." An ROC curve was constructed for each outcome. MCID derived from the ROC was the score with equal sensitivity and specificity to distinguish "somewhat better" from "about the same". The SCB was the score to distinguish "much better" from "somewhat better".

Results: The calculated MCID was 8mm/21% for VAS and 3points/10.2% for NDI. The SCB was 26.5mm/66.1% for VAS and 8.4points/29.7% for NDI.

Conclusion: MCID and SCB for VAS in cupping trials are comparable to conventional trials although absolute and relative changes were slightly different. For NDI absolute and relative changes are smaller than in other trials, which might be due to the fact that scores were low in general. Altogether results support the assumption that patients' perceptions of treatment benefits in complementary trials are largely comparable to those in conventional trials.

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P02.19. Resilience training for depressed healthcare workers: results from 2 and 12 month followup

J Dusek^{*}, H Emmons, C Denton, S Masemer
Penny George Inst. for Health & Healing, Abbot Northwestern Hospital, Allina Health, Minneapolis, USA
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Purpose: To evaluate the impact of the Resilience Training (RT) Program on depressive symptomology, QoL and presenteeism at 2 and 12 month follow-up assessments.

Methods: Forty healthcare workers with major depressive disorder were enrolled in the study. The first 20 eligible employees who responded to study advertisements were assigned to RT program. The second 20 eligible employees had an 8 week waiting period before starting the RT program. Primary outcomes were changes in depression, QoL, and presenteeism. For the RT group, questionnaires were completed before and after the 8-week RT program. The wait-list group completed questionnaires before and after an 8-week wait period and after completion of the RT. Both groups also completed the questionnaires 2 and 12 months after their completion of the RT program.

Results: Overall, 34 of the 40 participants completed the 2-month follow-up. Averaging results across all 34 participants, PHQ-9 scores dropped from 11.4 at initial baseline to 4.3 at 2 months ($p < .0001$) with 74% achieving remission (PHQ-9 of less than 5). The SF-12: mental status subscale improved from 32.4 to 47.5 ($p < .0001$). Presenteeism decreased from 34.2% to 10.9% ($p < .0001$). Using established procedures, this reduction in presenteeism translates to a cost savings of over \$2,169 per participant over the 2-month period. The results persisted through the 12 month assessment. Averaging results across all 24 participants who completed the 12 month follow-up, PHQ-9 scores remained low with a score of 4.6 and 67% remained in remission. SF-12 scores remained high at 46.6. Presenteeism scores remained low at 7.9% and with cost savings of \$13,037 per participant over the 1 year time period.

Conclusion: Results from both 2 and 12 month follow-up assessments demonstrate that the RT program significantly improves clinical outcomes (depression and QoL) and could provide a significant return on investment if used in a healthcare workplace setting.

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P02.20. Mindfulness based tinnitus stress reduction (MBTSR) pilot study: a symptom perception shift program

J Gans

University of California, San Francisco, San Francisco, USA

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Purpose: Estimates suggest that as many as 50 million people in the United States experience tinnitus to some degree. Yet for 16 million of these Americans, tinnitus is a chronic condition significantly impacting quality of life. Sleep disorder, depression, and anxiety are common co-occurring symptoms. The exact physiological causes of tinnitus are unknown making it difficult to treat with only variable success. This pilot study aims to investigate whether a novel mind-body intervention, Mindfulness Based Tinnitus Stress Reduction (MBTSR), may be a beneficial treatment for chronic tinnitus.

Methods: Eight tinnitus patients who had previously received Tinnitus Counseling (standard of care) at the UCSF Audiology Clinic participated. Tinnitus symptom activity and discomfort as well as psychological outcomes were assessed by self-report questionnaires. Both quantitative and qualitative data were gathered. The primary outcome measure was the Tinnitus Handicap Inventory (THI) measuring subjective or perceived handicap or reaction. Change in mindfulness, Health Related Quality of Life (HRQoL), and other clinical symptoms such as anxiety and depression were also assessed. The secondary outcome measures included a Tinnitus Visual Analogue Scale (VAS), a measure of tinnitus awareness, SF36 Health Survey (SF-36), the Symptom Checklist-90-Revised (SCL-90-R), Hospital Anxiety and Depression Scale (HADS), and the Five Facet Mindfulness Questionnaire (FFMQ).

Results: Results indicate that effect sizes, if supported by a larger study, may be clinically significant and demonstrated a decrease in subjective tinnitus handicap, awareness, and annoyance, reduction in depression and phobic anxiety, improvement in the mindfulness facet of non-judging, with increases in social functioning and overall mental health. Change scores across all study measures moved in hypothesized directions.

Conclusion: This pilot study provides preliminary evidence that an 8-week MBTSR program may be a promising intervention for treating chronic tinnitus and its comorbid symptoms. These promising findings warrant further investigation using a randomized controlled trial.

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P02.21. Short- and long-term effects of expressive writing in patients with renal cell carcinoma

L Cohen, N Tannir, E Jonasch, L Pisters, S Matin, A Spelman, Q Wei, C Wood
The University of Texas MD Anderson Cancer Center, Houston, USA
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Purpose: Most previous research examining the efficacy of brief expressive writing interventions have used small sample sizes and followed people for no more than 3 months. We conducted a large randomized trial to examine an emotion-based writing intervention for patients with renal cell carcinoma and followed them for 10 months after the end of the writing sessions.

Methods: Two hundred patients with renal cell carcinoma were randomly assigned to either an expressive writing group (EW) or a neutral writing group (NW) and asked to write on four separate occasions over 10 days for a maximum of 20 minutes at each writing session. Patients completed the MD Anderson Symptom Inventory (MDASI), Brief Fatigue Inventory, SF-36, IES, CES-D, and PSQI at baseline and then again 1 and 10 months after the writing sessions.

Results: The mean age of the participants was 58 (range 34-82 years), 41% were women, and 46% had advanced disease. Examination of group differences 1 month after the writing sessions, controlling for the respective baseline measure, revealed lower IES scores for the EW group (intrusive thoughts: EW, 5.0 v NW, 7.2; $p < .02$; avoidance behaviors: EW, 6.3 v NW, 8.7; $p < .07$). At the 10 month time point, the EW group reported lower MDASI interference scores (symptoms interfering with QoL) (EW: 6.4 v NW: 9.9; $p < .04$), higher levels of SF-36 Role Physical scores (EW: 69.6 v NW: 54.0; $p < .02$), and fewer sleep disturbances (subscale of the PSQI; EW: 1.4 v NW: 1.6; $p < .05$). Means for the other SF-36 subscales at 10 months were in the expected direction, but did not reach statistical significance. There were no group differences for CES-D or fatigue scores at any time point.

Conclusion: These findings indicate expressive writing leads to short-term reduction in intrusive thoughts about the cancer experience and results in long-term improvement in aspects of quality of life.

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P02.22. Acupuncture is acceptable to children and adolescents undergoing cancer therapy

D Rooney, K Taromina

Columbia University Medical Center, New York City, USA

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Purpose: Previous studies have suggested the safety of acupuncture in patients with cancer; however, the variables associated with its acceptance, feasibility, and use have yet to be described. We present an interim-analysis of a prospective study evaluating acupuncture feasibility among children and adolescents with cancer.

Methods: Eligible participants were acupuncture-naïve children and adolescents undergoing treatment for cancer at CUMC. Upon consent, participants completed the Memorial Symptom Assessment Scale and were offered a variety of CAM. Requested therapies and reasons for acceptance and refusal were recorded every 3 weeks over a 6 month period. Participants receiving acupuncture completed questionnaires evaluating reasons for treatment, chief complaints, and perceptions of the efficacy of acupuncture before and after treatment.

Results: Fifty-four percent of participants chose to receive acupuncture. Diagnoses of patients requesting acupuncture included: leukemia/lymphoma (22), brain tumor (6), solid tumor (4), other (4). Median age of those who received acupuncture was 14 years (range 1-23); 75% were above age 10. One hundred eighty-one sessions of acupuncture were administered. Eighty-nine percent of patients received acupuncture more than once, with a median of 3.5 sessions per patient (range 1-13). Nine percent of all sessions were in thrombocytopenic patients and nine percent were in neutropenic patients. Reasons for selecting acupuncture treatment for the first time were: "to try it", "might work", "curious" (40%), pain (22%), relaxation (11%), nausea (9%), and other supportive care indications (18%). Seventy-five percent of the first treatments resulted in patient-reported relief from their chief complaint. In 134 treatments, acupuncture was used simultaneously with other CAM including massage therapy.

Conclusion: More than half of the participants accept acupuncture for varied purposes and complement its use with other CAM. The majority report beneficial effects with acupuncture and request additional sessions. These results suggest that acupuncture is well accepted among children and adolescents with cancer and should be considered for symptom management.

P79

P02.23. The efficacy of prolotherapy using dextrose-morrhuate for lateral epicondylitis: a pilot randomized controlled trial

D Rabago¹, M Ryan, K Lee, A Chourasia, M Sesto, A Zgierska, D Miller, R Kijowski, J Wilson
University of Wisconsin, Department of Family Medicine, Madison, USA
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Purpose: Chronic lateral epicondylitis (CLE) is common, expensive and debilitating. A substantial number of patients are refractory to existing therapy and “watchful waiting.” Prolotherapy is a CAM injection therapy for chronic musculoskeletal pain including tendinopathy. We assessed dextrose prolotherapy for CLE in a pilot-level study.

Methods: The study design was a 2-arm non-blinded randomized controlled trial. Group 1 received dextrose prolotherapy and Group 2 was a waitlist control. Nineteen adults seen with at least 3 months of symptomatic CLE in 22 elbows refractory to prior care received ultrasound-guided injections of 20% dextrose-morrhuate sodium (Group 1) solution at baseline, 4, and 8 weeks. Waitlist subjects (Group 2) were followed and discouraged from starting new care. Primary outcome measure was Patient-rated Tennis Elbow Evaluation [PRTEE, (100 points) assessed at baseline, 4, 8 and 16 weeks]. Prolotherapy participants were additionally assessed at 32 weeks. Secondary measures included dynamometer-assessed pain free grip strength and participant satisfaction.

Results: No baseline differences existed between the groups in gender, duration of elbow pain, prior therapy or baseline PRTEE scores. Prolotherapy participants (n=10) reported improved PRTEE composite scores compared to Waitlist (n=12) at 4 and 16 weeks ($p<0.05$), and improved pain and function PRTEE subscale scores ($p<0.05$) at 4 and 16 weeks, respectively. Prolotherapy participants reported improvement in composite PRTEE scores from baseline at 16 and 32 weeks of 17.9 ± 11.64 and 24.8 ± 10.58 points, a difference of 49.7% and 70.2% respectively, far in excess of the 11-point PRTEE-based minimal clinical important difference. Grip strength improved in all groups without between-group difference. Satisfaction with prolotherapy was high; there were no adverse events.

Conclusion: Prolotherapy using dextrose and morrhuate sodium resulted in safe, significant, sustained improvement of PRTEE-based elbow composite, pain and function scores compared to baseline status and waitlist control subjects. The results of this pilot study suggest the need for a definitive clinical trial.

P80

P02.24. Reducing stress and cultivating well being in educators and parents with special needs children: effects of a mindfulness training program

R Benn^{1*}, T Akiva¹, S Arel¹, R Roesser², J Eccles¹
¹University of Michigan, Ann Arbor, USA; ²Portland State University, Portland, USA
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Purpose: Parents and teachers of children with developmental challenges and special learning needs face unique social-emotional challenges in caregiving. Stress associated with their roles has been shown to impact parents' and special educators' health and well-being, as well as the quality of their parenting and teaching. In this paper, we report results of a pilot study conducted to investigate the efficacy of mindfulness based training program (MT) in facilitating improvement in caregiver mental health. Using a RCT waitlist design, 70 parents and educators of children with special needs were randomized to participate in a 9 session, 36 hour group-based MT program called SMART (Stress Management and Relaxation Techniques). This program, based on MBSR, included content on emotion theory and regulation, forgiveness and compassion, and application practices specific to caregiving/teaching.

Methods: Participants completed a battery of standardized measures at three time points: baseline, program completion and two months follow-up. The measures included several indicators of mindfulness, distress, positive affect, compassion, well being, and caregiving competence. In addition, we explored the impact of participant demographic and lifestyle and characteristics (e.g., marital status, previous history of meditation experience, engagement in self-care practices and religious observance), health status, and role (teacher vs. parent). The influence of several intervention parameters on outcomes were also examined within the MT group (e.g. number of sessions attended, number of minutes of average weekly mindfulness practice and type of format program participation(twice a week vs weekly format).

Results: Study findings provide strong preliminary evidence for the benefits of MT in reducing stress and anxiety, improving mindfulness and psychological well-being, and facilitating hope and gratitude in both parents and teachers. Medium to large effect sizes were shown on several measures upon program completion and at follow-up.

Conclusion: MT is an effective intervention for facilitating well-being in teachers and parents of children with special needs whether delivered in weekly or biweekly program format.

P81

P02.25. Investigate physiologic function of meridians by changes in Ryodoraku values with acupuncture, moxibustion, and ice stimulation on Zusanli acupoints

Y Lee
China Medical University, Taichung, Taiwan
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Purpose: Pathways and characteristics of meridians have been demonstrated by many studies, but the physiological function is still unclear. The Ryodoraku instrument is used to measure skin electrical resistance, which reflects the bioenergy of meridians. We try to investigate the function of meridians by the change in Ryodoraku values with acupuncture, moxibustion, and ice stimulation.

Methods: M.E.A.D. was used as a measurement tool. Thirty healthy volunteers from the University were recruited. We measured once every week and twice every time in a 30 minute interval. In the first week, 30 subjects sat and rested during the interval, which served as the control group. We compared these two measurements in the first week by reliability analysis. In the second week, we stimulated both Zusanli acupoints for 20 minutes with acupuncture during the interval (acupuncture group). In the third week, we stimulated them by ice (ice group). In the fourth week, we stimulated them by moxibustion (moxibustion group). We analyzed the change of Ryodoraku values between the four groups.

Results: The correlation coefficients are between 0.79854 and 0.93207 in reliability analysis. Ninety-six percent have good to excellent test-retest reliability in the interval of 30 minutes. The average changes of the control group dropped most significantly. The changes in the acupuncture group both rose and dropped. The changes in the ice group dropped in all meridians, especially stomach meridians. The changes in the moxibustion group raised in all meridians, especially urinary bladder meridians.

Conclusion: To use the Ryodoraku instrument objectively, the operator should pass test-retest reliability to confirm the consistency of the data. The time to measure must be fixed, but it may not be fixed to see the change of Ryodoraku values at the interval of 30 minutes. We might presume that meridians play an important role in body temperature regulation and it is worth further study.

P82

P02.26. Integrative care for adolescent mood problems: brief report from a second opinion clinic

K Kemper^{1*}, B Banasiewicz²
¹Wake Forest University Health Sciences, Winston-Salem, USA; ²University of South Carolina, Columbia, USA
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Purpose: To improve the quality of service and inform care for patients interested in integrative care, we conducted a chart review to describe a) patients whose families had concerns about mood; b) families' interest in health promotion topics; and c) clinical recommendations.

Methods: Patients were included if their intake form indicated a concern about mood or depression. We reviewed the comprehensive intake form, physician notes, and laboratory test results. This study was approved by the Wake Forest School of Medicine Institutional Review Board.

Results: Of the 75 new patients, 34 (45%) noted a concern about mood. The average age was 13 ± 4 years, 68% were female, and patients had an average of 8.6 health concerns such as fatigue, anxiety, headaches, constipation, and pain. Most (88%) received care from other specialists and 71% took medications (average 2.4/patient), most often antidepressants. There was great interest in discussing stress management (86%), nutrition (84%), sleep (82%), and exercise/activity (78%). Most had suboptimal levels of ferritin (65%) and vitamin D (65%). Most parental questions were about fish oil (82%), multivitamins (48%), and minerals (63%).

Conclusion: Physicians offering integrative care for adolescents with mental health concerns should be prepared to offer advice about healthy lifestyle, particularly stress management, nutrition and nutritional supplements, sleep, and exercise.

P83

P02.27. Martial arts exercise improves quality of life in overweight/obese premenopausal women

Y Zhang^{1*}, M Chyu², C Shen¹

¹Texas Tech University Health Sciences Center, Lubbock, USA; ²Graduate Healthcare Engineering Program, Texas Tech University, Lubbock, USA
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Purpose: Martial arts have been practiced as a physical activity for health and fitness and are recommended as such by the US Centers for Disease Control and Prevention. Previous studies showed that most forms of martial arts had positive effects on health. However, there is no data on the effects of martial arts exercise (MAE) on quality of life. This study evaluated the effects of 12 weeks of MAE intervention on quality of life among overweight/obese premenopausal women.

Methods: Forty-seven premenopausal women were recruited and randomly assigned to either MAE or control group after matching the age and BMI. MAE curriculum (1 hr/session, 3 sessions/week for 12 weeks) features a non-competitive, non-contact, safe and fun personal/group exercise based on traditional martial arts training, covering a variety of techniques. Quality of life (QoL) was measured by the SF-36 form. Data were collected at baseline, 6, and 12 weeks. The analytic sample included 34 women who completed the study, 17 in each group. Data were analyzed using a repeated measures ANOVA model.

Results: No statistically significant difference of QoL scores was found at baseline. After 12 weeks, the interaction of MAE and time significantly affected 6 of 8 QoL subscale scores including Role Physical, General Health, Vitality, Social Functioning, Role Emotional and Mental Health ($p < 0.05$) as well as the aggregated mental component ($p < .01$). MAE group participants reported significant improvements in those scales compared to those in the control group. MAE group tended to lose body weight ($p = .09$) along with decreased fat-free mass ($p = .007$) and muscle mass ($p = .022$).

Conclusion: MAE may be a feasible, low-cost, and effective approach to improving QoL of overweight/obese premenopausal women. Our study underscores the need for further long-term studies using larger sample sizes to establish the benefits of MAE in this and other populations.

P84

P02.28. Non-verbal communication of compassion: feasibility of measuring psychophysiological effects of blind exposure

K Kemper^{*}, H Shaltout

Wake Forest University Health Sciences, Winston-Salem, USA
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Purpose: Calm, compassionate clinicians comfort others. This preliminary study was designed to a) test the feasibility of two strategies for maintaining subject blinding to non-verbal communication of compassion (NVCC), and b) determine whether blinded subjects would experience psychophysiological effects from NVCC.

Methods: Subjects were healthy volunteers who were told the study was evaluating the effect of time and touch on the autonomic nervous system. The practitioner had more than 10 years experience with

lovingkindness meditation (LKM), a form of NVCC. Subjects completed 10-point visual analog scales (VAS) for stress, relaxation and peacefulness before and after LKM. To assess physiologic effects, practitioners and subjects wore cardiorespiratory monitors to assess respiratory rate (RR), heart rate (HR) and heart rate variability (HRV) throughout the 4 10-minute study periods: Baseline (both practitioner and subjects read neutral material); non-tactile-LKM (subjects read while the practitioner practiced LKM while pretending to read); tactile-LKM (subjects rested while the practitioner practiced LKM while lightly touching the S on arms, shoulders, hands, feet, and legs); Post-Intervention Rest (subjects rested; the practitioner read). To assess blinding, subjects were asked what the practitioner was doing during each period.

Results: Subjects' mean age was 43.6 years; all were women. Blinding was maintained and the practitioner was able to maintain meditation for both tactile and non-tactile LKM interventions as reflected in significantly reduced RR. Despite blinding, subjects' VAS scores improved from baseline to post-intervention for stress, relaxation and peacefulness ($p < 0.05$ for all comparisons). Subjects also had significant reductions in RR ($p < 0.0001$) and improved HRV ($p < 0.05$) with both tactile and non-tactile LKM.

Conclusion: It is possible to test the effects of LKM with two blinding strategies; even with blinding, subjects reported improvements in well-being, reflected in objective physiologic measures of autonomic activity. Extending compassion is not only good care; it may also be good medicine.

P85

P02.29. Laser Doppler perfusion imaging to test effects of Lifewave energy enhancer patch on microvascular regulation

A Baldwin

University of Arizona, Tucson, USA

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Purpose: LifeWave Corp has developed non-transdermal energy enhancer patches that stimulate acupuncture points in order to heighten energy by enhancing the autonomic regulation of blood vessels and hence improving circulation. A laser Doppler perfusion imager was used to determine microvascular perfusion of the index, middle and ring finger tips pre and post application of the patches on wrist acupuncture points TB5 and P6. It was hypothesized that application of the patches would significantly alter perfusion in fingertips.

Methods: Twenty healthy individuals (5 male and 15 female, 30-69 years of age) were recruited to participate in this randomized double blind study. Ten subjects received active patches and 10, placebo patches. Both hands of each subject were scanned before application of the patches (baseline), immediately after, and at 10 minutes, 4 hours and 8 hours after application at an ambient temperature of 24°C. The process was repeated the next day using new patches. All images were digitized and averaged over the 3 fingertips of each hand for each session. Repeated measures analysis of variance and pair-wise multiple comparisons were used to determine significant temporal differences in average perfusion.

Results: On day 1, subjects in the active group showed no changes in perfusion compared to baseline whereas control subjects showed a significant increase ($p < 0.05$) in left hand perfusion 10 min after patch application. On day 2, subjects in the active group showed a significant increase in left hand perfusion 4 hours after patch application whereas control subjects showed no change throughout the day.

Conclusion: Placement of patches, per se, may cause a temporary relaxation of subcutaneous blood vessels. Placement of active patches causes a small, delayed microvascular relaxation in healthy subjects at room temperature. Experiments performed at different temperatures may produce more definitive results.

P86

P02.30. Assessment of hypnotizability in clinical research: development, reliability, and validation of the Elkins Hypnotizability Scale

G Elkins^{*}, W Fisher, A Johnson

Baylor University, Waco, USA

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Purpose: Hypnotherapy has been shown to be an effective treatment for some conditions such as pain, anxiety, chemotherapy side effects, and

hot flashes. Measurement of hypnotizability is essential for research. There are a number of scales that have been developed to measure hypnotizability in clinical research. However, the currently available scales suffer from a number of important shortcomings such as time for administration, validity concerns, and item difficulty. As a result, hypnotizability is rarely measured in clinical work and research has been limited. The purpose of this study was to develop a new scale to measure hypnotizability that met the following criteria: (1) administration in 30 minutes or less; (2) correlation of .80 or better with the Stanford Hypnotic Susceptibility Scale; and (3) improved item selection.

Methods: A 12 item hypnotizability scale (Elkins Hypnotizability Scale; EHS) was developed with the wording for each item based upon the clinical experience of the Principal Investigator from administration of the EHS in clinical work and receiving feedback from patients and expert reviewers.

Results: The average time for administration was 27 minutes. Test-retest reliability was $r=.93$. The correlation between the EHS and the Stanford Hypnotic Susceptibility Scale-Form C was $r=.91$.

Conclusion: Results support the development of an improved scale to measure hypnotizability. The results demonstrated that the scale can be administered within 30 minutes (as compared to 75 minutes for the Stanford Hypnotic Susceptibility Scale-Form C). In addition, the scale demonstrated strong reliability. The correlation between the EHS and Stanford Hypnotic Susceptibility Scale-Form C was also strong and significant, suggesting that the EHS measures the same domain of hypnotic responding and is therefore likely to be a valid measure. The present study reports on initial scale development, and the utility of the EHS in clinical research is presently being determined.

P87

P02.31. Effective and viable mind-body stress reduction in the workplace: two RCTs

R Wolever¹, K Bobinet², K McCabe³, L MacKenzie⁴, E Fekete⁵, C Kusnick⁶, M Baime⁷

¹Duke University, Durham, USA; ²Aetna, Walnut Creek, USA; ³eMindful, Vero Beach, USA; ⁴Univ of Pennsylvania, Philadelphia, USA; ⁵University of Indianapolis, Indianapolis, USA; ⁶Headlands Consulting, Orange County, USA; ⁷University of Pennsylvania School of Medicine, Philadelphia, USA

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Purpose: Highly stressed employees are subject to greater health risks, costs, and productivity losses than those with normal stress levels. To address this issue, work-site stress management programs must be able to engage individuals as well as capture data on stress, health indices, work productivity, and healthcare costs. In this randomized controlled pilot, our primary objective was to evaluate the viability and proof of concept for two innovative mind-body workplace stress reduction programs, setting the stage for larger cost-effectiveness trials. A second objective was to evaluate two delivery venues of the mindfulness intervention (online versus in-person).

Methods: Two-hundred thirty-nine (239) employee volunteers were randomized into a therapeutic Viniyoga worksite stress reduction program, one of two Mindfulness at Work™ programs, or a control group that participated only in assessment. Intention-to-treat principles and 2 (pre and post) X 2 (group) Repeated Measures ANCOVA procedures examined group differences over time on perceived stress and secondary measures to clarify which variables to include in future studies: sleep quality, mood, pain levels, work productivity, mindfulness, blood pressure, breathing rate, and heart rate variability (a measure of autonomic balance).

Results: Compared to the control group, the mind-body interventions both showed significantly greater improvements on perceived stress, sleep quality and the heart rhythm coherence ratio of heart rate variability. The yoga program also demonstrated improved DBP and pain ratings. The mindfulness program improved mindfulness measures. The two delivery venues for the mindfulness program were basically equivalent in terms of outcomes, though study retention was better for the online venue.

Conclusion: Both the Mindfulness at Work™ and therapeutic Viniyoga programs provide viable and effective interventions to target high stress levels, sleep quality and autonomic balance in employees. Future studies need to evaluate the impact on employer costs.

P88

P02.32. Complementing the homeostasis model by a Rhythm Model – a conceptual framework to understand non-pharmacological complementary therapies

D Cysarz, C Scheffer, F Edelhäuser

University of Witten/Herdecke, Herdecke, Germany

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Purpose: In recent years, many non-pharmacological complementary therapies have been investigated with respect to cardiovascular regulation, e.g. analysis of heart rate variability. Such therapies often show a specific impact on cardiovascular regulation. However, the homeostasis model does not enable a full understanding of these specific effects. Homeostasis postulates constancy of physiological functions to maintain basic functions of the organism. It is conceptually described by closed loops with negative feedback. If the single elements of the loops are known, then this model permits focused interventions (e.g. pharmacological inhibition or stimulation) in the context of a disease condition.

Methods: A rhythm model is introduced that complements the homeostasis model. The model explicitly takes into account the spontaneous rhythms of the human organism. It is exemplified by recent findings in complementary speech therapy.

Results: Non-pharmacological complementary therapies can be explained adequately with this model because these therapies often trigger systemic responses of the organism. With the help of rhythmical stimulation, they activate the regulation of several physiological functions. This leads to a re-tuning of the regulation if the therapy is repeatedly applied several times.

Conclusion: The rhythm model is able to explain therapies that re-tune the regulation of physiologic functions. Furthermore, this model shows that rhythms and temporal structures of physiological functions are basic properties of living systems. A prediction of the effects imposed by non-pharmacological complementary therapies stimulating regulation is possible.

P89

P02.33. Effects of inpatient integrative medicine on pain and anxiety in an acute cardiovascular population

A Fyfe-Johnson¹, P Johnson², N Ghildayal², J Dusek¹

¹Penny George Inst. for Health & Healing, Abbott Northwestern Hospital, Allina Health, Minneapolis, USA; ²Center for Healthcare Innovation, Allina Hospitals & Clinics, Minneapolis, USA

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Purpose: To explore the impact of integrative medicine (IM) on pain and anxiety in an acute cardiovascular inpatient population.

Methods: Primary observational data were collected on 280 inpatient admissions that: (1) had a primary diagnosis of ischemic heart disease, acute cardiovascular (CV) disease, or other forms of heart disease, and (2) were seen by IM staff at Abbott Northwestern Hospital. IM providers collected data before and after each treatment session; primary outcomes were pre and post-treatment pain and anxiety scores using a 0-10 numeric self-report intensity scale. Data were retrospectively analyzed from the IM database after electronic health record extraction for calendar year 2010. Chi-square tests were used to test for significant differences in the percentage of patients with acute cardiovascular conditions who received specific IM therapies, while paired t-tests were used to test for significant differences in mean pain and anxiety score changes in the same population.

Results: Pain management in acute care hospitals is a major institutional therapeutic challenge; the stress-pain relationship is particularly relevant to the acute CV population. Overall, there was a marked decrease in pain (47.9%, $p<0.001$) and anxiety (42.2%, $p<0.001$) scores for acute CV patients receiving IM therapies ($n=280$). Massage was most utilized (55.7%), followed by aromatherapy (40.4%), and mind/body therapies (39.6%) for acute CV conditions ($n=280$). Reductions in pain and anxiety were all significant ($p<0.001$) after stratifying by most common acute cardiovascular diagnoses: ischemic heart disease, acute CV disease, or other forms of heart disease. The greatest reductions in pain (52.9%,

$p < 0.001$) and anxiety (48.4%, $p = 0.001$) were observed in patients with ischemic heart disease ($n = 87$).

Conclusion: IM appears to be effective for reducing pain and anxiety in acute inpatient cardiovascular conditions. These findings provide incentive to further investigate mechanism(s) of pain and anxiety changes in an acute cardiovascular population.

P90

P02.34. Therapeutic effects of traditional Chinese medicine in cancer patients undergoing chemotherapy or radiotherapy: randomized, double-blind controlled trial

L Lo^{1*}, C Chen¹, C Chang¹, T Lee¹, M Hou¹, T Cheng², J Chiang³
¹Changhua Christian Hospital, Changhua, Taiwan; ²Department of Mathematics and Institute of Statistics and Information, Changhua, Taiwan; ³Department of Computer Science and Engineering, National Sun Yat-sen, Kaohsiung, Taiwan
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Purpose: Cancer is one of the most major health issues worldwide. An increasing number of cancer patients received surgery, chemotherapy and radiotherapy. However, there usually exists some side-effects. Traditional Chinese Medicine (TCM) is one of the most common complementary therapies used in Taiwan. We designed a randomized, double-blind and placebo-controlled clinical trial to evaluate the role of TCM on patients with cancer.

Methods: Inclusion criteria were being diagnosed as cancer patients within 3 years and received chemotherapy (CT) or radiotherapy (RT), age above 18 years old. Exclusion criteria were pregnancy, brain metastasis, or receiving drugs for other clinical trials. These patients were separated to an intervention group (Sheng-Mai-san) and a placebo group for 4 weeks using a randomized, double-blind principle. EORTC QOL-C30 was used to evaluate quality of life. General data, CBC, GOT, GPT, BUN, creatinine, and CEA were also recorded. These data were collected at baseline and one month after using drugs. Enrolled patients were prescribed sealed granules, which contain therapeutic drugs or placebo. We used paired-t tests for statistical analysis.

Results: Forty patients were recruited in this study. Twenty-nine completed the EORTC QOL C30 questionnaire and laboratory data. There were fourteen patients in the intervention group including twelve females and two males. Fifteen patients were in the placebo group, including nine females and six males. Patient characteristics of the two groups were similar. We compared the total scales of EORTC-C30 pretreatment and post treatment and there were significant differences in insomnia, constipation and financial difficulties in intervention group ($p < 0.05$). Besides, we also noted significant decreases in WBC in the placebo group ($p = 0.01$). But neutrophils increased significantly ($p < 0.05$) and average WBC increased (still within normal limits) in the intervention group.

Conclusion: TCM (Sheng-Mai-san) improved several symptoms in cancer patients undergoing CR or RT and prevented decreases of WBC. TCM may be a complementary therapy for cancer patients undergoing CT/RT.

P91

P02.35. Methodology in integrative medicine research: challenges and solutions from a randomized clinical control trial using adapted yoga

S Toise^{1*}, S Sears², M Schoenfeld¹, M Blitzer¹, M Marieb³, J Drury⁴, M Slade⁵, T Donohue¹
¹The Hospital of Saint Raphael, New Haven, USA; ²East Carolina University, Greenville, USA; ³Yale School of Medicine, New Haven, USA; ⁴Banner Health Cardiovascular Institute of North Colorado, Greeley, USA; ⁵Yale University, Yale Occupational & Environmental Medicine, New Haven, USA
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Purpose: This randomized controlled clinical study evaluated the efficacy of adapted yoga (vs. usual care) to reduce psychosocial risks, which have been clinically shown to impact morbidity and mortality in implantable cardioverter defibrillator (ICD) recipients. The ICD collects and records real-time cardiac data, which were used in the study.

Methods: Forty-six patients participated from a hospital in Connecticut. All participants were administered validated measures on psychosocial risk factors at weeks one and eight of the eight-week intervention.

Patients in the intervention group participated in a weekly adapted yoga class for eighty minutes for eight weeks with assigned home practices. Clinical measures, including patients' current and past medical health status and device usage, were collected three months prior to the study, during the study, and at a six-month follow-up.

Results: Data revealed that the yoga group's overall shock anxiety decreased while the control group's increased, $t(4.43, 36)$, $p < 0.0001$ (total). The yoga group had less shock anxiety, $t(2.86, 36)$ $p = 0.007$ (mean consequence), greater overall self-compassion, $t(-2.84, 37)$, $p = 0.007$ (total), and greater mindfulness (equanimity) regarding emotions, $t(-2.10, 37)$ $p = 0.04$ (mindfulness), than the control group. Exploratory analyses utilizing a linear model ($R^2 = .98$) of the observed anti-tachycardia pacing (ATP) events revealed that the expected number of ATP events in the intervention group was significantly lower than the control group. Additionally, the expected number of ATP events increased more rapidly as a function of the initial ATP events for the control group than for the intervention group.

Conclusion: Our study demonstrated psychological benefits from a program of adapted yoga compared to usual care for ICD recipients. Marked improvements were reported in total shock anxiety, self-compassion, sense of equanimity, and decreased likelihood of ATPs. The data supports the continuation of research in mind-body interventions to better understand the role of complementary medicine to address ICD-specific psychosocial stress and its potential contributory role in cardiac outcomes.

P92

P02.36. Meditation or exercise for preventing acute respiratory infection: a randomized controlled trial

B Barrett^{*}, D Rakel, M Hayney, D Muller, A Zgierska, C Obasi, T Ewers, R West, R Brown, Z Zhang, M Gassman, S Barlow, C Coe
University of Wisconsin, Madison, USA
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Purpose: This study was designed to evaluate potential preventive effects of meditation or exercise on incidence, duration, and severity of acute respiratory infection (ARI) illness.

Methods: Community-recruited adults aged ≥ 50 years were randomized to one of three conditions: 8-week training in mindfulness meditation; matched 8-week training in moderate intensity sustained exercise; or wait-list observational control. The primary outcome was area-under-the-curve global illness severity over one cold and flu season, using the Wisconsin Upper Respiratory Symptom Survey (WURSS-24) to assess severity. Significance was set at $p = 0.025$. Health care visits and days-of-missed-work were counted. Nasal wash collected during ARI illness was assayed for neutrophils, interleukin-8, and viral nucleic acid.

Results: Of 154 randomized, 149 completed the trial (82% female, 94% white, mean age $59.3 \pm SD 6.6$ years). There were 27 ARI episodes and 257 days of ARI illness in the meditation group ($n = 51$), 26 episodes and 241 illness days for exercise ($n = 47$), and 40 episodes and 453 days for control ($n = 51$). Mean global severity was 144 for meditation, 248 for exercise, and 358 for control. Compared to control, global severity was significantly lower for meditation ($p = 0.0042$). Both global severity and total days of illness (duration) trended towards being lower for exercise ($p = 0.16$ and $p = 0.032$, respectively), as did duration for the meditation group ($p = 0.034$). Adjusting for covariates using zero-inflated multivariate regression models gave similar results. There were 67 ARI-related days-of-missed-work in the control group, 32 in the exercise group ($p = 0.041$), and 16 for meditation ($p < 0.001$). Healthcare visits did not differ significantly. Viruses were identified in 54% of samples from meditation, 42% from exercise, and 54% from control. Neutrophil count and interleukin-8 levels were similar among intervention groups.

Conclusion: Training in meditation or exercise may be effective in reducing ARI illness burden.

P93

P02.37. Mindfulness for caregivers

P Bloom^{*}, L Ho, J Griffiths Vega, G Pasinetti
Mount Sinai Medical Center, New York City, USA
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Purpose: Caregivers have been shown to be at increased risk of emotional stress, depression, medical illness, and death. Studies of Mindfulness Based Stress Reduction (MBSR) have established its efficacy in reducing stress and physical and psychological concomitants of stress in multiple patient populations. The purpose of this study is to determine the effectiveness of MBSR in reducing caregiver stress, as measured by psychological and biological markers.

Methods: 20 participants in Mindfulness for Caregivers classes (ages 39-77, 19/20 female) completed before and after psychological assessments (Five Facet Mindfulness Questionnaire, Caregiver Self-Assessment Questionnaire, Center for Epidemiological Studies Depression Scale, Perceived Stress Scale 10, Rapid Screen for Caregiver Burden, and Inventory of Traumatic Grief, Pre-Loss) as well as gave blood samples to assess biological markers.

Results: 16/20 demonstrated increased mindfulness, mean increase in FFMQ (score range 22-110) in responders 12.7 (range 1-26); 15/20 improved CSAQ (range 0-16), mean responder decrease 5.1 (range 1-10); 15/20 improved CESD (range 0-30), mean responder decrease 8.9 (range 1-22); 16/20 improved PSS10 (range 0-40), mean responder decrease 10.2 (range 0.5-21); 16/20 improved RSCB (range 0-28), mean responder decrease 6.8 (range 2-16); 15/20 improved ITGPL (range 0-76), mean responder decrease 7.7 (range 1-22). All psychological outcome parameters showed significant correlation with CSAQ, in which improvement was linearly correlated with increase in mindfulness as measured by the FFMQ. Proteomic analysis identified significant changes in several plasma chemokines and cytokines in good psychological responders vs. poor psychological responders. Microarray gene expression profile analysis identified 124 genes that are differentially regulated in good responders vs. poor responders.

Conclusion: MBSR is an effective intervention for reducing caregiver stress. Preliminary data suggest that MBSR may benefit caregiver health by modulating inflammatory responses. Results of microarray gene expression profile analysis may suggest a "personalized medicine" approach for identifying likely responders to mindfulness training.

P94

P02.38. Effectiveness of reflexology in improving perioperative patient centered outcomes: a comparative effectiveness study

S Attias*, E Schiff

Bnai Zion Medical Center, Haifa, Israel

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Purpose: Perioperative symptoms such as pain and anxiety are common in spite of standard of care. Such symptoms are associated with a negative surgery experience, and moreover, are correlated with increased perioperative morbidity. The aims of this study were to evaluate whether reflexology as an add-on to standard of care improves these symptoms. In addition, we assessed whether outcomes are correlated with expectations from CAM.

Methods: We conducted a pragmatic trial of 234 adult patients undergoing various abdominal operations. 89 patients received standard medical care, and 145 patients received reflexology on top of standard medical care, according to patient preference and practitioner availability. Numeric VAS scores for anxiety, pain, and well-being were collected pre and post treatment.

Results: There was a significant reduction of VAS scores for all outcomes in the reflexology group: Anxiety scores were reduced from 5.2 to 2.2 (n=145, p<0.0001), pain from 5.3 to 2.9 (n=79, p<0.0001), and well being improved from 5.2 to 6.7 (n=69, p<0.0001). Symptomatic improvement was significantly better in the reflexology group as compared to the standard of care group for all parameters (p>0.0001). In the subgroup of patients experiencing moderate to severe symptoms, improvement was even more prominent: Anxiety scores were reduced from 7.1 to 2.7 (n=94, p<0.0001); pain from 7.2 to 4 (n=55, p<0.0001); and well being improved from 3.7 to 6.4 (n=47, p<0.0001). We did not find a correlation between outcomes and patients' expectations regarding reflexology.

Conclusion: Our results demonstrate that reflexology therapy significantly improved common symptoms in patients undergoing surgical interventions.

P95

P02.39. Leveraging grant awards to enhance the research infrastructure at a CAM institution

K Pohlman*, L Carber, R Vining, T Devlin, R Rice, S Salisbury, L Corber, M Hondras, C Long, C Goertz

Palmer College of Chiropractic, Davenport, USA

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Purpose: Successful scientific investigations at CAM institutions are often hampered by limited research infrastructure. Enhancing the clinical trial capabilities of our chiropractic research center was one goal of 2 NIH/NCCAM developmental center grants.

Methods: Web applications were enhanced and customized based on individual project needs and trial team requests. Templates were built to support quick development and standard functionality of project web applications. We also developed standardized processes to effectively provide project-specific participant management, data collection, staff training, and quality control.

Results: Web applications included: the Centralized Participant Database System and Project/Users Permissions System to securely capture participant contact information and control personnel access to web modules; a real-time participant tracking report to monitor recruitment and participant flow; a role-specific Reminder System to track outstanding activities requiring personnel follow-up; and double key-entry verification on web data used for an adaptive treatment allocation algorithm. Templates of these tools can be incorporated into any new trial's web application. Study protocol templates facilitate timely, accurate translation of research proposals into detailed protocols for IRB applications, DSMC review and training. A revised training plan included role-specific training logs for tracking training objective completion and a thorough certification process for key protocols to ensure accurate and consistent performance. Quality control templates support the informed consent process and fidelity of trial interventions and outcomes assessment. We implemented these enhanced resources in 5 clinical trials. To date, our team has completed 3378 phone screens, conducted 1439 first and 473 second in-person screening visits, enrolled 394 participants, and followed 315 through trial end. The study protocol templates have been used in two additional clinical trials currently undergoing IRB review.

Conclusion: We expanded our capacity to support multiple, diverse trials with complex methodologies. This is a successful example of a CAM institution successfully leveraging research grant funding to enhance research infrastructure.

P96

P02.40. A systematic review of measurement properties of mindfulness instruments

T Park, M Reilly-Spong, C Gross*

University of Minnesota, Minneapolis, USA

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Purpose: A growing body of evidence shows that mindfulness-based interventions reduce symptoms and improve health-related quality of life. Several instruments have been developed to measure mindfulness. To make a reasonable choice among these instruments, it is important to know the quality of each instrument. The objectives of this study were to critically assess and compare the measurement properties of the existing mindfulness instruments.

Methods: Ovid Medline and Psycinfo were searched to identify relevant articles on the development and evaluation of the measurement properties of the mindfulness instruments. Using the Consensus-based Standards for the selection of health status Measurement Instruments (COSMIN) checklist, the methodological quality of the selected studies was evaluated. For each instrument, the measurement properties were separately assessed by two independent reviewers. Discrepancies were discussed with a third reviewer, and final scores were obtained based on the discussion.

Results: Our search strategy identified a total of 595 articles; 15 articles were selected. These articles showed the measurement properties of 11 different instruments. For the same instrument, the measurement properties were sometimes evaluated for different populations. Among the

11 instruments, the Mindful Attention Awareness Scale (MAAS) and the Kentucky Inventory of Mindfulness Skills (KIMS) were the most frequently evaluated.

Conclusion: Study findings to date suggest that evidence of the psychometric quality of most mindfulness instruments is limited. Future studies investigating measurement properties are needed.

P97

P02.41. Yoga for musculoskeletal conditions: a systematic review of intervention protocols

L Ward^{1*}, S Stebbings², D Cherkin³, D Baxter¹

¹School of Physiotherapy, University of Otago, Dunedin, New Zealand;

²School of Medicine, University of Otago, Dunedin, New Zealand; ³Group Health Research Institute, Seattle, USA

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Purpose: To review intervention protocols of yoga for musculoskeletal conditions.

Methods: Twenty-one databases were electronically searched using database-specific search strings incorporating "yoga", "musculoskeletal", "back pain", "arthritis" and "random". Inclusion criteria were full-text articles of randomised controlled trials, involving yoga as a primary intervention for clinically-diagnosed musculoskeletal conditions in adults. Articles were assessed for methodological quality and risk-of-bias.

Results: Fifteen articles are included in the systematic review. Articles represent five musculoskeletal conditions, and vary from pilot studies to trials evaluating efficacy and effectiveness of yoga for musculoskeletal conditions. Quality ratings range from 1-8 on the PEDro scale, and 4-17 on the van Tulder scale. Pilot studies tend to show an unclear or high risk of bias, whereas trial studies are predominantly low risk. Heterogeneity in content and reporting of intervention protocols is seen across and within musculoskeletal conditions, as follows. Six styles of yoga were represented, with some protocols based on one style and others an amalgam of different styles. Thirteen interventions were in an outpatient setting (duration 6-24 weeks), and two were in a residential setting (duration 1 week). Hours spent in yoga sessions ranged from 1-56 hours per week and 8-72 hours per intervention. The majority of trials incorporated yoga posture, breathing and relaxation techniques. However, the posture content between trials was difficult to compare at face value due to variations in naming of a posture across different styles of yoga.

Conclusion: Heterogeneity in the content and reporting of yoga intervention protocols makes comparison of results difficult across studies. To address this challenge of heterogeneity, future research should address which components of a yoga intervention protocol can be standardised, and define a range of variation within which an intervention may still be considered sufficiently homogenous to enable comparison across different research trials.

P98

P02.42. Non-touch biofield therapy: a systematic review of human randomized controlled trials reporting use of only non-physical contact treatment

R Hammerschlag^{1*}, B Marx¹, M Yamamoto², M Aickin³

¹Oregon College of Oriental Medicine, Portland, USA; ²National College of Natural Medicine, Portland, USA; ³Family & Community Medicine, University of Arizona, Tucson, USA

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Purpose: Biofield therapies, e.g. External Qigong, Healing Touch, Johrei, Reiki and Therapeutic Touch, commonly combine physical touch and non-physical contact to stimulate healing. Interpretation of such healing as mediated via electromagnetic and/or other types of biofield(s) is confounded by findings that light touch can lessen stress and reduce pain. The present review of human RCTs that report using only non-physical contact healing aims to develop evaluative criteria that reflect both the 'early-phase' (pilot study) nature of most biofield therapy trials and the real-world practice of these therapies.

Methods: Biofield therapy RCTs were identified through June 2011 from databases, reference lists of systematic reviews and bibliographies web-posted by biofield therapy organizations. Included articles were peer-

reviewed, English language prospective RCTs with at least one arm of verum therapy delivered with no physical contact and at least one arm of mimic therapy or active comparison treatment. Data extraction items were based on those of Astin et al 2000 to facilitate tracking of research progress in this field.

Results: Of 74 identified RCTs, the 23 that met inclusion criteria examined 18 different conditions using 5-480 total minutes of treatment; 19 trials (83%) reported at least one outcome that favored verum treatment. Four trials reported at least one outcome that failed to reach statistical significance but produced a positive 'separation test' (Aickin 2007), indicating that further research is justified.

Conclusion: Heterogeneity in treatment parameters across the included trials suggests lack of consensus on how to test biofield therapies within the RCT design. Variability of reporting of biofield therapy RCTs, in particular the frequent lack of unequivocal statements as to use of only hands-off procedures, hindered drawing robust conclusions. Nevertheless, the combined findings from statistical significance testing and separation testing indicate that further research under transparent conditions is justified to inform studies of mechanism(s) mediating non-physical contact healing.

P99

P02.43. A Mediterranean-style, low-glycemic diet plus phytonutrient rich medical food improves cardiovascular risk variables in women with metabolic syndrome

R Lerman^{1*}, M McIntosh², M Fernandez³, W Najm⁴

¹Metagenics Inc., Gig Harbor, USA; ²Department of Emergency Medicine, University of Florida, Jacksonville, USA; ³Department of Nutritional Sciences, University of Connecticut, Storrs, USA; ⁴Department of Medicine, University of California, Irvine, USA

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Purpose: Metabolic syndrome (MetS) is a growing public health concern and effective dietary intervention programs could make a tremendous impact on slowing disease progression. To assess the benefits of a dietary program on cardiometabolic disease risk variables, a 12-week, randomized controlled trial of overweight and obese women with MetS was conducted.

Methods: Participants consumed a Mediterranean-style, low-glycemic-load diet (control arm, n = 44), or the same diet plus a medical food (UltraMeal PLUS 360, Metagenics Inc.) containing phytosterols, soy protein, and extracts from hops and acacia (intervention arm, n = 45). Fasting blood samples were analyzed at baseline, week 8, and week 12 for plasma lipids, apolipoproteins, and homocysteine. Dietary records were collected and analyzed.

Results: Reduction in fat and sugar intake (p<.001 for both) was observed and increases in docosahexaenoic acid and eicosapentaenoic acid intake (p<.001 for both) were recorded, consistent with the prescribed diet. Regarding MetS variables, decreases in waist circumference, systolic and diastolic blood pressure, and plasma triglycerides in all subjects (p<.001 for all) were observed, with no differences between arms. Plasma low-density lipoprotein cholesterol, non-high-density lipoprotein cholesterol, apolipoprotein (apo) B, and apo B/apo A1 were reduced over the 12-wk study, but to a greater extent in the intervention arm (p <.05 for all), indicating the medical food had an effect in altering lipoprotein metabolism. Further, medical food intake was associated with reduced plasma homocysteine (p <.01), compared to the control arm.

Conclusion: A Mediterranean-style, low-glycemic-load diet effectively reduced cardiovascular risk factors associated with MetS. Addition of medical food resulted in an improved lipoprotein profile and lowered plasma homocysteine.

P100

P02.44. A pilot crossover trial of acupoint injection for treating primary dysmenorrhea

M Chao^{1*}, C Wade²

¹Univ of California, San Francisco, Osher Center for Integrative Med, San Francisco, USA; ²Institute of East West Medicine, New York City, USA

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Purpose: Primary dysmenorrhea is highly prevalent among adolescent women and a major cause of activity restriction. Standard pharmaceuticals for dysmenorrhea have side effects that may limit their use. Acupoint injection of vitamin K has been used to treat dysmenorrhea at the Obstetrics & Gynecology Hospital in Shanghai, China since at least 1985. The purpose of this study was to examine feasibility and acceptability of acupoint injection of vitamin K1 for primary dysmenorrhea among US women and to assess preliminary data on efficacy.

Methods: We conducted a crossover trial where study participants were randomized to receive either 1) vitamin K1 injection in the acupoint Spleen-6 at the start of their menstrual cycle followed by a saline injection in a non-acupoint two months later or 2) saline in a non-acupoint followed by vitamin K1 in Spleen-6 two months later. Pain intensity was measured before and after each treatment.

Results: A total of 18 women with primary dysmenorrhea (mean age = 22 years) enrolled in the study. After participating 94% would still agree to go through with the injection therapy and 77% would come every month if the treatment were available. Based on a 0 to 10 numeric rating scale at baseline and 60 minutes after injection, when receiving vitamin K in Spleen-6, women had an average 2.5 point decrease in pain (4.1 to 1.6). When receiving saline in a non-acupoint, average pain decreased by 1.8 points (4.5 to 2.6).

Conclusion: Results from this pilot study suggest high acceptability of acupoint injection of vitamin K as a treatment for primary dysmenorrhea among American women. While decreases in pain were observed for both the treatment and control, a trend towards larger pain reduction was seen for vitamin K/Spleen-6 injection. This is consistent with studies conducted in Shanghai, where this treatment protocol was initially developed.

P101

P02.45. Description of naturopathic practice from clinical administrative data on 400,000 visits in academic clinics

C Calabrese¹, E Oberg², S Chamberlin³

¹Naturopathic Physicians Research Institute, Portland, USA; ²Bastyr University, Kenmore, USA; ³National College of Natural Medicine, Portland, USA

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Purpose: Because naturopathic physicians may represent an underutilized public health resource, there is need to comprehensively characterize the care they provide to understand NDS' role in healthcare systems. Characterization also provides preliminary data for clinical research and quality improvement initiatives. Descriptive data are efficiently sourced from clinical administrative records in computerized practice management systems used in most naturopathic clinics.

Methods: Data collection was from the 7 accredited academic naturopathic clinics in North America, which are some of the largest and which operate diversely in different jurisdictions. Four institutions provided patient-level data and three provided summary data. We obtained records or reports for 2006-10 on the numbers and demographics of new/returning patients, visits/dates, diagnostic/procedure codes, direct costs billed and payment sources. After multi-institutional IRB approval, patient-level data was de-identified on site by the study team per HIPAA guidelines, reviewed and vetted for accuracy with clinic staff, then aggregated and harmonized to create a closed analyzable dataset. Parallel summary data from the other 3 institutions for comparisons provide an overall view of care provided. Analysis consisted of descriptive statistics and comparison of variables of interest across clinics by appropriate methods.

Results: Preliminary analysis reveals broad ranges of gender, age, diagnoses and procedures with US clinics reliably reporting diagnostic and procedure codes. Fatigue, pain syndromes, infections and gastrointestinal complaints are the most frequently seen conditions. Visit patterns show a degree of continuity. Financial data are interpretable in some clinics with insurance claims filed as the most reliable component. Tables of results will be presented with some comparisons to other provider types. Analyses are not yet complete.

Conclusion: Clinical administrative data is a rich source of health services information useful for little studied fields of healthcare. Characteristics of naturopathic services at academic clinics suggest a pattern of patients and diagnoses consistent with those of conventional primary care.

P102

P02.46. Double blind randomised controlled study of the acute (immediate) cardiovascular effects of reflexology in healthy volunteers and cardiac patients

J Jones^{1*}, P Thomson¹, W Lauder¹, S Leslie²

¹University of Stirling, Inverness, United Kingdom; ²NHS Highland, Inverness, United Kingdom

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Purpose: Reflexology is one of the top six complementary therapies used in the UK. Reflexologists claim that massage to specific points of the feet increases blood supply to referred or 'mapped' organs in the body. Empirical evidence to validate this claim is scarce. This three-phase study measured changes in cardiovascular parameters in subjects receiving reflexology treatment applied to specific areas of the foot which are thought to correspond to the heart (intervention) compared with reflexology applied to other areas on the foot which are not (control).

Methods: 16 reflexology-naive healthy volunteers, 12 reflexology-naive patients with chronic artery disease (CAD) and 12 reflexology-naive patients with heart failure (HF) received active and control reflexology treatments in three randomised, placebo-controlled, double-blind repeated measures studies. In each study the subjects were observed over six time periods under the two conditions and randomised to receive either intervention or control treatment. Outcome measures included 'Beat-to-beat' non-invasive continuous measurement of heart rate, diastolic blood pressure, stroke volume, stroke index, cardiac output, cardiac index, total peripheral resistance, baroreceptor reflex sensitivity, and heart rate variability.

Results: The effects of reflexology treatment were modest. There were no significant differences noted in any of the measured parameters in either the CAD or HF intervention or control groups. Cardiac index decreased significantly in the healthy volunteer intervention group during left foot treatment (LFT) (baseline mean 2.6; (SD) 0.75; 95% CI +/- 0.38 vs. LFT mean 2.45; SD 0.68; CI 0.35) with an effect size ($p=0.035$, omega squared effect (w^2) = 0.002; $w = 0.045$).

Conclusion: The findings suggest that reflexology massage applied to the upper part of the left foot in the area thought to relate to the 'heart' may have a modest specific effect on the cardiac index of healthy volunteers, but no specific effect on patients with various gradations of cardiovascular disease.

P103

P02.47. The relationship between CAM use and somatic symptom severity

S Chamberlin^{1*}, J Wild¹, D Ackerman²

¹National College of Natural Medicine, Helfgott Research Institute, Portland, USA; ²Oregon College of Oriental Medicine, Portland, USA

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Purpose: This analysis looked at the relationship between patient self-reported use of complementary and alternative medicine (CAM) and change in symptom severity for a variety of somatic conditions.

Methods: Data were collected prospectively through the PROCAIM Network, developed at UCLA. The Patient Health Questionnaire 15 (PHQ15) was used to measure 3 month change in symptom severity. All patients reported having chronic medical conditions characterized by chronic pain. Multivariate linear regression was used to evaluate: (1) The relationship between somatic symptom severity and the number of complementary and alternative medicine (CAM) modalities at baseline and during the three month period. (2) The relationship between somatic symptom severity and the NCCAM CAM categories.

Results: 438 patients completed the PHQ15 at baseline and three months. Lower symptom severity (PHQ15) was associated with a greater number of CAM modalities used at baseline. During the three month follow-up, an increase in symptom severity was associated with increasing numbers of CAM modalities. Lower symptom severity at baseline was associated with the use of natural products together with whole system medical approaches; natural products combined with mind body and other whole system approaches; natural products together with mind body, manipulative therapy, and whole system therapies. An increase in symptom severity during the next 3 months was associated with the same CAM usage as well as the use of natural products together with manipulative therapy.

Conclusion: Baseline use of multiple CAM therapies, especially natural products, was associated with symptom improvement. During the next 3 month period, an increase in the use of CAM combinations was associated with increasing symptom severity. This could indicate that patients who are not improving are seeking out more CAM remedies to deal with a worsening symptom picture. This can be further evaluated with PROCAIM data for the entire 12-month follow-up period.

P104

P02.48. Overcoming ego depletion: the effects of an optimism manipulation on repeated acts of self-control

Y Meevissen^{*}, M Peters, H Alberts

Maastricht University, Maastricht, Netherlands

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Purpose: The present study attempted to establish the causal status between optimism and executive functioning (self-regulation). Repeated acts of self-control draw from a limited general resource which, upon depletion, results in reduced capacity for continued self-regulation, a process termed ego depletion (Baumeister, Bratslavsky, Muraven, & Tice, 1998). The present study investigated whether: (1) An *a priori* explicit optimism induction can buffer against the ego depletion effect. (2) A potential reduction in the ego depletion effect caused by optimism results from (a) more effective mental resource utilization or (b) greater willingness to invest resources.

Methods: Eighty female participants were randomly assigned to a 2 (optimism vs. neutral) x 2 (depletion vs. no-depletion) factorial between-subjects design. For 20 minutes, participants were either instructed to describe and visualize their best possible self (BPS) (optimism condition) or their daily rituals (DR) (neutral condition). After this manipulation half of the participants were depleted by performing a difficult Stroop task. The other half remained non-depleted by performing an easy Stroop task. Following the Stroop task, all participants performed two other self-control demanding tasks. As a measure of self-control performance, participants were requested to pinch a handgrip as long as possible on various time points during the lab session.

Results: Visualizing a best possible self was shown to successfully enhance optimism. Whereas participants in the control condition demonstrated the effect of ego depletion (expressed by reduced self-control performance), participants in the optimism condition did not suffer from this decrease in self-control performance, not even after carrying out repeated acts of self-control.

Conclusion: Optimism seems to be able to buffer against the effects of ego depletion, thereby enabling people to carry out repeated acts of self-control, which has for instance been indicated to contribute to goal pursuit, goal achievement, and resilience in times of adversity or stress.

P105

P02.49. Dynamical system approach for CAM research

A Ahn^{1*}, P Wayne², G Yeh³, Y Liu⁴, C Peng³

¹Massachusetts General Hospital Martinos Center for Biomedical Imaging, Charlestown, USA; ²Brigham Women's Hospital, Boston, USA; ³Beth Israel Deaconess Medical Center, Boston, USA; ⁴DynaDx Corporation, Mountain View, USA

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Purpose: Complementary and alternative medicine (CAM) therapies often approach health and disease from a holistic viewpoint that is congruent with the contemporary systems biology framework. Conventional biomedical markers and outcomes typically focus on individual components of whole human systems, while ignoring important nonlinear interactions among different components of the system. New analysis tools that are specifically designed to help understand the impact of CAM interventions from a systems biology framework are needed.

Methods: With support from an NCCAM SBIR grant, we enhanced the nonlinear dynamics software package called DataDemon (DynaDx Inc.) by modifying the user interface and creating new modules to increase accessibility and applicability to CAM researchers. Based on a dynamical system approach, DataDemon allows the study of physiologic fluctuations

with measures that reflect emergent properties of integrative systems. Modifications in Phase I included Hilbert-Huang transform, multiscale entropy analysis (a measure of system complexity), enhanced wavelet analyses, among others. New software was shared with a diverse sample of CAM researchers to evaluate usability, clarity, and application to a variety of physiological data.

Results: By applying the modified software to existing CAM research data, we successfully obtained non-linear measures of heart rate dynamics and center of pressure control following tai-chi mind-body interventions, performed wavelet analyses of arterial pulse waves following deep breathing, and determined complexity of electrical potential measurements in acupuncture meridians. Overall, preliminary feedback suggested good functioning of the software with a clear and friendly user interface. Suggestions for improvement included generalized dynamical coupling analysis for multi-systems interactions.

Conclusion: DataDemon is a promising software package that uses a new dynamical system approach to provide quantitative measures for CAM research and interventions. Further development will focus on broader sampling of CAM users, new interfaces (e.g. functional magnetic resonance imaging, ultrasound), systems coupling analyses, and richer tutorial programs to make the software more widely accessible.

P106

P02.50. Naturopathy and yoga based life style intervention for cardiovascular risk reduction in patients with cardiovascular risk factors: a pilot study

B Nandakumar, A Kadam, H Srikanth, R Rao^{*}

Institute of Naturopathy and Yogic Sciences Medical Research Society, Bangalore, India

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Purpose: Lifestyle interventions have been known to reduce coronary risk in subjects with high risk for coronary heart disease (CHD). In this study we evaluated the effects of a residential yoga and naturopathy based lifestyle intervention on coronary risk reduction in subjects with high risk for CHD.

Methods: In this randomized waitlisted controlled clinical trial, 72 subjects with known cardiovascular risk factors were randomized to receive residential 3 week yoga and naturopathy intervention (n=37) or waitlisted (n=35) to receive the same later. Outcome measures like resting blood pressure, Body Mass Index, lipid profile, fasting and post prandial blood glucose, and psychological measures such as Hospital Anxiety and Depression Scale (HADS), the Somatization component of SCL90, and General Health Perception Questionnaire were assessed at baseline and after the intervention waitlist period. Data were analysed between groups using ANCOVA with respective baseline measure as a covariate.

Results: Compared to waitlist control, subjects in the Intervention group showed significantly ($p < 0.05$) lower adjusted mean values of systolic blood pressure (140.36 vs. 124.62), diastolic blood pressure (85.28 vs. 76.93), fasting blood glucose (142.29 vs. 116.61), postprandial blood glucose (233.2 vs. 172.19), body mass index (33.05 vs. 31.86), total cholesterol (181.61 vs. 161.04), LDL cholesterol (107.76 vs. 85.72), triglycerides (152.8 vs. 131.74), anxiety (6.79 vs. 4.98), depression (6.54 vs. 4.45) and somatization symptoms (7.84 vs. 3.56) at 3 weeks following intervention compared to waitlist controls. The intervention group showed significantly higher ($p < 0.05$) adjusted mean values of current health (29.56 vs. 33.31) and prior health (9.67 vs. 10.46) on the General Health Perception Questionnaire compared to waitlist controls following intervention.

Conclusion: Naturopathy and Yoga based lifestyle interventions show promising results in reducing coronary risk indices in subjects at high risk for coronary heart disease. However, larger randomized controlled trials are needed to validate these findings.

P107

P02.51. Acupuncture treatment for hospitalized patients on anticoagulant therapy- a safety study

C Miller^{1*}, B Hopperstad¹, P Johnson², J Dusek¹

¹Abbott Northwestern Hospital, Penny George Institute for Health & Healing, Minneapolis, USA; ²Center for Healthcare Innovation, Allina Hospitals and Clinics, Minneapolis, USA

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Purpose: As acupuncture becomes increasingly available in allopathic medical settings, healthcare providers raise concerns about patient safety. One such concern is excessive bleeding. Although "bleeding" and "bloodletting" are at times recognized by practitioners of Chinese Medicine as therapeutic techniques, bleeding has been described in the modern acupuncture research literature as an adverse event. The purpose of this study is to examine the incidence of bleeding at acupuncture points in hospitalized patients on anticoagulants.

Methods: Data were obtained from electronic medical records for 1273 inpatient acupuncture treatments occurring at one large Midwestern hospital between January and June 2010. We examined data for 350 treatments received by 229 patients on warfarin who also had an INR drawn the same day. INR values were dichotomized at the 90th percentile as high (≥ 2.3) or low (< 2.3). Means and percents were compared by INR level. Analysis included chi-square, t-tests and Wilcoxon rank-sum tests.

Results: The sample included 106 males and 123 females ages 29 to 95 (mean = 64.4 years; SD=11.6). Overall, 350 acupuncture treatments were observed (median per patient = 1; Q1,Q3 = 1,2). Few significant differences in patient characteristics were detected by INR classification. Of 350 treatments, 14.6% (n=51) had bleeding noted. Cleanup with Q-tip occurred for 98% (n = 50). Percent with bleeding noted was no different between those with high INR and those with low INR (14.3% vs. 14.6%; p = 0.96).

Conclusion: Minimal bleeding was noted at acupuncture points in patients on anticoagulant therapy. Moreover, incidence of bleeding did not differ by INR level for this sample. Our findings suggest that acupuncture can be used safely for patients on anticoagulant therapy with INR values in the therapeutic range.

P108

P02.52. Clinical trial of integrative medicine treatment approaches for migraine and headache disorders - a subgroup analysis of SIMTAP

R Bonakdar^{1*}, R Coeytaux², R Roberts²,
BraveNet Practice Based Research Network

¹Scripps Center for Integrative Medicine, La Jolla, USA; ²Duke Clinical Research Institute, Durham, USA

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Purpose: As a component of the Study of Integrative Medicine Treatment Approaches to Chronic Pain (SIMTAP), we examined the utilization and efficacy of these approaches in a subset of patients with headache disorders. Specifically, we evaluated the ability to reduce headache disability and predictors of treatment response.

Methods: The SIMTAP enrolled 142 subjects with headaches at 9 clinical sites between May, 2009 and October, 2010. A subset of these subjects (N=38), who suffered with headache disorders referred to one clinical site by a neurologist, were further analyzed. In addition to baseline demographics and treatment history, subjects had evaluation of hs-CRP, Vitamin D, BPI, and MIDAS at baseline, 6, 12 and 24 weeks.

Results: At baseline, 55.2% had insufficient Vitamin D levels (< 30 ng/mL) and 68.4% had an hsCRP level > 1 mg/l. Mean baseline MIDAS score was 46 (SD=43) with 89% categorized as III or IV, meeting criteria for moderate to severe disability. The most common treatments attempted were biofeedback, acupuncture and manual therapy. 44.7% and 31.6% of subjects were able to reduce their MIDAS level by one or two categories. BMI, hsCRP or serum Vitamin D level at baseline did not predict improvement in headache disability.

Conclusion: Headache sufferers evaluated at an integrative medicine facility appear to have a significant burden of disease based on baseline MIDAS scores, as well as characteristics which may be related to their headaches, including elevated CRP and insufficient Vitamin D levels, which did not appear to predict improvement in this preliminary analysis. Individualized integrative medicine treatment approaches were not associated with significant decreases in mean MIDAS scores at 12 and 24 weeks, but 44.7% of subjects reduced their headache burden by at least one category. Further research is needed to better understand clinical response to integrative medicine approaches for headache and identifying predictors of response.

P109

P02.53. Examination of the association of diet on persistent cancer related fatigue

S Zick^{*}, A Sen, T Han-Markey, R Harris
University of Michigan, Ann Arbor, USA

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Purpose: Persistent cancer related fatigue (PCRF) is a common symptom experienced by many cancer survivors. While there is research recommending individualized nutritional counseling for improving fatigue during cancer treatment, there are no recommended dietary treatment options for PCRF.

Methods: A cross-sectional study was conducted to examine possible associations between diet and fatigue. Dietary intake using a 4-day food diary was assessed in 40 cancer survivors. Cancer survivors had completed all cancer treatments at least 12 weeks prior and had their fatigue assessed with the Brief Fatigue Inventory (BFI). Participants were placed into one of three fatigue levels, "no fatigue", "moderate fatigue", or "severe fatigue" based on their BFI. Mean differences in food group, eating patterns and nutrient intake were analyzed using ANOVAs, K-means cluster analysis, chi-squares and proportional odds model.

Results: Mean daily intake of whole grains, vegetables, and in particular green leafy vegetables and tomatoes, were significantly higher in the non-fatigued group compared to the moderately or severely fatigued cancer survivors. Also, cancer survivors reporting no-fatigue had significantly higher intakes of certain anti-inflammatory nutrients. Three different eating behaviors were identified: "Refined Carbohydrates"; "Healthy Eating"; and "Red Meat." The probability of having severe fatigue versus the probability of having moderate or no fatigue was 1.28 greater in the "Refined Carbohydrates" pattern and 10.90 greater in the "Red Meat" pattern versus the "Healthy Eating" pattern. More people who were fatigued infrequently ate Ready-to-eat-breakfast-cereal (RTEBC) compared to non-fatigued cancer survivors and had a significantly worse overall nutrient profile.

Conclusion: Increased consumption of RTEBC, whole grains and vegetables as well as foods rich in certain anti-inflammatory and antioxidant nutrients are associated with decreased levels of PCRF. Further rigorous studies will be required to investigate possible mechanisms and causal relationships regarding the benefits of particular nutrients, foods or diets on PCRF.

P110

P02.54. Tools from the SPICER project for doing clinic-based research on integrative medicine and CAM

M Aickin
University of Arizona, Tucson, USA

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Purpose: Non-intervention research using clinical records is difficult, both from the theoretical and practical standpoints. Progress on the former requires progress on the latter. Several techniques have been developed in the SPICER project to overcome the various practical problems encountered in research from electronic medical records (EMRs). This presentation will exhibit techniques that have been developed and appear to work well.

Methods: Non-intervention projects on integrative medicine and pain are underway, one at a large HMO and another in a mixed conventional/CAM clinic. Both of these projects have addressed problems of refining research objectives, performing data extraction, and designing analyses.

Results: In-depth understanding of the EMR system, the clinic, and how practitioners use the system are necessary to identify patient samples and available information. A successful strategy for obtaining research datasets from EMR has been based on a radical simplification of the interface between the IT professionals and the analysis professionals. The post-extraction data manipulation burden is somewhat high, but must be faced because conventional data management techniques are infeasible. The well-known ICD9 and CPT codes can be simplified in medically appropriate ways, but EMRs often introduce non-standard features into these systems. Medications present unique problems, but the ACT (anatomic, therapeutic, chemical) annotation system is very useful in

analysis datasets. Therapeutically relevant analyses must account for treatment selection bias. A reading list of resources will be provided.

Conclusion: EMR-based research is potentially an extremely valuable complement to other methods of medical investigation. Developing this alternative source of therapeutic knowledge requires dissemination of a toolkit that solves the practical problems.

P111

P02.55. Craniosacral therapy for migraine: a feasibility study

J Mann¹, S Gaylord^{1*}, K Faurot¹, C Suchindran², R Coeytaux³, L Wilkinson⁴, R Coble¹, P Curtis¹

¹UNC School of Medicine, Chapel Hill, USA; ²UNC Gillings School of Global Public Health, Biostatistics, Chapel Hill, USA; ³Department of Community and Family Medicine, Duke University School of Medicine, Durham, USA; ⁴Private practice, Carrboro, USA

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Purpose: The purpose of this study was to evaluate feasibility and obtain preliminary efficacy estimates comparing craniosacral therapy (CST) with an attention-control condition for the adjunctive treatment of migraine.

Methods: Individuals with moderate to severe migraine were recruited from specialty clinics, family practices, and the university community. After confirmatory clinical evaluation and an 8-week run-in phase, those meeting study criteria (compliant with study procedures, at least 5 migraines per month) were randomized to 8 weekly CST or low-strength static magnet therapy (LSSM) treatments. Study participants were followed for 4 weeks after the conclusion of therapy. Primary outcome measures included headache frequency and headache-specific quality of life (HIT-6). Secondary headache-specific measures include headache-related disability (MIDAS), headache intensity, and abortive medication use.

Results: At baseline, participants reported a mean 14 headache days per month and severe headache-related quality-of-life impact and disability. Compliance with study procedures was excellent, with 60 of 69 randomized individuals completing 8 weeks of therapy. Individuals in both treatment groups appeared to benefit from the therapy. A significant difference, favoring CST, was noted by treatment group in mean headache hours per day 30 days post treatment (1.89 vs. 2.78, $p=0.003$). HIT-6 scores decreased significantly in both groups, but without a between-group difference at the last treatment visit. MIDAS scores improved in the CST, but not the LSSM group at 4 weeks post treatment. Headache intensity was reduced more in the CST compared with the LSSM group, but the difference was not statistically significant. Abortive medication use decreased substantially in both groups during treatment.

Conclusion: Our results show that conducting a randomized clinical trial of CST for migraine using a standardized protocol is feasible and that adjunctive CST may reduce headaches in those with severe migraine. Protocol modifications may enhance future investigations of CST for migraine.

P112

P02.56. A naturopathic treatment protocol for acute otitis media: a report of twenty-four cases

R Barrett

Helgott Research Institute, National College of Natural Medicine, Portland, USA

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Purpose: To describe a case series of children treated with a naturopathic protocol for acute otitis media (AOM). Acute otitis media places a large burden on pediatric populations. Antibiotics provide modest benefits; however, these benefits must be weighed against the risk of adverse events and antibiotic resistance. Current American Academy of Pediatrics guidelines includes "watchful waiting": withholding antibiotics and providing analgesics and supportive care in selected patients.

Methods: A retrospective case series was compiled by searching the electronic records from 2010-2011 from pediatrics teaching rotations at two naturopathic teaching clinics. Thirty cases were identified. Stringent criteria were applied to increase diagnostic accuracy, as viral respiratory infections are often misclassified as AOM. Inclusion criteria were: (1) acute onset of otalgia (2) tympanic membrane (TM) cloudiness or redness (3) Impaired TM mobility (4) TM bulging or fullness. Twenty-four children between 2 and

7 years-of-age met the inclusion criteria (average age 37 months, 17 boy: 7 girls). Cases were treated with a whole practice naturopathic treatment, including a botanical formula, nutritional supplementation, low-antigenic diet and hydrotherapy. Seventy-five percent received an acute homeopathic prescription and 54% received botanical analgesic eardrops. Primary outcomes: pain duration, assessed at 24 hours and days 2-7. Secondary outcomes: treatment failure, complications of AOM, and adverse events. Tympanometry was performed in 9 children at approximately 1 month to assess for residual effusion and hearing impairment.

Results: The number of children with pain at 24 hours was 7 of the 24 (31%). No children had pain by days 2-7. Adverse events: One patient discontinued the eardrops due to the garlic odor. There were no perforations or suppurative complications. Among the group that returned for tympanometric assessment, 6 of 7 (86%) had normal (Type A) tympanograms.

Conclusion: Naturopathic protocols may be a valuable adjunct in patients selected for watchful waiting for management of AOM.

P113

P02.57. Mindfulness meditation versus exercise in the prevention of acute respiratory infection, possible mechanisms of action: a randomized controlled trial

A Zgierska¹, C Obasi, R Brown, T Ewers, D Rabago, B Barrett
University of Wisconsin, Department of Family Medicine, Madison, USA

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Purpose: The original randomized controlled trial (RCT) compared mindfulness meditation and exercise to a control condition and showed that these interventions may be effective in reducing acute respiratory infection (ARI) illness burden and costs. Differential effects of these interventions were noted. The goal of this analysis is to evaluate possible mechanisms underlying efficacy.

Methods: The study design was a 3-arm non-blinded RCT. Participants were community-recruited adults ≥ 50 years old. Group 1 received meditation training; Group 2 "matching" moderate-intensity exercise training; and Group 3 were a waitlist control. Outcome Measures were assessed at baseline, 9 weeks (post-intervention) and 3 months. Primary outcomes were ARI duration and severity (area-under-the-curve global severity, Wisconsin Upper Respiratory Symptom Survey). Secondary outcomes were psychophysical health questionnaires. Exercise minutes were tracked.

Results: Of 154 randomized, 149 completed the trial and were included into analysis. Participants were on average 59 (standard deviation 6.6) years old; 82% were women, 94% were Caucasian and 93% were non-smokers. Two age/gender-adjusted hypothesis-driven mediational models assessed effects of selected variables on primary outcomes. Stage 1 model contained group status and the change in a selected variable score over time; Stage 2 model additionally adjusted for the change in mindfulness scores. Stage 1 modeling showed that change in mindfulness scores at 3 months mediated the treatment effects on cold duration ($p<0.05$). Stage 2 modeling (double mediation structure) showed that changes in Optimism, Social Support and Mental Health scores at 3 months influenced ($p<0.05$) cold duration; however, these effects appeared to be mediated ($p<0.05$, $p<0.05$, and $p=0.056$, respectively) by the change in mindfulness scores at 3 months, with larger increases in mindfulness scores correlating with a shorter ARI duration. Change in exercise minutes did not appear to have significant effects on primary outcomes.

Conclusion: Positive effects of meditation and exercise on ARI illness burden may be explained by improved mindfulness scores over time. These results call for further research.

P114

P02.58. The feasibility of integrating ear acupuncture into the aeromedical evacuation system from Ramstein Air Base (Germany) to Andrews Air Force Base (US)

J Walter^{1*}, A York¹, S Thati¹, R Niemtzwow², S Burns²

¹Samueli Institute, Alexandria, USA; ²U.S. Air Force, Andrews AFB, USA

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Purpose: Recently, military leaders have endorsed the need for holistic, non-pharmacologically based approaches to pain. Acupuncture has been

shown to be an effective adjunctive therapy for specific pain conditions; however, acupuncture has occupied only a marginal role in pain management. We investigated what would happen if a simple ear acupuncture procedure was introduced into the medical care delivered in the aeromedical evacuation system to wounded warfighters being evacuated from Germany to the US.

Methods: Volunteers were recruited among military personnel being evacuated from Germany to the U.S. who reported pain. Five semi-permanent needles were placed in each ear just prior to flight. Pain scores were recorded at intervals during and at the end of the flight. Patient satisfaction scores and medication use were measured. Medical personnel provided information on provider satisfaction. Needles were removed upon landing.

Results: With advance preparation and training of personnel, the administration of an ear acupuncture procedure did not interfere with the normal pre-flight preparation process. A larger, randomized controlled clinical trial aimed at assessing effectiveness of ear acupuncture is possible. Fifty percent reported being mostly satisfied and 21% were very satisfied with the ear acupuncture treatment. Sixty-two percent reported they would elect to receive the ear acupuncture treatment again for pain relief. There was a significant decrease ($p < 0.0001$) in pain levels (avg. pre-treatment pain rate=4.07; post-flight pain rate=2.76). No significant difference was detected between participants who reported taking pain medications and those who did not therefore both groups (medication takers and non-takers) experienced similar decreases in pain levels.

Conclusion: The potential of acupuncture to deliver pain relief with minimal side effects in this population is worth further investigation, especially if it may mitigate the overuse of pain medication with its inherent risks and challenges. We will discuss the challenges of conducting research in this environment and the details of the results.

P115

P02.59. Complexity of disease and population heterogeneity require a rethinking of clinical trial design

H Amri^{1*}, A Haramati¹, M Abu-Asab²

¹Georgetown University Medical Center, Washington, D.C., USA; ²National Institutes of Health, Bethesda, USA

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Purpose: Although randomized clinical trials are considered the gold standard in biomedicine, they have several limitations such as experimenting on a sample group under ideal set forth criteria, creating an environment that does not apply to daily clinical practice where comorbid conditions are encountered everyday, and ignoring the differential response to treatment and treatment-related risk detected in the study population. This is due in part to the inherent complexity of the disease process and the heterogeneity within and between populations – two fundamental principles of biology that currently do not receive sufficient attention in study design. The advent of high throughput technologies of genomics, proteomics, and deep sequencing has demonstrated the heterogeneous nature of biological data. In this paper, we propose to demonstrate how high throughput data combined with evolutionary-based analyses could be used to stratify patients prior to starting the clinical study into groups that share similar traits and affinities. With this information in hand, participants can then be randomized to control or treatment groups within each phyletic clade (or population).

Methods: The method combines omics data with parsimony phylogenetics which we developed and named Phylomics[®].

Results: This novel approach offers a four-stage clinical trial design: 1) recruitment from a heterogeneous population using a wide spectrum inclusion criteria to reflect “real world” settings; 2) randomization within homogenous phyletic groups; 3) classification of phyletic groups into responders and non-responders to drug/intervention; and 4) translation of the clinical trial findings to the clinic. By knowing the phyletic clade of the patient, the physician would prescribe the drugs that are most suitable for the patient, based on his/her membership to the phyletic clade.

Conclusion: This methodology applies personalized medicine within a systems biology paradigm that utilizes data heterogeneity, monitors treatment response and treatment-related risks, and facilitates a better translation of trials’ results to the clinic.

P116

P02.60. Characteristics of treatment adherence in low-income minority participants in a yoga dosing study for chronic low back pain

A Boah^{1*}, L Kwong¹, J Weinberg², K Sherman³, R Saper¹

¹Boston Medical Center, Boston, USA; ²Boston University School of Public Health, Boston, USA; ³Group Health Research Institute, Seattle, USA

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Purpose: Minority groups experience significant barriers to participation in clinical trials. Little is known about characteristics of treatment adherence among low income minority populations in CAM trials. This analysis aims to identify factors associated with class attendance, a major component of treatment adherence, in participants engaged in a research study of yoga for chronic low back pain (CLBP).

Methods: We conducted the Yoga Dosing Study for 95 adults from Boston Medical Center (BMC) and five affiliated Community Health Centers (CHCs), all federally qualified and serving racially diverse low-income neighborhoods. The study consisted of a 12-week standardized hatha yoga protocol comparing once per week to twice per week 75-minute yoga classes. Activities to enhance adherence included: flexible yoga class schedules, weekly reminder phone calls, assistance with child care or transportation, make-up classes, attendance based raffles, staggered distribution of honoraria, and yoga take home practice supplies. We analyzed attendance rates at the end of the intervention for associations with demographic characteristics and pain related outcomes from data collected via questionnaires at baseline, 6, and 12 weeks. The Pearson Correlation and two sample t-tests were used for these analyses.

Results: After 12 weeks, the mean attendance rates for the 1x/wk and 2x/wk groups were 73% and 62% respectively ($p = .11$). Attendance rates were not associated with education, income, age, gender, race, change in low back pain score over 12 weeks, or length of time between enrollment into the study and beginning the intervention. Lower levels of low back pain intensity at 12 weeks was associated with higher attendance rates ($p = .03$).

Conclusion: It is feasible to attain good treatment adherence for low income minority populations in a yoga research trial. Greater attendance rates were associated with lower levels of low back pain intensity at the end of the study, but not associated with demographics or treatment assignment.

P117

P02.61. Does yogic breathing (pranayama) improve cardiovascular control?

S Bertisch^{1*}, C Tan², A Ahn³, J Taylor²

¹Beth Israel Deaconess Medical Center, Boston, USA; ²Spaulding Rehabilitation Hospital, Harvard Medical School, Boston, USA; ³Massachusetts General Hospital, Harvard Medical School, Boston, USA

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Purpose: One proposed mechanism by which meditative practices improve cardiovascular health is via shifting sympathovagal balance. Yet few studies have examined the effects of these practices upon autonomic cardiovascular control. In this context, we hypothesized that yogic breathing differentially impacts heart period (RR-interval) and systolic blood pressure fluctuations compared with paced breathing at 15 breaths/minute.

Methods: We enrolled five healthy advanced yoga practitioners from diverse traditions. We continuously measured heart rate, beat-by-beat blood pressure, respiratory rate, inspiratory volume, and end-tidal CO₂ during paced breathing (10 minutes) and yogic breathing (20 minutes). For yogic breathing, practitioners performed a deep breathing pranayama of their choice. We performed standard time and frequency domain analyses.

Results: In this group of practitioners, yogic breathing was characterized by a mean respiratory rate of 4.32 ± 1.87 breaths/min, mean minute ventilation of 6.09 ± 4.17 L/min, and mean end-tidal CO₂ of 39.98 ± 7.07 mmHg compared with a mean respiratory rate of $15.0 \pm .60$ breaths/min, minute ventilation of 8.66 ± 2.25 L/min, and mean end-tidal CO₂ of 32.68 ± 5.22 mmHg during paced breathing. The strength of the relationship (coherence) between respiration and heart period and respiration and

systolic blood pressure did not differ between breathing patterns ($p=0.74$ and $p=0.14$). However, we found increased gain between respiration and heart period fluctuations (400.00 ± 154.19 msec/L vs 36.65 ± 10.32 mmHg/L, $p=0.02$) and between respiration and systolic blood pressure fluctuations (15.97 ± 9.32 msec/L vs 1.68 ± 0.68 mmHg/L, $p=0.02$) during yogic breathing compared with paced breathing.

Conclusion: Yogic breathing was associated with increased gain compared with paced breathing. Whether the larger gain relation between respiration and cardiovascular fluctuations during yogic breathing represents baroreflex modulation or is due to enhanced entrainment through repetitive practice remains to be established. However, these preliminary findings may explain some of yoga's reported cardiovascular benefits.

P118

P02.62. DHEA augmentation strategy for treatment of fatigue and depression: a case presentation

R Glick^{*}, X Jimenez

University of Pittsburgh School of Medicine, Pittsburgh, USA

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Purpose: Dehydroepiandrosterone (DHEA) and its sulfated derivative DHEA-S are endogenous hormones secreted by the adrenal cortex in response to ACTH and stress. Levels of DHEA and DHEA-S are decreased with advancing age and depression. Trials of DHEA for mid-life depression have shown promising yet inconclusive results, due in part to small sample sizes and lack of placebo comparators. An additional concern, with the risk of breast cancer in this age group, is the high doses of DHEA supplementation used. We present a case in which low-dose topical DHEA and other hormonal agents were used as an adjunct to conventional antidepressant therapy to target symptoms of depression and fatigue in a peri-menopausal woman.

Methods: Baseline levels of DHEA-S were collected. In addition, we assessed fatigue and depression using PROMIS measures and vitality based on the SF-36. DHEA/Pregnenolone/Progesterone topical cream, dosed at 10/20/50 mg/mL per day, was added to the patient's usual treatment regimen of fluoxetine 20mg daily.

Results: Baseline labs revealed DHEA-S level of 63 (ref range: 15-170). Baseline questionnaires revealed fatigue at 25/35 (moderate-severe), depression at 23/40 (moderate), and vitality at 8/24 (low). After 12 months of treatment, DHEA-S was slightly increased at 83 and rating scores included fatigue at 11 (mild), depression 10 (mild) and vitality at 19 (high). A decrease of fluoxetine to 10 mg daily was well tolerated and no adverse effects were seen with treatment.

Conclusion: Given its safety and efficacy profile, low-dose topical DHEA adjunctive treatment for fatigue and depression in mid-life may result in well-tolerated improvements in subjective measures of fatigue, depression, and vitality, and warrants further investigation. Future investigation in a placebo-controlled, RCT is warranted. Such studies should assess safety and tolerability, effect on downstream hormones such as estradiol, optimal dosing, and impact on mood.

P119

P02.63. Efficacy of an 8-week online mindfulness stress management program in a corporate call center

D Alexandre^{1*}, A Neuman¹, J Hunter¹, T Morledge², M Roizen¹

¹Cleveland Clinic, Cleveland, USA; ²Revati Wellness, Cleveland, USA

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Purpose: Stress is inherent in our society and results in great suffering, increased healthcare cost, and impaired work performance. An online program can offer a cost effective and practical solution that can help cope better with stress. In this study, we evaluated the effectiveness of an 8-week online mindfulness stress reduction (OSR) program in reducing work related stress and burnout and in improving well-being in a corporate call center. We also evaluated whether 1-hour weekly group practice and experience sharing at the workplace would improve program retention and engagement.

Methods: 161 participants were randomized either to wait-list control (CTL, N=37), OSR (N=54) or OSR and weekly group meetings (OSR+grp,

N=70). The Perceived Stress Scale, Maslach Burnout Inventory (professional efficacy and exhaustion subscales), Mindful Attention Awareness Scale and SF36 (emotional well-being and role functioning subscales) were administered at baseline, post intervention and at 8-week follow-up.

Results: We observed overall a greater post intervention decrease in stress and exhaustion and increase in mindfulness, emotional well-being and role functioning in the OSR+grp (cohen $d=1.3, 0.8, 0.6, 1.4$ respectively) compared to OSR ($d=1, 0.4, 0.5, 0.8$) and wait-list control ($d<0.4$). This overall improvement was also maintained at follow-up for most measures. The improvement was significantly greater for the OSR compared to CTL for stress and emotional well-being, and for OSR+grp compared to CTL for all outcomes except for professional efficacy. OSR +grp improved significantly more than OSR for stress, emotional well-being and emotional role functioning. Weekly group practice significantly increased program engagement and reduced dropout rate (13% for OSR +grp compared to 55% for OSR).

Conclusion: An online mindfulness stress management program when combined with weekly group practice can offer a practical and cost-effective approach to decrease stress and burnout and improve mindfulness and well-being at the workplace.

P120

P02.64. Vitamin D sufficiency is necessary for integrative treatment-associated improvements in chronic pain status

G Plotnikoff^{*}, J Dusek, BraveNet Practice Based Research Network

Penny George Institute for Health and Healing, Minneapolis, USA

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Purpose: To examine the relationship between improved vitamin D status and reported severity of chronic pain.

Methods: Prospective observational study over 12 weeks of 252 patients with pain of any source lasting more than 6 months who sought integrative medicine evaluation and treatment at one of 9 Bravenet clinical sites across the United States. Interventions were not mandated. Baseline vitamin D status was reported to each clinician. Treatment options included conventional therapies as well as acupuncture, nutrition, massage and mind-body skills training. Measurements included the Brief Pain Inventory and 25-OH-vitamin D status.

Results: A total of 252 adults met eligibility criteria. Mean 25-OH-vitamin D levels and standard deviations at the start and 12 weeks later for all participants were 33.43 (17.05) and 39.58 (16.29). ($p<0.0001$). The subset of low back pain patients demonstrated similar values of 32.71 (14.34) increasing after 12 weeks to 39.19 (13.26) ($p<0.0001$). Of all participants, 153 (60.7%) achieved 25-OH-vitamin D levels above the 2010 international recommendation of ≥ 30 ng/ml and 99 (39.3%) did not. Of all 136 back pain participants, 90 (66.2%) achieved levels ≥ 30 ng/ml and 46 (33.8%) did not. Median average pain scores decreased from 5 to 4 during the study. Regardless of the integrative therapies applied, achievement of a serum level ≥ 30 ng/ml was necessary for significant improvement in average pain ($p=0.0018$ for all patients, $p=0.022$ for all back pain).

Conclusion: Chronic pain patients who sought integrative medicine demonstrated a high incidence of vitamin D deficiency. In the setting of additional treatments, serum levels ≥ 30 ng/ml were required for significant improvement in average pain scores. Failure to achieve a serum level ≥ 30 ng/ml represents a confounder of any therapeutic intervention in both clinical practice and clinical trials for chronic pain including chronic low back pain.

P121

P02.65. Chiropractic, acupuncture and oriental medicine, and massage services in two geriatric facilities: outcomes of 1033 patient visits

K Westrom^{*}, R Evans, C Vihstadt

Northwestern Health Sciences University, Bloomington, USA

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Purpose: There is insufficient information published on the topic of complementary and alternative medicine (CAM) clinical services within geriatric settings. The purpose of this presentation is to describe results

of a CAM demonstration project carried out within two geriatric facilities. Acupuncture and Oriental medicine (AOM), chiropractic, and massage clinical services were integrated into the facilities and data systematically collected. We prospectively gathered information on all patient visits provided by the CAM clinicians.

Methods: The project occurred at an assisted living (AL) complex, and a long term care (LTC) facility which consisted of skilled nursing beds and a transitional care unit (TCU). Chiropractic, AOM, and massage clinical services were each provided 16 hours weekly. Treatment notes designed for data collection were utilized. A project manager oversaw transfer of nonidentifiable patient information and data integrity. Outcomes collected included patient demographics, self-rated pain, main complaint, quality of life (QOL), components of the treatment encounters, and side effects and adverse events.

Results: Eighty-two patients received CAM clinical care. A total of 1033 treatment visits were provided (366 AOM, 338 chiropractic, and 329 massage). The number of visits per patient ranged from one to 92. There were no serious adverse events. Outcomes of pain, QOL, treatment components, and side effects will be discussed.

Conclusion: CAM clinical services were safely provided to predominantly geriatric patients in settings not typical for CAM clinicians. Further discussion on data collection in geriatric settings will be part of this presentation.

P122

P02.66. Efficacy of acupuncture for fibromyalgia - RCT

S Vinjamury^{1*}, J Jones², L Hsiao¹, M Moutappa², J Weiss²

¹Southern California University of Health Sciences, Whittier, USA; ²California State University, Fullerton, Fullerton, USA

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Purpose: The purpose of this study was to compare the efficacy of acupuncture and simulated acupuncture in patients with fibromyalgia.

Methods: Fifty fibromyalgia patients were randomized into two groups based on predetermined eligibility criteria. Experienced acupuncturists provided real or simulated acupuncture two to three times per week to complete ten sessions within four to six weeks. Fibromyalgia Impact Questionnaire (FIQ), Multidimensional Pain Inventory (MPI), Composite Physical Function Scale (CPF) and 30-second chair stand were used to determine the improvements in pain, physical function, and lower body strength, respectively. Data were collected at baseline, at the end of the fifth treatment, at the end of the tenth treatment and at six-month follow up. The study was approved by the local IRB.

Results: Thirty-nine participants completed the study. Demographic and disease characteristics were similar at baseline in both groups. Preliminary results indicate no significant main effects for group x time interactions (between groups). However, significant overall changes were seen within groups on outcome variables across time. No serious adverse events were reported by the participants. The dropouts were equal between the two groups. Blinding was effective.

Conclusion: A fixed point acupuncture protocol as adopted in this study was no better than simulated acupuncture in relieving pain or improving overall functionality in fibromyalgia patients. The study is limited by the small sample size. Further trials that adopt individualized treatments are recommended with larger sample sizes.

P123

P02.67. An alternative for Chronic Fatigue Syndrome, an observational case series

H Woodfield^{1*}, M Dickholtz Sr.², B Bell³, L Jacobs³

¹Upper Cervical Research Association, Bellingham, USA; ²National Upper Cervical Chiropractic Association, Monroe, USA; ³Advocate Good Shepherd Hospital, Barrington, USA

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Purpose: Chronic Fatigue Syndrome (CFS) has an elusive diagnosis and etiology. Treatment focuses on alleviation of symptoms and improving a patient's quality of life. The primary objective was to observe and record changes in a subject's health related quality of life (HRQoL), using the SF 36-Item Health Survey (SF-36), before and six months after a National Upper Cervical Chiropractic Association (NUCCA) atlas correction.

The Pittsburgh Sleep Quality Index (PSQI) was used to observe changes in a subject's sleep quality.

Methods: Nineteen subjects diagnosed as having CFS according to the 1994 Centers for Disease Control and Prevention (CDC) diagnostic criteria were studied. Patients who were fatigued six (6) or more months and who met four (4) or more diagnostic criteria were psychiatrically evaluated, and then underwent lab testing and SPECT imaging. Data collection and study administration were conducted using a practice-based research-based protocol. Patients were monitored for a period of six months to insure Atlas alignment was maintained and then retested.

Results: SF-36 results at the end of the study, by a paired t-test of SF-36 data (n=19) revealed a significant increase in the General Health component, from 30.3 pre to 60.9 post (p<0.03), and in the Mental Health component, from 68.6 to 74.7 (p<0.02). The overall PSQI score significantly decreased from 12.1 to 6.1 (p<0.05). SPECT scans and lab testing were inconclusive.

Conclusion: If correction of atlas misalignment in clinically diagnosed CFS patients is the single variable that appears responsible for self-reported improvement of functional and mental health status, then further study is warranted to determine the utility of this intervention in patient care. The study was limited by the lack of a control group and that care was provided by only one practitioner.

P124

P02.68. Usefulness of Chinese herbal medicine in advanced cancer outpatients: a study on efficacy, tolerability and quality of life

Y Wong^{1*}, S Lo², K Wong¹, W Chan³, Z Liang¹, C Che¹

¹School of Chinese Medicine, The Chinese University of Hong Kong, Hong Kong, Hong Kong; ²Tuen Mun Hospital, Hong Kong, Hong Kong; ³The Pok Oi Hospital, Hong Kong, Hong Kong

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Purpose: This study is to assess the effects of Chinese herbal medicine on aspects of health-related quality of life in patients with heterogeneous advanced cancer.

Methods: It was a single-armed, prospective, pre-post and open-label observational study. At the department of oncology in a public hospital, 47 patients who failed previous conventional therapies were recruited to receive one consultation per week (± 2 days) over a study period of eight weeks. Two quality of life instruments, EORTC QLQ-C30 and MOS SF-36, were used to assess HRQOL in patients who were interviewed face-to-face at baseline, on Day 29 and Day 57. Any adverse events were also reported to assess the safety of Chinese herbal medicine.

Results: Thirty-two patients were finally available for data analysis of quality of life. Mean score of the global health status of QLQ-C30 increased from 54.95 ± 9.15 (out of a maximum 100 points) at baseline to 67.45 ± 7.21 points on Day 29, and then decreased to 62.50 ± 7.97 points on Day 57 (F= 5.81; p<0.05). Several measures in the questionnaires also demonstrated improvements over the whole treatment such as emotional function, insomnia and constipation, but without reaching statistical significance. There were no significant changes in complete blood count, liver function tests and renal function tests. Sixteen cases of serious adverse events were reported but none of them was suspected to have a causal relationship with the Chinese herbal medicine used in the study.

Conclusion: After the two-month Chinese herbal medicine treatment, the quality of life and symptoms of advanced cancer patients showed an overall improvement. Chinese herbal medicine is potentially effective for improving quality of life of advanced cancer patients during the palliative period.

P125

P02.69. Self administered acupuncture for treatment of chemotherapy associated nausea: a pilot study

Z Adler^{*}, P Hansen

University of Utah Department of Physical Medicine and Rehabilitation, Salt Lake City, USA

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Purpose: Acupuncture has gained popularity since the National Institutes of Health 1997 Consensus Statement concluded that acupuncture is an effective anti-emetic for adult postoperative and chemotherapy-induced

nausea and vomiting. The most commonly used acupuncture point to control nausea and vomiting is the Pericardium 6 (P6), or Neiguan point. Some evidence suggests that the anti-emetic effects of P6 stimulation by acupuncture on chemotherapy-induced nausea and vomiting may last about eight hours. Most patients do not have access to a trained acupuncturist at such intervals. The purpose of this pilot study was to learn whether: 1) patients can be taught safe self-administration of acupuncture at P6 during cycles of their chemotherapy regimen and 2) self administered acupuncture reduces the severity of chemotherapy associated nausea and reduces use of anti-nausea medications.

Methods: Twenty patients with chemotherapy associated nausea were recruited from Huntsman Cancer Hospital. Patients were randomized to groups A or B for a crossover trial. Patients were taught how to self-administer acupuncture at the P6 site. Acupuncture was self-administered a minimum of one and a maximum of three times per day during the first week of chemotherapy cycle #1 for group A and chemotherapy cycle #2 for group B. Acupuncture was used in conjunction with ongoing standard care. Both groups maintained daily logs documenting nausea on a scale of 1-10, emesis, medications used and time of acupuncture administration.

Results: 16 out of 20 patients successfully completed their daily logs. There was a small but statistically significant reduction in nausea severity during the acupuncture treatment cycle compared to control cycle. There was not a statistically significant reduction in episodes of emesis. There were no adverse events.

Conclusion: Cancer patients can be safely taught self administration of acupuncture at P6 in order to reduce the severity of chemotherapy associated nausea.

P126

P02.70. Feasibility and effect of chair massage offered to nurses during working hours on stress related symptoms: a pilot study

D Engen, B Bauer, A Vincent, C Luedtke, L Loehrer, S Cha, T Chon, L Dion, N Rodgers, D Wahner-Roedler*

Mayo Clinic, Rochester, USA

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Purpose: To assess the feasibility and effect of chair massage offered to hospital nurses during working hours on stress related symptoms.

Methods: Single arm study performed between 10/15/2010 and 12/24/2010 at an academic medical center. A mass e-mail was sent to all nurses working in an inpatient psychiatric and an outpatient pain rehabilitation unit. The first 40 respondents were enrolled; two were excluded due to missing enrollment data. A 15 minute chair massage once a week for 10 weeks was provided by one of three Certified Massage Therapists available 3 days a week. Instruments used included the Perceived Stress Scale (PSS-14), Smith Anxiety Scale (SAS), and Linear Analogue Scale Assessment (LASA) scale. Mean and standard deviations of PSS-14, SAS and LASA scores at baseline and at 10 weeks were calculated and analyzed with the paired t-test. Any p-value <0.05 was considered statistically significant.

Results: The median age of 38 participants (5 males, 33 females) was 47 years (range 21-65). All participants completed the 3 instruments used at the beginning and end of the study. Of 380 available massage appointments, 278 were used (mean 7.13, range 1-10 massages per participant). Stress related symptoms improved as follows: the mean PSS-14 score decreased from 17.85 to 14.92 (p=0.0015), and the mean SAS score from 49.45 to 40.95 (p<0.0001). The mean LASA score increased from 42.39 to 44.84 (p=0.0055). Thirty participants (78.95%) felt that their overall job satisfaction improved because of the massages, and 23 (60.53%) were willing to pay \$10 to \$25 for a 15 minute chair massage if available at work.

Conclusion: Offering chair massages for nurses in a psychiatric/pain rehabilitation unit during working hours - although difficult to do due to busy clinical schedules - reduced stress related symptoms significantly and was highly appreciated by the nurses.

P127

P02.71. The effect of acute yoga and aerobic exercise on word memory and anxiety

N Gothe*, C Hillman, E McAuley

University of Illinois, Urbana Champaign, Urbana, USA

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Purpose: Given the increasing popularity of yoga, exploring its physiological and psychological benefits is important. The purpose of this study was to examine the effects of an acute yoga session, relative to aerobic exercise, on word memory recall and recognition and assess the role of anxiety in improving cognitive performance.

Methods: A repeated measures design was employed where thirty female college-aged participants (Mage=20.1, sd=1.95) completed three counterbalanced testing sessions: a yoga session, an aerobic exercise session, and a baseline assessment. Participants were presented with the state sub-form of the Spielberger's State Trait Anxiety Inventory and a list of 40 words immediately after the exercise sessions. They completed a free recall and a recognition task where the 40 words were randomly intermixed with 40 new words.

Results: Results showed a significant main effect for condition on the number of words correctly recalled, $F(2, 27)=14.688$, $p < .001$, partial $\eta^2=.521$. The number was significantly higher for the yoga condition ($M=10.03$), as compared to the aerobic ($M=6.5$, $p<.001$) and baseline conditions ($M=6.87$, $p<.001$). For the word recognition [$F(2, 27)=10.032$, $p<.001$, partial $\eta^2=.426$], participants correctly recognized more words in the yoga condition ($M=86.44$), as compared to the aerobic ($M=74.50$, $p<.001$) and the baseline conditions ($M=77.83$, $p<.02$). In addition, the post-exercise state anxiety scores were significantly lower for the yoga session [$M_{yoga}=21.77$, $M_{aerobic}=29.6$; $t(29)=4.69$, $p<.001$].

Conclusion: Participation in a 20-minute yoga session resulted in superior memory performance compared to acute aerobic exercise. In line with previous studies, state anxiety was significantly lower after the yoga session. Lower anxiety has shown to be associated with improved performance and it is possible that the mind body elements of yoga reduce anxiety, thereby improving cognitive performance. Overall, these findings highlight the need to assess effects of non-traditional modes of exercise such as yoga on other aspects of cognition and explore their underlying mechanisms.

P128

P02.72. A pilot investigation of alignment-based yoga for pediatric obesity

K Hainsworth¹, K Salamon², S Stolzman², P Simpson¹, D Eslinger³, B Mascarenhas⁴, X Liu¹, K Khan¹, B Fidler¹, S Weisman¹

¹Medical College of Wisconsin, Milwaukee, USA; ²Children's Hospital of Wisconsin, Milwaukee, USA; ³University of Saskatchewan, Saskatchewan, Canada; ⁴Santosh Yoga, LLC, Wauwatosa, USA

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Purpose: Although exercise is a primary tool for weight reduction, recent findings of aberrant biomechanics in obese youth have raised concern over traditional exercise prescriptions. Given that injury and disability often act as barriers to physical activity (PA), particularly for those with increased weight, safe and appealing interventions are urgently needed. To that end, this study examined the benefits of a yoga intervention for obese adolescents.

Methods: Adolescents referred to a pediatric weight management clinic (BMI > 95th percentile and ≥ 1 co-morbidity) were recruited to participate in an 8-week study involving bi-weekly, 60-minute Iyengar style yoga classes. All questionnaires and assessments of physical functioning were conducted immediately before and after the 8-week intervention. Assessments included prior experience and expectations, health-related quality of life (HRQOL), state anxiety, and functional limitations. Standardized assessments of participants' physical abilities included push-ups, sit-ups, a step test, and sit to reach. PA levels were objectively assessed using a hip-mounted Actical accelerometer worn 7 consecutive days (pre and post-yoga).

Results: Sixteen youth (11-17 years, M 13) attended at least 7 classes. Half reported experiencing pain in the 2 weeks prior to consent (usual pain intensity $M 5.88 \pm 2.30$). Sit-to-reach improved ($p < .05$) from pre ($M 6.20 \text{ cm} \pm 8.86$) to post ($M 8.83 \text{ cm} \pm 5.62$) intervention. Across almost all domains, participant and parent reports of HRQOL significantly improved (p 's < .05). Self-reports of state-anxiety decreased ($p < .05$). Whereas time spent in Sedentary, Light and Vigorous PA did not change, time spent in Moderate intensity PA increased ($p = .05$) from pre- ($M 21.82 \text{ min. per day} \pm 25.71$) to post-yoga ($M 27.26 \text{ min. per day} \pm 16.44$) intervention.

Conclusion: These preliminary findings are encouraging, and suggest that alignment-based yoga may be a safe and effective intervention for pediatric obesity.

P129

P02.73. Optimal healing environment in a continuing care retirement community: a feasibility study

W Najm^{1*}, R Chez², W Jonas³, W Zhang³

¹Susan Samuelli Center of Integrative Medicine-UC-Irvine, Newport Beach, USA; ²Irvine, USA; ³Samuelli Institute, Alexandria, USA

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Purpose: The aim of this study is to evaluate if the overall quality of life of older adults living in an independent senior community can be positively impacted by weekly use of acupuncture directed at a specific complaint; the nightly use of lavender oil; and the daily use of guided imagery (GIM).

Methods: This is an observational, before-after, 16-week study in which a convenience sample of 41 independent adults were recruited from a continuing care community retirement center "Regents Point", located in Irvine, California. Subjects were competent adult volunteers, living at the facility. The study was divided into three periods: (1) Pre-intervention (4 weeks): baseline data were collected weekly prior to starting the intervention. (2) Active Intervention (8 weeks): data were collected weekly. Each subject received a vial of concentrated lavender oil and a prerecorded GIM MP3 player with 5 independent tracks [pain, stress, wellness, enhancing healing and recovery, and enhancing the immune system]. Acupuncture treatments were performed weekly targeting each person's pain or highest health concern. (3) Post-intervention (4 weeks): data were collected weekly after the active intervention.

Results: Twenty-six subjects (24 women; 2 men) completed the study. Age ranged from 74 to 95 years old. Statistical analysis comparing average results between the pre-intervention and post-intervention data identified a statistically significant difference in pain level ($p < 0.01$), blood pressure ($p = 0.03$); sleep quality ($p = 0.02$), emotional well-being ($p < 0.02$), and overall health ($p = 0.04$). No significant changes were seen in physical health and in duration or onset of sleep.

Conclusion: The positive results of this pilot study on blood pressure, pain, emotional well-being and overall general health are encouraging and suggest the need for a larger study to evaluate the impact of a multidisciplinary approach on general health and wellbeing.

P130

P02.74. Treating Generalized Anxiety Disorder (GAD) using a self-care model of Complementary and Alternative Medicine (CAM) therapy

F McPherson^{*}, L McGraw

Internal Medicine Clinic, Madigan Army Medical Center, JBLM, Lacey, USA

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Purpose: To investigate the effectiveness of a pilot program using a CAM multi-therapy treatment program focusing on self-care behaviors for the treatment of Generalized Anxiety Disorder (GAD).

Methods: This is a quasi-experimental one-group pretest-posttest design using a convenience sample of volunteers at a military treatment facility in the Pacific Northwest. Participants (N=37) were enrolled if they had a documented history of GAD or met screening criteria for GAD using the GAD-7, with 68% completing the program (N=25). Participants received acupuncture treatments one time/week for six weeks and were asked to engage in yogic breathing exercises, self and/or partner assisted massage therapy using scented oils, episodic journaling, nutrition counseling, and exercise.

Results: Significant reductions were identified on pre and post GAD-7, Depression-Anxiety-Stress Scale-21, UCLA Loneliness Scale, and a significant increase was noted in the Rosenberg Self-esteem Scale. In addition patient behavior (participation in study therapies) remained consistently high and a secondary outcome was reduction in anti-anxiety medication use.

Conclusion: The findings in this pilot study suggest multimodal interventions to facilitate self-care is feasible and that a multi-therapy treatment program using CAM therapy, focusing on self-care behaviors

may be an effective adjunct therapy for the treatment of Generalized Anxiety Disorder.

P131

P02.75. Outcome evaluation of the Veterans Affairs Salt Lake City Integrative Health Clinic for chronic nonmalignant pain and stress

S Smeeding

VA Salt Lake City Health Care System, Salt Lake City, USA

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Purpose: The purpose of this longitudinal outcome study was to determine the effectiveness of the Integrative Health Clinic and Program (IHCP) and to perform a subgroup analysis investigating patient benefit. The IHCP is the first organized integrative health clinical service within the Veterans Affairs Health Care System utilizing research based Complementary and Alternative Medicine (CAM), mind-body skills, and conventional treatments based on a health promotion and wellness model for the bio-psychosocial management of chronic non-malignant pain and stress related depression, anxiety, and symptoms of PTSD.

Methods: A post hoc quasi experimental design was used combined with subgroup analysis to determine who benefited the most from the program. Data were collected at intake and up to four follow-up visits over a two year time period. Hierarchical Linear Modeling (HLM) was used for the statistical analysis and the outcome measures included: Health Related Quality of Life (SF-36), the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI). Comparisons included mental health subgroups and chronic nonmalignant pain subgroups.

Results: The mental health subgroups with the greatest improvement, seen at 6 months, were found in the high anxiety group (Cohen's $d = .52$), the high depression group (Cohen's $d = .46$), and the PTSD group (Cohen's $d = .41$). The chronic pain group with the greatest improvement at 6 months was the Chronic Non Spinal Pain group (joint pain, headache, fibromyalgia) with a decrease in depression and anxiety and improvement in health related quality of life at six months' follow-up (Cohen's $d = 0.74, 0.53, \text{ and } 0.69$, respectively); the benefit persisted over 24 months.

Conclusion: This study provides evidence that the VA Integrative Health Clinic offers an effective reduction in pain-related psychopathology (e.g., depression and anxiety) and may improve some aspects of health related quality of life through use of nonpharmacological therapies, mind body skills and complementary and alternative Medicine.

P132

P02.76. Impedance plethysmographic (IPG) pulse signal analysis based personalized diagnostics & treatment simulating Ayurvedic pulse examination

M Dhurandhar

Centre for Development of Advanced Computing, Pune, India

BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P132

Purpose: Ayurveda advocates a holistic, individualized approach for disease diagnostics/treatment. Taking cognizance of physiological variabilities, Ayurveda devised a subjective method of pulse examination for health index assessment. As per Ayurveda, biological humors 'TriDoshas' are fundamental psychosomatic principles responsible for health/diseases (Vata: Body Movements; Pitta: Heat, Metabolism; Kapha: Body Resistance). Doshas in homeostasis lead to health and imbalance lead to disease. Ayurvedic Pulse characteristics like Strength/Rate/Rhythm/Movement contribute to assessment of prodromal symptoms predicting diseases, diagnosing metabolic status, identifying causative agents, prognosis and lifespan. Integrative medical informatics tools are developed for IPG-based pulse signal analysis harnessing Ayurveda's clinical phenotyping principles and mathematical modeling with information technology for clinical assessment of pulse qualities.

Methods: Pulse examination by Ayurveda doctor and pulse signal captured with IPG-based medical instrument. Correlation found between Power Spectral Density (PSD) of Heart Rate Variability (HRV) and dominant Doshas; pulse morphology patterns and parameters like strength, rate, rhythm, movement. This was done in a population of 1000 healthy patients.

Results: Frequency bands of PSD of HRV showed signal intensity corresponding to Dosha levels (LF:Pitta; MF:Kapha; HF:Vata). Dosha corresponding to the band with maximum signal intensity found dominant (>85% accuracy). Ratios derived from morphology patterns' deflection points yielded characteristics like strength with high ($\geq 91\%$) accuracy.

Conclusion: Few attempts are made to objectively evaluate autonomous nervous system functioning for patient benefit. With today's high stress-induced lifestyle, a major technological shift is emerging towards Integrative Medicine. Pharmacogenomics being in use to a limited degree, such multidisciplinary research can lead to evidence-based results, impacting optimal promotive/preventive/curative healthcare management by early changes in lifestyle, avoiding or lessening severity of diseases, and decreasing cost and risk of clinical trials by targeting persons capable of responding to a drug. Decreases in adverse drug reactions, failed drug trials, length of medication time, number of medications taken for finding an effective therapy, and early detection will promote decrease in healthcare costs.

P133

P02.77. Case series to evaluate the efficacy of facial acupuncture to decrease skin roughness and depth of wrinkles in the glabellar area

M Brodsky^{1*}, S Prikhodko²

¹Stamford Hospital, Columbia University, Stamford, USA; ²University of California Los Angeles, Los Angeles, USA

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Purpose: To evaluate the efficacy of facial acupuncture to decrease skin roughness and depth of wrinkles in the glabellar area.

Methods: Nine subjects aged 40-60 were recruited to participate in the study. Each participant received facial acupuncture treatments 2 times a week for 4 weeks for a total of 8 treatments. An impression of the glabellar area was taken on 3 occasions: 1 month prior to treatment, on the first day of treatment prior to the procedure, and at the conclusion of the final treatment. In this manner each of the participants served as his or her own control. On each of the 3 occasions, a Cuderm replica-locating ring localized the glabellar area, using the root of the nose and eyebrow ridges as landmarks. A negative replica of the skin surface was made using Silfo, a dental replica material.

Results: Surface roughness, number of wrinkles, and depth of wrinkles of the 3 serial glabellar impressions for each patient were analyzed by surface profilometry. There was no statistically significant change in any of the parameters measured. Qualitatively, 3 subjects noted a moderate improvement in wrinkles in the forehead area, 3 subjects noted a minimal improvement in wrinkles in the forehead area, and 3 subjects noted no improvement or worsening in wrinkles in the forehead area. Qualitative "eyeball" analysis of before and after glabellar impressions by an expert in surface profilometry noted a slight improvement in the replicas of 5 of the subjects and no change or slightly rougher appearance of the replicas of 4 of the subjects.

Conclusion: This pilot study did not demonstrate statistically significant improvement in wrinkles with the facial acupuncture treatment protocol. Patient self-report and qualitative analysis of the impressions suggests that the treatment may benefit some individuals. A larger study may be warranted.

P134

P02.78. Treating pediatric asthma with holistic approaches of traditional Chinese medicine

L Lo^{1*}, S Chang¹, C Lee¹, T Lee¹, T Cheng², M Sun³

¹Changhua Christian Hospital, Department of Chinese Medicine, Changhua City, Taiwan; ²National Changhua University of Education, Changhua City, Taiwan; ³China Medical University Hospital, Taichung, Taiwan

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Purpose: Asthma is a chronic disease increasingly found in children. In order to find more economical and efficient alternatives to treat pediatric asthma, the Bureau of National Health Insurance of Taiwan launched the Traditional Chinese Medicine Holistic Treatment Program (TCMHTP). Based

on the data collected during the program, we evaluated the effect of TCM holistic treatments on pediatric asthma.

Methods: We performed a retrospective study by analyzing a dataset from Changhua Christian Hospital in Taiwan during January 1, 2006 and December 1, 2010. Patients aged between 2 and 15 years old who were diagnosed with asthma and have participated in TCMHTP were recruited, while those with other severe diseases were excluded. We analyzed the frequency of emergency department visits (EDV), inpatient admission rate (IAR), and length of hospitalization (LH) of the patients before and after TCM treatments. We also carried out spectral analysis of heart rate variability (HRV).

Results: Fifty-eight patients were recruited. The average age of the patients receiving TCM treatments is 5.67 ± 3.03 years old. The frequency of EDV reduced from 0.97 ± 0.85 to 0.69 ± 1.22 times annually ($p=0.095$), the IAR decreased from 0.86 ± 0.81 to 0.36 ± 0.77 times annually ($p=0.001$) and the average LH reduced from 4.59 ± 4.43 to 1.10 ± 1.86 ($p=0.000$) days per year. Parasympathetically mediated HRV reduced significantly from 60.42 ± 15.33 to 54.89 ± 16.45 ($p=0.016$).

Conclusion: In the present study, we found that an appropriate period of TCM holistic treatment intervention can not only significantly lower exacerbations and hospitalization frequency but also decrease vagal tone of the asthmatic children.

P135

P02.79. Study on the basic tongue diagnosis indicators for pattern identifications in stroke using a decision tree method

J Lee^{1*}, M Ko, T Park, B Kang, T Moon, M Lee

Korean Institute of Oriental Medicine, Daejeon, Republic of Korea

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Purpose: The purpose of this study is to select the major tongue diagnosis indicators and evaluate their significance in discriminating the subtypes of Pattern Identification (PI) from stroke patients.

Methods: Decision tree analysis was carried out using clinical data collected from 1502 stroke patients with same subtypes diagnosed identically by two experts with more than 3 years of clinical experience. Among 9 tongue indicators, 6 major tongue indicators (red tongue, pale tongue, yellow fur, white fur, thick fur, teeth-marked tongue) were selected by decision tree analysis. Each PI has a specific combination of tongue indicators which related 6 major tongue indicators.

Results: It is suggested that 6 tongue indicators can be used for discrimination of PI in stroke patients, though the combination studies between these tongue indicators and the other PI indicators are left for further study.

Conclusion: We could conclude that tongue diagnosis can play a significant role in a differential diagnosis of PI. Namely it can increase the accuracy of diagnosis and simplify the complex process of PI to check important tongue indicators. It is necessary to re-evaluate other indicators in PI by proper ways, and this study is helpful to objectify and be scientific in traditional Korean medicine.

P136

P02.80. Safety and feasibility of modified chair-yoga on functional outcome among seniors at risk for falls

M Galantino^{1*}, L Greene¹, R Marsico¹, K Desai², J DeCesari¹, N MacKain¹, S Rinaldi¹, M Stevens¹, V Wurst¹, J Mao²

¹The Richard Stockton College of New Jersey, Galloway, USA; ²University of Pennsylvania, Philadelphia, USA

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Purpose: Falls are among the most common problems affecting older adults. At least 50% of those over the age of 80 fall annually. The goal of this pilot was to assess the safety and feasibility of structured yoga in an elderly population with fall risk.

Methods: Seniors at risk for falls were identified and enrolled in a single arm pilot trial. A chair based yoga program was provided twice a week for 8 weeks. The program was designed from previous published pilot data. A battery of validated instruments was administered at baseline and week eight and was used to identify which instrument may be sensitive to change as a result of a yoga program.

Results: Among sixteen seniors (median age of 88) with a previous history of falls, 87% provided data for assessment at the end of the intervention. Two patients withdrew, one due to a fall outside the institution and the other due to lack of time and interest. There were no adverse events during the yoga sessions. Paired-t tests compared pre-post changes and gains were noted in Fear of Falling (5.27 to 2.60; $p=0.029$) and the SPPB sit to stand subscale (0.31 to 1.00; $p=.022$). Improved trends were noted in the anxiety subscale of the Hospital Anxiety and Depression (6.10 to 4.86, $p=.072$) and the Timed Up and Go (22.57 to 18.97, $p= 0.052$) assessments.

Conclusion: We found the modified chair-yoga program is safe and recruitment is feasible. To provide a skillful framework for teaching yoga to seniors, specific principles of practice are important to ensure safety of this intervention. Our data suggest that yoga may be beneficial in improving mobility and reducing fear of falling which warrants additional research via randomized controlled trials.

P137

P02.81. Symptom management with massage in postoperative colorectal patients: a randomized controlled trial

N Delzer, B Bauer*

Mayo Clinic, Rochester, USA

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Purpose: We analyzed the impact of post-operative massage in patients who had undergone abdominal colorectal surgery.

Methods: A randomized-controlled trial was designed for colorectal abdominal surgery patients. Patients were randomized to either receive a 20 minute massage on POD 1 and 2, 20 minutes of ambulation, or a visit by the massage therapist (no massage). Baseline physiologic data (HR, SBP/DBP, RR) were collected 30 minutes prior to and after either intervention. A standardized assessment of patient perception of pain, tension, anxiety, satisfaction with overall care, and relaxation level utilizing a visual analog scale (10 point Likert scale) was obtained before and after the intervention. The IRB approved study was powered to detect a difference at the 80% level. Repeated measures models were used to compare the symptom scores at different time points. T-tests were used to compare same day pre-post intervention changes.

Results: 128 patients (62 massage [M], 66 control [C]) were randomized. There was no statistical difference between the groups in regards to age, gender, diagnosis, history of prior abdominal surgery, or mode of surgery (open vs. laparoscopic). Over the first two post-operative days, M patients experienced a significant reduction in anxiety ($p=0.01$) and improvement in relaxation ($p=0.003$) but not in pain ($p=0.15$), tension ($p=0.11$), or satisfaction ($p=0.21$) as compared to C patients. The only physiologic variable altered was a reduction in diastolic BP ($p=0.04$) in the M group. A comparison between baseline, prior to any intervention, and after intervention on POD1 demonstrated the M patients experienced a reduction in pain, tension, anxiety, and an improvement in relaxation relative to C patients. The same holds on POD2 pre-post intervention.

Conclusion: In a randomized controlled trial of patients undergoing abdominal colorectal surgery, we demonstrated that post-operative massage resulted in a significant improvement of patient's perception of post-operative pain, tension, and anxiety.

P138

P02.82. Correction of the Omega-3 Index in women with metabolic syndrome by adding omega-3 supplements to a Mediterranean-style diet

R Lerman^{1*}, K Browning², L Kaskel³, M McIntosh⁴, W Najm⁵, M Fernandez⁶, E Baruffi⁷, W Harris⁷

¹Metagenics Inc., Gig Harbor, USA; ²Browning Family Medical Therapeutic Lifestyle Center, Riverside, USA; ³Deerpath Primary Care, Libertyville, USA;

⁴Dept. of Emergency Medicine, University of Florida, Jacksonville, USA; ⁵Dept. of Medicine, University of California, Irvine, Irvine, USA; ⁶Dept. of Nutritional Sciences, University of Connecticut, Storrs, USA; ⁷Sanford School of Medicine, University of South Dakota, Sioux Falls, USA

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Purpose: To determine the effects of a Mediterranean-style, low-glycemic-load (MLG) diet with and without omega-3 fatty acid

supplementation on the Omega-3 Index (O3I) in women with metabolic syndrome.

Methods: One trial and one case series are reported here. The trial was a 12-week multicenter study (N=56) testing the effects of MLG diet on the O3I, and the case series was conducted in the offices of two physicians and included 21 women who were given, in addition to a MLG diet recommendation, one of two omega-3 supplements for approximately 12 weeks. One supplement (N=12) provided 1980 mg EPA+DHA per day (High DHA, Metagenics Inc.), and the other supplement (N=9) provided 2880 mg EPA+DHA daily (EPA-DHA 720, Metagenics Inc.). RBC fatty acid profiles were determined by gas chromatography and CVD risk factors by standard laboratory methods.

Results: In the clinical trial with the MLG diet alone, the O3I rose by 14.9% [from 4.35% to 5.00% ($p<0.0001$)], due largely to an increase in fish intake. RBC trans fatty acid, linoleic acid, and alpha-linolenic acid levels decreased. In the case series, in the 12 subjects who received High DHA, the O3I rose by 104.2% [from 3.6% to 7.3% ($p<0.001$)] whereas in the 9 subjects who consumed EPA-DHA 720, the O3I rose by 99.8% [from 4.2% to 8.3% ($p<0.001$)]. The increase in the O3I per g of EPA+DHA given per day was 1.88% with High DHA and 1.44% with EPA-DHA 720.

Conclusion: The MLG diet led to a small improvement in the O3I but target levels were not achieved. Provision of 2-3 g/day of EPA+DHA for 12 weeks increased the O3I by 3.7 - 4.1 percentage points and was sufficient to raise the O3I to cardioprotective levels. Therefore, an omega-3 supplement should be added to a MLG diet in patients with metabolic syndrome.

P139

P02.83. Mindfulness meditation in community dwelling older adults with postherpetic neuralgia

R Meize-Grochowski^{1*}, A Prasad², C Murray-Krezan³, R Schrader³, M DuVal⁴, B Smith⁵, C Herman⁶

¹College of Nursing, University of New Mexico, Albuquerque, USA; ²Section of Integrative Medicine, School of Medicine, University of New Mexico, Albuquerque, USA; ³Clinical & Translational Science Center, University of New Mexico, Albuquerque, USA; ⁴Center for Life, University of New Mexico, Albuquerque, USA; ⁵Psychology Department, University of New Mexico, Albuquerque, USA; ⁶Division of Geriatrics, School of Medicine, University of New Mexico, Albuquerque, USA

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Purpose: This pilot study compared usual care alone with usual care plus meditation in relation to anxiety, depression, pain, and quality of life in community-dwelling older adults with postherpetic neuralgia (PHN). PHN may occur after shingles, and has been described as one of the most intractable neuropathic pain disorders. Older adults develop PHN more often than younger adults. Mindfulness meditation, found to be beneficial in the management of some chronic pain conditions, has not been specifically examined in older adults with PHN.

Methods: Using a two-group pretest-posttest design with repeated measures, data were collected at entry to the study (Time 1), after a 2-week control period (Time 2), and 6 weeks later (Time 3). After Time 2 testing, participants were randomly assigned to usual care alone or usual care plus meditation. Daily pain diaries were kept by all participants for 8 weeks.

Results: The 27 study participants were between 55 and 90 years of age, with a mean of 72 years. Fifteen participants were female, and 12 were male. Fourteen participants were White, 11 were Hispanic, and 2 were American Indian. At entry to the study, 18 participants reported moderate or greater pain seven days per week due to PHN. Data analysis included repeated measures ANOVA for the three time periods. Although no statistically significant differences were found for time or interaction effects, trends indicating a favorable response to mindfulness meditation over time were identified in the majority of the outcome variables.

Conclusion: Participants were able to commit to the protocol for the duration of the study. The small sample size is a limitation; improvement in either group could be due to the natural course of PHN or even investigator attention. Future studies will include a sample size that is powered to detect significant differences at $\alpha=.05$.

P140

P02.84. A randomized trial of Polarity therapy for stress and pain reduction in American Indian and Alaska Native family dementia caregivers

L Korn^{1*}, R Logsdon², N Polissar³, A Gomez-Beloz⁴, T Waters⁴, R Ryser⁴
¹Capella University and the Center for Traditional Medicine, Puerto Vallarta, Mexico; ²Dept. of Psychosocial & Community Health, University of Washington, Seattle, USA; ³The Mountain-Whisper-Light Statistical Consulting, Seattle, USA; ⁴Center for World Indigenous Studies, Olympia, USA
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Purpose: Caregivers of individuals with dementia experience elevated stress that places them at increased risk for health problems. The purpose of this study was to compare a complementary/alternative medicine (CAM) method, Polarity therapy (PT), to an enhanced respite control condition (ERC) to reduce stress, depression and pain for American Indian and Alaskan Native (AI) family caregivers. A mixed methods, community participatory, indigenous values approach was combined with a randomized controlled clinical trial to assure both ecological validity and scientific rigor of the investigation.

Methods: Forty-two AI family caregivers of individuals with dementia, living on and off reservations in the Pacific Northwest, were randomized to an 8-session trial of PT or ERC. PT is a touch therapy that derives from Ayurveda and Cranial Osteopathy to facilitate psychophysiological relaxation and energetic and structural balance. ERC included respite care for the person with dementia and a choice of relaxation (yoga, sauna, basketweaving, etc.) activities for the caregiver. Primary outcome measures included caregiver perceived stress, depression, quality-of-life, sleep quality, worry, and physical health. Average age of caregivers was 50 years (range 27-69); 90% were female; 52% were daughters, 10% wives, 7% sons, and 31% other relatives.

Results: Baseline 24-hour cortisol demonstrated below normal waking levels in a majority of participants, and 24-hour Heart Rate Variability was significantly lower than the reference population, indicating high levels of chronic stress. Statistically significant reductions in stress, depression, pain and increase in vitality were demonstrated in the PT group, relative to the ERC group. Qualitative data from caregiver narratives provided further insight into phenomenological and spiritual experiences.

Conclusion: A participatory, multi-methods approach is both feasible and ideal when working with AI caregivers. Caregivers in this sample experienced high levels of chronic stress, and polarity therapy was an acceptable and effective intervention to decrease stress and improve well-being.

P141

P02.85. A prospective patient-centered data collection program at an acupuncture and Oriental medicine teaching clinic

B Marx
Oregon College of Oriental Medicine, Portland, USA
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Purpose: Large-scale patient-reported outcomes research investigating the role of acupuncture and Oriental medicine (AOM) in general practice is limited, despite the growing use of AOM in the United States. This paper describes the development and refinement of a prospective, patient-centered outcomes data collection program at an Oriental medicine college and presents demographic and clinical data.

Methods: A prospective patient-centered data collection program was implemented in 2007 using the Measure Your Medical Outcomes Profile (MYMOP) questionnaire and college-developed demographic and conditions forms. The forms were completed by patients on the first and fifth clinic visit. The program was revised after two years to streamline the data entry process and to include three Patient Reported Outcome Measurement Information System (PROMIS) questionnaires measuring pain, general health, and physical functioning.

Results: Demographics were similar to those reported in other AOM settings. The majority of patients were Caucasian females, and expressed confidence in acupuncture treatment. The most common chief complaint was joint and muscle pain. Additionally, we found that mean scores at baseline for global physical and mental health, and physical functioning

were all substantially lower than US averages. In contrast to some studies, we found that a majority of patients had previous experience with acupuncture.

Conclusion: An ongoing, prospective data collection program can be successfully developed and implemented at an AOM college. The program will ultimately provide large-scale, patient-reported outcomes on patients seeking AOM treatment at the student clinic.

P142

P02.86. A new method for quantifying the needling component of acupuncture treatments

R Davis^{1*}, D Churchill¹, G Badger², J Dunn³, H Langevin⁴
¹Stromatec, Inc., Burlington, USA; ²Dept of Medical Biostatistics, University of Vermont, Burlington, USA; ³New England School of Acupuncture, Newton, USA; ⁴Dept of Neurology, University of Vermont College of Medicine, Burlington, USA
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Purpose: The highly variable nature of acupuncture needling creates challenges to systematic research. The goal of this study was to test the feasibility of quantifying acupuncture needle manipulation using motion and force measurements. We hypothesized that distinct needling styles and techniques would produce different needle motion and force patterns that could be quantified and differentiated from each other.

Methods: A new needling sensor tool (Acusensor) was used to record needling in real time as performed by six New England School of Acupuncture (NESA) faculty from the "Chinese Acupuncture" (Style 1) and "Japanese Acupuncture" (Style 2) programs (three from each). Each faculty expert needled twelve points (six bilateral locations) in twelve healthy human subjects using both tonification (Technique 1) and dispersal (Technique 2). Parameters calculated from the raw needling data were displacement amplitude, displacement frequency, rotation amplitude, rotation frequency, force amplitude, and torque amplitude.

Results: Data analysis revealed significant differences in the amplitude of both displacement and rotation between needling performed by faculty from two different acupuncture styles. We also found significant overall differences in the frequency of displacement between tonification and dispersal that were not dependent of the style of acupuncture being performed. The relationships between displacement and rotation frequencies, as well as between displacement and force amplitudes, showed considerable variability across individual acupuncturists and subjects.

Conclusion: Needling motion and force parameters can be quantified in a treatment-like setting. Needling data can subsequently be analyzed, providing an objective method for characterizing needling in acupuncture basic and clinical research.

P143

P02.87. Ayurvedic management of Ulcerative Colitis: a non-randomized, observational clinical study

P Kalapi^{1*}, P Manish¹, S Namrata¹, K Christian², S Gupta¹
¹J.S.Ayurved College, Nadiad, Gujarat, India; ²Charité Medical University, Berlin, Germany
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Purpose: Ulcerative Colitis (UC) is a chronic inflammatory bowel disease with a relapsing and remitting course. The prolonged use of conventional standard drugs often produces mild to severe side effects and may eventually result in drug resistance. Hence, there is a need for effective and safe complementary treatment options. In Ayurveda various treatment modalities for chronic inflammatory bowel diseases are described and used successfully.

Methods: A total of 50 patients with clinical features of UC and a confirmed endoscopic diagnosis of UC were included. All patients received complex Ayurvedic treatment for 4 weeks. Treatment included oral administration of herbal drugs (Holarrhena antidysenterica, Ficus glomerata, Cyperus rotundus, Mesua ferrea and Symplocos racemosa), recto-colonic administration of Ficus glomerata and Ayurvedic dietary advice (avoidance of spicy, sour, fried, hot and heavy food items). Patients were assessed for changes in clinical features and laboratory

investigations including haemoglobin-%, erythrocyte sedimentation rate (ESR), presence of occult blood, red blood cell count and pus cell count in stool. Data were analyzed statistically by using student's t-test.

Results: All 50 patients completed the four-week Ayurvedic treatment. Results show highly significant ($p < 0.001$) reduction of the frequency of bowel-movements ($77.4 \pm 4.2\%$) and blood presence in stool ($90.3 \pm 0.8\%$). The reduction in the requirement of conventional standard drugs was also highly significant (steroids 100%, sulfasalazine $80.26 \pm 0.9\%$). UC-associated symptoms like abdominal pain, weakness and weight loss were relieved significantly. Laboratory value improvement in haemoglobin-% ($14.4 \pm 0.8\%$), ESR ($39 \pm 10.2\%$), erythrocytes ($91.7 \pm 1.1\%$) and pus cells ($83.7 \pm 0.9\%$) in stool were also found statistically highly significant. Moreover, no treatment-related adverse events could be observed.

Conclusion: Ayurvedic treatment of ulcerative colitis and other chronic inflammatory bowel diseases is effective in reducing disease symptoms and disease relapses and can reduce the need of conventional standard drugs. Moreover, the treatment is safe, inexpensive, easy to handle and well tolerated by the patients.

P144

P02.88. Powdered Red Yeast Rice and Plant Stanols and Sterols to lower cholesterol

J Feuerstein^{1*}, W Bjerke²

¹Stamford Hospital, Columbia University, Stamford, USA; ²Sacred Heart University, Fairfield, USA

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Purpose: Elevated Low-Density Lipoprotein (LDL) cholesterol is a significant risk factor for cardiovascular disease. It is estimated that 42% of females and 34% of males in the USA have elevated total cholesterol. The current mainstay of lipid lowering therapy utilizes hydroxy-methyl-glutaryl-coenzyme A reductase inhibitor ('statin') medications that lower total cholesterol and LDL cholesterol by 20% and 28%, respectively. However, due to the significant side effects of statin medications, many patients seek alternative therapies to help manage their hypercholesterolemia. Red Yeast Rice *Monascus Purpureus* has been used as a food and as an herbal medication in China for centuries. Plant Stanols and Sterols are foods that are similar in structure and function to animal cholesterol. Both these compounds have been shown in clinical studies to significantly lower LDL.

Methods: We report on a case series of 18 patients with hypercholesterolemia despite therapeutic lifestyle change through diet and exercise who took a proprietary product combining Red Yeast Rice and Plant Stanols and Sterols as a powdered shake in an effort to improve their cholesterol.

Results: Statistically significant reduction ($p < 0.05$) in the following mean variables were seen: total cholesterol 19% (46 mg/dL) and LDL 33% (53mg/dL) after 6 weeks using the blend. There was no significant difference in BMI, triglycerides, HDL cholesterol levels, or SBP and DBP over the same period.

Conclusion: This magnitude of reduction in LDL cholesterol is significantly greater than the 28% reduction observed in the 1999 JAMA meta-analysis on the effectiveness of statin medications in lowering cholesterol levels. None of the participants in our study reported any muscle pains and no abnormal liver function tests were seen whilst taking the blend. Though this case series is limited by small sample size and study duration, the blend's significant reduction in LDL cholesterol without severe side effects indicates that this product is an effective alternative to statins.

P145

P02.89. Low Energy Neurofeedback System (LENS) for stress, anxiety, and cognitive function: an exploratory study

S Gillham¹, H Wild, Z Bayer, M Mitchell, K Sandberg-Lewis, A Colbert Helfgott Research Institute, Portland, USA

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Purpose: Stress and anxiety are endemic problems in western societies and have negative effects on health, wellbeing and cognitive function.

Low Energy Neurofeedback System (LENS) is a form of Neurofeedback (NFB) with promising clinical reports supporting its use in addressing these problems. However, research is needed, and this exploratory study was conducted to test compliance; evaluate an innovative blinding procedure and outcome-measure inventories; provide data to calculate sample size and power; and collect preliminary evidence on efficacy of LENS for addressing stress, anxiety and cognitive function in medical students.

Methods: We utilized a randomized, double-blind, placebo controlled design, and recruited twenty medical students from the National College of Natural Medicine, aged 25-58. Participants were randomized to a series of six LENS ($n=10$) or sham treatments ($n=10$) over a period of seven weeks. Exploratory outcome measures included the Perceived Stress Scale (PSS), State and Trait Anxiety Inventory (STAI), Wechsler Abbreviated Scale of Intelligence (WASI), Trail Making Test A and B test (TMT), and the Brown Peterson Task (BPT).

Results: Of 20 participants, 17 attended all sessions, one missed a single session, and two were dropped from the study. All participants and blinded researchers reported remaining blinded throughout the study. Power analysis of each outcome measure showed greatest sensitivity using the PSS and STAI State form. No significant between group changes were observed with any outcome measures.

Conclusion: The study design and novel blinding procedure were successful for maintaining participant compliance and blinding. The tests utilized to assess cognitive function are likely not sensitive enough for our study population, which consisted of highly functional individuals. However, the PSS and STAI questionnaires may be sensitive and useful tools for evaluating efficacy of LENS in a future appropriately powered trial. Further study with a larger sample is necessary for assessing efficacy of LENS treatment.

P146

P02.90. Equivalence of doctor interactions between Activator Methods and sham chiropractic protocols during an expertise-based randomized clinical trial

J DeVocht^{1*}, S Salsbury¹, M Seidman¹, L Carber¹, W Schaeffer², C Stanford³, C Goertz¹, M Spector³, M Hondras¹

¹Palmer College of Chiropractic, Davenport, USA; ²Private Practice, Coralville, USA; ³University of Iowa, Iowa City, USA

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Purpose: One objective of the expertise-based randomized controlled trial portion of a current developmental center grant is to determine which of three control groups would be most appropriate for a larger scale study concerning the effectiveness of Activator Methods chiropractic technique (AMCT) for temporomandibular disorders. A video evaluation instrument was developed to assess the equivalence of doctor interactions with participants in the active and sham AMCT groups.

Methods: One doctor of chiropractic (DC) delivered the chiropractic intervention to the active and sham AMCT groups while being video recorded. The evaluation instrument codified DC communications into 4 domains: therapeutic (information seeking, explanations), procedural (directions, cautions, logistics), effectiveness (optimistic, pessimistic, neutral), and affective (social, name use) interactions. Activator Adjusting Instrument (AAI) clicks, encounter duration, touch orientation, and evaluator assessment of treatment group were documented. A trained video evaluator, blinded to treatment group, coded 34 active and 30 sham treatment videos by placing a hash mark in the appropriate category for each interaction. Descriptive statistics included medians and interquartile ranges.

Results: DC-initiated verbal communications were similar between active and sham AMCT in the procedural and affective domains. Notable differences were observed in the medians of the number of DC-initiated verbal communications between active and sham AMCT sessions in the therapeutic and effectiveness domains. More AAI clicks were recorded for active (42) vs sham (22) AMCT. Encounter duration also differed between active and sham AMCT (13 vs 11 minutes). The video evaluator correctly identified 66% of active AMCT, but only 31% of sham sessions.

Conclusion: Definitive conclusions about how differences in DC behaviors may have impacted study results cannot be drawn until we have completed data analysis for the primary endpoint. Investigators may

want to consider adding this type of analysis in manual therapies when sham or other control groups are used.

P147

P02.91. The effect of a standardized massage application on spinal stiffness in asymptomatic subjects

GN Kawchuk*, N Prasad, R Chamberlain, A Klymkiv, L Peter
University of Alberta, Edmonton, Canada

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Purpose: It has been speculated that massage may exert a therapeutic effect by reducing tissue stiffness through viscoelastic mechanisms. To date, no studies have evaluated spinal stiffness post-massage. The objective of this study was to quantify changes in spinal stiffness following a standardized application of massage in asymptomatic subjects.

Methods: Asymptomatic subjects were randomized to an experimental group (n=20) that received lumbar spine massage or a control group (n=18) that did not receive massage but read quietly. To standardize massage application in experimental subjects, a mechanical device was used with application pressure determined by the subject's comfort level. Spinal stiffness was measured at the third lumbar vertebra using a validated indentation device. Pre- and post- massage stiffness values were compared using a Generalized Linear Model ($\alpha = 0.05$).

Results: Our analysis revealed no statistically significant difference in lumbar stiffness measures between subjects who received massage and those who did not ($p > 0.05$).

Conclusion: In asymptomatic subjects, spinal stiffness did not change significantly in subjects who received a standardized mechanical massage compared to subjects where massage was withheld. This observation is consistent with other studies that have reported an absence of change in spinal stiffness following interventions applied in asymptomatic subjects (e.g. manipulation). Notably, spinal stiffness has been shown to decrease in symptomatic subjects following spinal manipulation. Given the results of other studies using mechanical devices to apply forces to musculoskeletal tissues, we do not expect that having massage applied by a therapist would have altered the conclusion of this study. Moreover, we speculate that in asymptomatic subjects, stiffness values are near a minimal value which creates a floor effect.

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P148

P02.92. The effect of physical activity, obesity, and low vitamin D on all cause mortality in US adults

C Crespo^{1*}, G Escutiá-Dominguez¹, E Smit², G Brodowicz¹, S Aden¹

¹Portland State University, Portland, USA; ²Oregon State University, Corvallis, USA

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Purpose: To examine the effect of 25-hydroxyvitamin D (serum 25 (OH) D), body mass index and leisure time physical activity on all-cause mortality and determine the association between serum 25 (OH) D and leisure time physical activity among US adults.

Methods: We used data from 16,285 adults 20 years and older who participated in a home interview and a mobile examination of the Third National Health and Nutrition Examination Survey (1988-1994) that were linked to National Death Index mortality files up to 2006. Physical activity categories included: Inactive (less than 1/wk), Somewhat active (2-4 times/wk), and Active (5+wk). Body mass index (BMI) included: Underweight (<18.5), Normal weight (18.5-24.9), Overweight (25-29.9), and Obese (30+). Serum 25(OH) D were divided into quartiles, and quartile 1 or low levels included those with values of ≤ 50 nmol/L. Cox proportional hazards were calculated using SAS and SUDAAN softwares to account for sampling weights of NHANES.

Results: In the final model we adjusted for age, sex, race/ethnicity, education, smoking status, region of the country, and presence of chronic diseases plus the three variables of interest: physical activity, body mass index, and serum 25(OH)D. Low serum vitamin D was a significant

predictor of all cause mortality independent of physical activity and obesity status; and while being physically active 5 or more times a week had a protective effect (RR=0.65, 95 CI=0.58,0.74), obesity was not significantly related (1.06, 95 CI=0.96-1.18) with all cause mortality.

Conclusion: We found that low Vitamin D and physical inactivity were independent risk factors for all-cause mortality whereas obesity was not an independent risk factor when adjusting for physical activity and serum Vitamin D levels. More research is needed to understand the role of adiposity in serum 25(OH)D metabolism.

P149

P02.93. Evaluation of blood stasis on tongue diagnosis associated with diabetes mellitus

L Lo*, P Hsu

Changhua Christian Hospital, Changhua, Taiwan

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Purpose: Diabetes mellitus is a metabolic disorder of hyperglycemia and is associated with the increase in cardiovascular diseases and other complications. In traditional Chinese medicine (TCM), examination of the tongue plays an important role in diagnosis. Tongue color, tongue characteristics (e.g. petechia) and sublingual collateral vessels indicate blood stasis status in TCM. The purpose of this study was to evaluate blood stasis on tongue image and Heart Rate Variability (HRV) associated with type 2 diabetes mellitus (DM).

Methods: A total of 119 subjects with DM were enrolled for tongue examination and HRV. A high resolution digital camera was used to record tongue images in a standard imaging environment. HRV and pulse wave analysis were performed by ANSwatch. A total of 51 DM patients attended the Quality-based Payment Program for Diabetes Care and received regular health education, examination, and follow-up.

Results: The average age of the diabetic patients was 61.9 ± 11.2 years. Tongue appearances revealed 23 cases (19.3%) with bluish tongue, 22 cases (18.5%) with petechiae, and 72 cases (60.5%) with engorged sublingual collateral vessels. The bluish tongue revealed significantly higher HRV ($p < 0.05$), higher low frequency (LF) ($p < 0.05$), higher very low frequency (VLF) ($p < 0.05$) and lower total power ($p < 0.05$) compared to the non-bluish tongue. The abnormal sublingual collateral vessels revealed significantly lower high frequency HRV and higher low frequency HRV. There was no significant difference among petechia.

Conclusion: The bluish tongue, petechia, and engorged sublingual collateral vessels were potential tongue manifestations of blood stasis. Blood stasis in diabetic patients would be important because of potential vascular complications. The relationship between blood stasis and HRV need demonstration by further study.

P150

P02.94. Acupuncture to decrease disparities in outcomes of pain treatment (ADDOPT): preliminary outcomes

D McKee¹, B Kligler^{2*}, A Blank¹, J Fletcher³, F Biryukov³, S George³, W Casalaina³, W Whitman⁴, G Campos¹

¹Albert Einstein College of Medicine, Bronx, USA; ²Beth Israel Medical Center, Department of Integrative Medicine, New York City, USA; ³Swedish Institute, New York City, USA; ⁴Pacific College of Oriental Medicine, New York City, USA

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Purpose: Little is known about the integration of acupuncture for chronic pain in primary care settings, especially in low income and minority communities. The purpose of this ongoing NCCAM-funded study was to explore the feasibility and effectiveness of adding acupuncture to routine management in the primary care setting for diverse, low income chronic pain patients.

Methods: Primary care physicians at four community health centers in the Bronx, NY referred adult patients with chronic pain due to osteoarthritis, neck or back pain for acupuncture. The acupuncture was offered weekly for up to 14 weeks at the primary care sites, delivered by student/preceptor teams from the Swedish Institute and the Pacific College of Oriental Medicine. Using a repeated measures design we evaluated changes in pain and function over a 6-month period as

compared to baseline. Outcome measures were collected during a 6-week pre-treatment phase for baseline measures and then at 2, 4, 8, 12, and 16 weeks, with a final assessment at 6 months.

Results: Regarding feasibility, we received over 400 referrals, reflecting a high level of interest in acupuncture services from both clinicians and patients. We also found that acceptability was high in that patients who began treatment tended to continue treatment, with a mean number of treatments per patient over 7. Regarding effectiveness, a preliminary analysis of completers to date found that pain severity and physical well-being were significantly improved from baseline at the six month follow-up. Mean BPI severity score decreased from 6.64 to 5.37 ($p=0.045$, $n=35$). Mean SF-12 physical well-being score increased from 31.61 to 35.51 ($p=0.002$, $n=60$).

Conclusion: Acupuncture can be delivered in the primary care setting to chronic pain patients in an underserved area. A preliminary analysis shows that it can be effective in reducing pain and improving quality of life.

P151

P02.95. Treating type 2 diabetes: a cross-sectional audit of naturopathic standards of care using the Naturopathic Patient Database

C Habib^{*}, S Podgrabinski, M Gowan, K Cooley
Canadian College of Naturopathic Medicine, Toronto, Canada
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Purpose: The Naturopathic Patient Database (NPD) is a data management tool developed by the Canadian College of Naturopathic Medicine (CCNM) to collect patient data from its teaching clinic, the Robert Schad Naturopathic Clinic (RSNC). This database was created in 2006 and has evolved to meet the various academic and research needs of CCNM. This study investigates how type 2 diabetes mellitus (T2DM) is managed at the RSNC from May 2009 to present.

Methods: Cases of T2DM from the RSNC reported in the NPD were extracted based on an ICD-10 code assessment of E11 (non-insulin-dependant diabetes mellitus). One auditor reviewed 30 files and tabulated audit scores. The Research Ethics Board of CCNM provided ethical oversight of this project. The American Diabetes Association 2010 standards of medical care in diabetes were used as guidelines for the audit. Multiple categories in diagnosis, physical exam, labs, and management were graded on a 0-2 scale. The Measure Yourself Medical Outcome Profile (MYMOP) is used by the RSNC as a universal outcome measure of effectiveness of individualized patient-defined symptoms and was incorporated into the audit and reporting of results.

Results: The average audit score is 55.5/90. The most common interventions being used are diet and aerobic exercise, followed by supplements (omega-3 fatty acids) and botanicals.

Conclusion: Preliminary data suggests that the standards of care for T2DM are not followed stringently, particularly with regards to complete physical exams, appropriate referrals, and goal-setting. Education and creation of a naturopathic standard of care may improve audit performance and patient outcomes.

P152

P02.96. Effects of deep breathing on pulse pressure harmonics

W Li^{*}, A Ahn
Massachusetts General Hospital, Charlestown, USA
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Purpose: Pulse pressure waveforms can be decomposed into individual harmonics using frequency-domain analyses. Based on the well-recognized phenomenon of pulse wave reflections, these harmonics are purported to play important physiological functions and form the basis for Traditional Chinese Medicine (TCM) pulse diagnosis. Although breathing is considered an essential part of TCM and Qi Gong, its effects on pulsatile hemodynamics are unknown. This study explored the effects of slow, deep breathing on blood pressure harmonics.

Methods: We recruited 15 healthy subjects and measured blood pressure with piezo-electric finger pulse transducers during normal and slow deep breathing. A total of 29 epochs of alternating normal and deep breathing maneuvers were obtained. The pressure waveforms

were analyzed with an enhanced Morlet wavelet transformation using DataDemon software. The frequencies and amplitudes of the blood pressure harmonics (from 1st to 6th) were compared between normal and deep breathing.

Results: During normal breathing, the mean modulus amplitudes for the 1st to 6th harmonics were 0.037, 0.028, 0.03, 0.015, 0.01, and 0.008. With deep breathing, the mean amplitudes were decreased across the six harmonics compared to normal breathing with a 12%, 17%, 25%, 15%, 16%, and 15% reduction in the 1st to 6th harmonics, respectively. A two-tailed paired t-test revealed statistically significant reductions in the moduli for the 2nd and 3rd harmonics ($p=0.03$ for both) but not for the others. Despite these trends, the relative amplitudes of the harmonic moduli were significantly changed when different breathing techniques were performed.

Conclusion: Relaxed deep breathing is associated with significant reductions in the 2nd and 3rd pulse wave harmonics. The physiological importance of these changes is unclear but may help elucidate the physiological basis of pulse diagnosis.

P153

P02.97. Lipoic acid supplementation induces a transient stress response and improves episodic memory and cholesterol efflux in humans

D Keith^{1*}, J Butler¹, B Bemer¹, J Mogle², J Monette³, J Hair¹, J Heinecke³, M Sliwinski², T Hagen¹
¹Linus Pauling Institute, Oregon State University, Corvallis, USA; ²Pennsylvania State University, State College, USA; ³University of Washington, Seattle, USA
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Purpose: Lipoic acid (LA) shows promise as a beneficial micronutrient in improving health, particularly in the elderly. Clinical and *in vitro* reports show that LA induces endogenous antioxidants and acts as an anti-inflammatory agent. LA also increases nerve conductance, improves diabetes-induced polyneuropathies, and remediates the age-associated cognitive decline in canines. Furthermore, LA significantly improves hypertriglyceridemia and glucose handling. From our pre-clinical research we have found that LA primarily influences three areas of health: cognition, stress response, and lipids. This study examines the effects of LA on human subjects in components of each of the three aforementioned areas of health.

Methods: This study utilized acute treatments with LA supplements as well as chronic supplementation in an 8 week, double-blind placebo-controlled cross-over trial in human volunteers. The subjects were grouped into young (18-45 years) or elderly (~79 years), and all subjects were administered the R-enantiomer of LA in the form of oral supplements. This was a small pilot study with 2-6 subjects in each experiment.

Results: Results from the backward letter span and paired associates cognitive tests indicate that LA improved verbal episodic memory in the elderly, but did not improve short-term memory in the young or elderly. Chronic LA altered stress response systems as indicated by a transient increase in salivary cortisol and aldehyde dehydrogenase 3A1. Chronic LA also increased the amount of cholesterol taken up by high-density lipoproteins, particularly in the elderly subjects.

Conclusion: LA may be useful as a complementary nutraceutical agent to improve cholesterol efflux and select memory processes, particularly in the elderly. Continuous supplementation with LA induces a transient catabolic state, as well as a transient stress response. Thus, LA may function as a hormetic agent by inducing an initial stress that primes the system to efficiently respond to future toxicological insult.

P154

P02.98. Effect of selected plant extracts on haemozoin concentration in malaria patients

U Dibua^{*}, A Kalu
University of Nigeria, Nsukka, Enugu, Nigeria
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Purpose: To extract haemozoin from the blood sample containing malaria parasites and to screen for and compare both conventional antimalarial drugs and selected plant extracts.

Methods: Haemozoin was extracted from blood samples of all the malaria positive patients studied by centrifugation, and the concentration was analyzed spectrophotometrically at 400nm wavelength. Comparative anti-malaria activity of some conventional antimalarials, including Maldox, Halfan, Artecxin, Amatem, Mefloquine (quinolines) and Malmel, as well as the leaf and stem back extracts of some local plants (*Sarcocephalius latifolius* and *Alstonia boonei*), was evaluated to establish the most effective agent for malaria therapy. Each was administered to patients in each malaria episode, and the absorbance of haemozoin produced determined at 400nm wavelength. Packed cell volume (PCV) was estimated to establish the proportion of red blood cells before and after haemozoin production, using a microhaematocrit reader.

Results: All the chemical antimalarial drugs used effected reduction in haemozoin concentration. However, Mefloquine (quinolines) showed the highest activity with a significant difference of $p=0.01$. The plant extracts similarly exerted significant reduction in the hemozoin concentration. However, *Alstonia boonei* extract was the most effective in haemozoin reduction ($p<0.01$). Of all the therapeutants (chemical and plant extracts) tested, *Alstonia boonei* stem back extract most significantly reduced haemozoin production ($p<0.01$).

Conclusion: The potential use of *Alstonia boonei* stem back extract as an effective antimalarial is evident from the study in consonance with its use in folkloric medicine.

P155

P02.99. Acupuncture combined with an antidepressant has a better effect on major depression: a multi-center, randomized, controlled clinical trial

T Guo¹, Y Wang, L Sun, W Zhang, W Ma
Beijing University of Traditional Chinese Medicine, Beijing, China
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Purpose: This study investigated whether the combination of acupuncture and the antidepressant medicine paroxetine has a better curative effect than paroxetine only for major depression (MD) in a multi-center, randomized, controlled clinical trial.

Methods: 72 inpatients and outpatients with MD, diagnosed by the ICD-10, were randomly divided into three groups with three different treatments: combination of manual-acupuncture and paroxetine (23 cases); combination of electro-acupuncture and paroxetine (32 cases); and paroxetine only (17 cases) for 6 weeks. Two statistical analyzing methods, intention to treat (ITT) and per protocol (PP), were applied to assess the main curative indexes, including Hamilton Depression Scale (HAMD), Self-rating depression scale (SDS), and Rating Scale for Side Effects (SERS) scores.

Results: Numbers of patients dropping out during the treatment were 3, 5, and 1 in the three groups. Patients in the two acupuncture groups got a more remarkable reduction in HAMD and SDS scores compared with those in the medicine only group, especially in the somatic factor scores. No significant differences were found between the two acupuncture groups ($p>0.05$). SERS scores in the 2nd, 4th and 6th week showed significant differences among the three groups ($p<0.05$).

Conclusion: The findings indicate that the combination of acupuncture and antidepressant is superior to the antidepressant treatment only in term of improving patients' depressive symptoms, especially somatic symptoms. Acupuncture combined with antidepressant medicine can substantially improve patients' subjective feelings for quality of life. Acupuncture plays an important role in reducing the side effects caused by the antidepressant medicine and enhancing its curative effects.

P156

P02.100. Adjunctive naturopathic care in type 2 diabetes: patient-reported and clinical outcomes

R Bradley^{1*}, K Sherman², S Catz², E Oberg¹, C Calabrese³, D Cherkin²
¹Bastyr University, Kenmore, USA; ²Group Health Research Institute, Seattle, USA; ³Naturopathic Physicians Research Institute, Portland, USA
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Purpose: We conducted a one-year prospective cohort study to determine the promise and feasibility of a randomized clinical trial of adjunctive naturopathic care (ANC) for type 2 diabetes (T2D).

Methods: 40 patients from Group Health Cooperative (GHC), a large integrated healthcare system in Washington State, with existing T2D and hemoglobin A1c values between 7.5-9.5%, were recruited to receive up to eight free visits of ANC over one year in addition to their usual care. Changes from baseline in self-care, self-efficacy and mood based on validated instrument scores were compared within the intervention group after 6- and 12- months. Clinical risk factors were also compared within group, and to a control group generated using electronic medical records ($n=329$), at the end of one-year.

Results: Significant improvements were measured in composite scores of the Summary of Diabetes Self-Care Activities (SDSCA) instrument for diet (+20% mean score, $p=0.001$), exercise (+28% mean score, $p=0.02$) and glucose testing (+45% mean score, $p=0.001$). Significant changes were also measured in depression scores measured by PHQ-8 (-33% mean score, $p=0.001$) and improved self-efficacy measured by the Self-Efficacy Scale (+25% mean score, $p=0.0001$). Many of the observed changes in self-care corresponded to the period of more intensive ANC utilization, i.e. the first six months, however improvements in glucose testing, self-efficacy and improved mood scores persisted at 1-year (+24% mean score, $p=0.002$; +43% mean score, $p=0.003$; and -33% mean score, $p=0.005$ respectively). Changes in clinical risk factors were small during the period of ANC, though hemoglobin A1c (HbA1c) improved significantly within group (-0.90%, $p=0.02$) and compared to electronic controls (-0.51%, $p=0.07$) at 6-months.

Conclusion: Patients with inadequately controlled T2D improved in their self-care behaviors, self-efficacy, mood and clinical risk during the period of ANC. Clinical trials are feasible and warranted.

P157

P02.101. Vitamin D status of female healthcare employees of childbearing age

G Plotnikoff¹, K Mullin², L Mahlke², S Calvin³, M Finch⁴, J Dusek¹
¹Allina Center for Healthcare Innovation, Minneapolis, USA; ²Allina Healthcare Employee Benefits, Minneapolis, USA; ³Minnesota Perinatal Physicians, Minneapolis, USA; ⁴University of Minnesota Carlson School of Business, Minneapolis, USA
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Purpose: To examine the relationship between vitamin D status, reported vitamin D intake and body mass index in female health care employees.

Methods: Prospective observation study of 10,646 employees of a Midwestern integrated health care system who were measured for 25-OH-vitamin D by CLIA technology.

Results: A total of 5,628 women (aged 15-49) met eligibility criteria. Of these, 1,710 (32.4%) did not meet 2010 ACOG or IOM vitamin D guidelines for vitamin D sufficiency (≥ 20 ng/ml); 3,684 (65.5%) did not meet 2010 international guidelines (≥ 30 ng/ml); and 4,874 (86.6%) did not meet 2011 Endocrine Society guidelines (40-60 ng/ml). Only 2,644 (46.97%) reported taking any vitamin D. For those participants who reported vitamin D3 intake equal to that found in prenatal and multivitamins (200-400 IUs) ($n = 430$), 17.7% had 25-OH-vitamin D levels <20 ng/ml, 59.5% had levels <30 ng/ml, and 85.3% had levels <40 ng/ml. Mean 25-OH-vitamin D serum levels and standard deviations for higher reported vitamin D3 daily intakes of 1,001-2,000 IUs, 2001-3,000 IUs and 3,001-4,000 IUs and $>4,000$ IUs were 34.09 ng/ml (12.79), 39.52 ng/ml (16.16), 38.57 ng/ml (17.06) and 37.98 ng/ml (16.40), respectively. For all of these reported intakes, women with a BMI ≥ 30 exhibited significantly lower 25-OH-vitamin D status compared to those women with BMI < 30 ($p < .0001$).

Conclusion: Female healthcare workers of child bearing age demonstrate a high incidence of vitamin D deficiency. Daily prenatal or multivitamin supplementation does not ensure adequate 25-OH-vitamin D levels. A BMI ≥ 30 represents a substantially increased risk of suboptimal 25-OH-vitamin D status. Reported daily intake of $>4,000$ IUs did not result in elevated serum levels of vitamin D. These findings have substantial public health implications as vitamin D deficiency has been associated with increased obstetrical and perinatal risks including gestational diabetes mellitus, premature delivery and emergent c-section.

P158

P02.102. Evaluating the role of expectancy during stress-reducing aromatherapy in healthy older adults

I Fonareva^{1*}, M Demidenko², B Oken¹

¹Oregon Health & Science University, Portland, USA; ²Portland State University, Portland, USA

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Purpose: Aromatherapy is a common CAM approach for stress reduction, but its effectiveness and mechanisms remain unclear. It has been suggested that any stress-reducing benefits of aromatherapy are due to placebo (expectancy) effects. This study evaluates expectancy as a potential mechanism underlying stress-reducing aromatherapy actions.

Methods: To date, 54 participants (mean age 58.7, 82% female) were randomized to either: 1) lavender (stress-reducing aroma), 2) coconut (detectable placebo), or 3) water (non-detectable placebo). The detectable placebo group was used to assess aroma-mediated expectancy. Further, half of the participants in each group, along with their aroma, received a prime suggesting they are inhaling a powerful stress-reducing aroma. The prime was used to evaluate verbally-mediated expectancy. Participants completed a visit during which they experienced the assigned aroma while undergoing a stress battery. Before and after the stress battery, we assessed participants' subjective stress-related measures, cognitive function, salivary stress biomarkers, and physiologic measures including EEG and ECG. ANOVAs were used to detect group differences with all outcomes reflecting post-stress percent change from baseline.

Results: Preliminary data show that, after the stress battery, there was no difference between the three aroma groups on subjective stress ratings and salivary cortisol and alpha amylase profiles (all p 's > 0.1). However, participants randomized to perceptible aromas (lavender and coconut), after stress battery, had decreased negative affect score on Positive and Negative Affect Scale compared to those randomized to water ($p = .01$). Further, though there was no effect of aroma on post-stress performance on cognitive tasks. Participants receiving a prime regardless of aroma group had smaller increases in median reaction time on Simple Reaction Time task, $p = .01$. Expectancy and aroma effects on EEG and physiologic responses will also be discussed.

Conclusion: Preliminary data suggest that both aroma-mediated and verbally-mediated expectancy might be important in aromatherapy actions.

P159

P02.103. Banha-sasim-tang, a herbal formula, for the treatment of functional dyspepsia: a randomized, double-blind, placebo-controlled, two-center trial

J Park¹, S Ko^{1*}, G Han¹, B Ryu¹, I Yeo², J Kim¹

¹College of Oriental Medicine, Kyung Hee University, Seoul, Republic of Korea; ²Department of Statistics, College of Sookmyung Women's University, Seoul, Republic of Korea

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Purpose: Functional dyspepsia (FD) is a chronic gastrointestinal disorder characterized by dyspeptic symptoms without structural lesions. There are no standard treatments for FD until now. Thus, many researchers had been interested in alternative therapies, including herbal formulas, for FD treatment. However, alternative therapies need more evidence. In traditional Korean medicine, Banha-sasim-tang (BST) is a famous herbal formula for treating dyspepsia and there is no relevant study of FD using BST. The aims of the trial are to investigate the efficacy and safety of BST for FD and to evaluate the relationship between dyspepsia and cutaneous electrogastrography (EGG).

Methods: This randomized, double-blind, placebo-controlled trial at two medical centers in Korea consisted of BST and placebo groups ($n = 50$, respectively). BST or placebo was administered for 6 weeks to FD patients and subsequent 2-month follow-up observation was conducted. Primary outcome was the difference as measured on the gastrointestinal symptom (GIS) scale, and secondary outcomes were differences as measured on the visual analogue scale (VAS) for dyspepsia and on the questionnaire for FD-related quality of life

(FDQoL). All outcomes were assessed at baseline, 2, 4, and 6 weeks of treatment, and at 1 and 2 month follow-up. EGG was performed at baseline and 6 weeks.

Results: GIS, VAS and FDQoL insignificantly decreased in both BST and placebo groups. However, early satiety significantly improved in BST groups ($p < 0.05$). Percentage distribution of tachygastria among post-prandial dominant power values in channel 3, which might be related to pyloric dysmotility, significantly decreased after BST administration ($p < 0.05$).

Conclusion: BST did not show a significant effect on FD. However, early satiety among various dyspeptic symptoms and tachygastria around pylorus from cutaneous EGG measurement might be improved throughout BST administration. Further studies focused on mechanisms related to gastric motility modulation will be needed for more relevant clinical applications to FD.

P160

P02.104. Nonlinear parameters of heart rate variability (HRV) – suitable measures to observe physiological outcome during a peat bath in rehabilitation

H Janik^{1*}, C Mau², K Kraft¹

¹Univ. of Rostock, Rostock, Germany; ²Rehab hospital „Moorbad“ Bad Doberan KG, Bad Doberan, Germany

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Purpose: Hot peat baths (40 - 45 °C) are used in rehabilitation medicine to treat pain, increase perfusion and relax muscles. Because of substantial heat stress (core body temperature increased by 1 - 1.5 °C within 30 min) patients' linear HRV parameters are influenced due to sympathovagal activity. The aim of the observational study was to investigate reactions of the cardiac autonomic nervous system detected by means of nonlinear parameters of HRV during a peat baths procedure.

Methods: Cardiovascular healthy non-smoking patients (45.2 ± 8.2 years, 10 male, 19 female) with herniated vertebral discs received a peat bath (40.5 °C) in a rehab hospital. Each bathing procedure consisted of 20 minute recumbent rest (R), 20 minute peat bath (B), and a second 20 minute recumbent rest (S). RR-intervals were determined by a 24 h-ECG-system (Ela medical®, SORIN GROUP, France). For calculations of the HRV-parameters the last 6.5 min of R, and consecutive subdivisions B1, B2, B3 and S1, S2, S3 (each 6.5 min) were used. Kubios HRV 2.0 software were applied (Kuopio, Finland).

Results: In the detrended fluctuation analysis (DFA) alpha1 increased from R to B2 continuously ($p < 0.05$) and sustained (S2, S3, $p < 0.01$). The sample entropy values (SampleEn) decreased from R to S1 ($p < 0.001$) and returned slowly (S2, $p < 0.05$). The Shannon entropy (ShanEn) increased from R to B3, S1 ($p < 0.01$) and returned rapidly (S2, $p > 0.05$). In comparison also to linear parameters, correlations provided between alpha1 and LF%, HF% ($r = 0.74$, $p < 0.05$), SampleEn and ShanEn ($r = 0.86$, $p < 0.05$), but not for heart rate.

Conclusion: Nonlinear parameters of HRV may reflect reactions of the cardiac autonomic nervous system during a peat bath. Our results support their usage as predictors in clinical studies to improve performance.

P161

P02.105. Short term improvement of subject well-being after a single Rhythmic Massage: a prospective, randomized, controlled trial

J Kanitz^{1*}, C Rihs¹, I Krause¹, M Reif², G Henze¹, G Seifert¹

¹Charité, University of Medicine, Berlin, Berlin, Germany; ²Institut for Clinical Research (IKF Berlin), Berlin, Germany

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Purpose: Rhythmic Massage (RhM) is an enlargement of the classical manual massage and has been created by Dr. Ita Wegman at the beginning of the 20th century according to the principles of Anthroposophic Medicine. In addition to effects on the skin and muscles, RhM is believed to have both general effects (e.g. enhancing physical vitality) and disease-specific effects (e.g. internal medicine, orthopedics, neurology, pediatric, rehabilitation). The goal of this randomised, single-blinded study was to assess the efficacy of a single

RhM intervention either with aromatic oil (RA), neutral oil (RM) or a sham massage (SM) on subject well-being.

Methods: 101 healthy adults (mean age: 25.2; SD: 4.7) were randomised to one of three groups (RM, RA or SM). All participated in the Trier Social Stress Test (TSST) before receiving a single massage intervention of about 60 minutes including 20 minutes of quiet time. Well-being was assessed by standardised questionnaires (MDBF, BF-S, B-L) and visual analogue scales (VAS) prior to the beginning of the study and afterwards. Additionally, salivary cortisol was measured.

Results: After a single Intervention, the RM and the RA group showed statistically significant improvements compared to the SM group in the dimensions of mood and alertness (MDBF), VAS, emotional state, and relaxation of neck and shoulders. No difference was found between the RM and the RA group. Salivary Cortisol, BF-S and B-L scales did not differ significantly between the three groups over time. All participants had comparable expectations concerning their participation and no one had previously experienced RhM.

Conclusion: One single RhM intervention leads to a better mood, alertness and relaxation that is not explainable from the setting, because no improvement was found in the SM group. No additional effects were found for the aroma oil.

P162

P02.106. Eurhythm Therapy in the aftercare of children and adolescents with brain tumors of the posterior fossa: a pilot study

J Kanitz^{1*}, K Pretzer¹, P Hernaiz Driever¹, G Calaminus², A Wiener³, G Henze¹, G Seifert¹

¹Charité, University of Medicine, Berlin, Germany; ²University Hospital of Muenster, Pediatric and Adolescent Medicine, Muenster, Germany;

³University of Muenster, Pediatric and Adolescent Medicine, Muenster, Germany

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Purpose: The side effects and sequelae related to anti-tumor therapy regularly result in extensive physical, psychosocial and mental impairments in the life of children after therapy of a brain tumor. Although some supportive therapies are available, there are still numerous unsolved chronic problems. Therefore innovative additional therapeutic approaches from the field of complementary medicine should also be evaluated. This pilot study is a first orienting attempt to assess the feasibility, treatment adherence and impact of Eurhythm Therapy (EYT) in pediatric oncology. EYT is a movement therapy that belongs to the field of Mind-Body Therapies (MBTs). This holistic approach aims to promote self regulation and self-healing powers, e.g. in cancer patients.

Methods: This paper addresses results of seven patients who participated in 25 sessions of EYT over six months with a follow-up period. The outcome parameters, cognitive functioning, neuromotor functioning and visuomotor integration, were assessed prior to the beginning of the intervention and after 6 and 12 months.

Results: First results show feasibility and excellent adherence and indicate positive improvements in cognitive and neuromotor functioning in all children and better visuomotor integration in five out of seven children after six months. After 12 months, neuromotor functioning and visuomotor integration had diminished again to some extent.

Conclusion: The current findings suggest that children with cancer affecting the central nervous system may profit from EYT.

P163

P02.107. Mindfulness and emotion regulation: the mediating role of coping self-efficacy

C Luberto^{*}, S Cotton, A McLeish
University of Cincinnati, Cincinnati, USA

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Purpose: Mindfulness, the nonjudgmental awareness of present moment experiences, has received increased scientific attention for its role in promoting mental health. Specifically, mindfulness is associated with fewer difficulties regulating negative emotional states. Recent research has identified mediators of this relationship, including decreased rumination and greater positive emotions. Coping self-efficacy, one's

perceived ability to effectively manage stressors, might be another important mediator, as Eastern philosophy contends that passive rather than active action can enhance a sense of personal control. The purpose of this study was to test whether coping self-efficacy mediated the relationships between specific mindfulness skills and emotion regulation difficulties.

Methods: Undergraduate participants (N=300; Mage=21.25; 73% female; 83% White) completed questionnaires assessing four mindfulness skills (observing, describing, acting with awareness, accepting without judgment), coping self-efficacy, and emotion regulation difficulties. Pearson correlations were computed for each mindfulness skill and coping self-efficacy, and significant ($p < .05$) relationships were examined using a series of mediation analyses according to Baron & Kenny.

Results: Observing was not associated with coping self-efficacy and was dropped from further analyses. Greater accepting without judgment was associated with fewer emotion regulation difficulties ($R^2 = .47$, $\beta = -.69$, $p < .001$) and greater coping self-efficacy ($R^2 = .29$, $b = .54$, $p < .01$). The effect of accepting without judgment on emotion regulation difficulties dropped when coping self-efficacy was entered into the model (β decreased from $-.69$ to $-.45$; total $R^2 = .69$, $p < .001$). Post-hoc analyses using the Sobel test indicated that coping self-efficacy was a significant mediator ($z = -1.62$, $p < .05$). Describing and acting with awareness showed some indirect effect on emotion regulation difficulties through coping self-efficacy, though Sobel tests did not indicate significance.

Conclusion: Findings suggest that the mindfulness skill of accepting without judgment may improve emotion regulation by promoting self-efficacy for coping with stressors. Future studies should continue to examine other potential mediators to help explain the benefits of mindfulness for emotion regulation.

P164

P02.108. Effects of integrative medicine on pain and anxiety for inpatient orthopedic patients

N Ghildayal^{1*}, P Johnson¹, A Fyfe-Johnson², J Dusek²

¹Allina Hospitals & Clinics, Center for Healthcare Innovation, Minneapolis, USA; ²Penny George Institute for Health and Healing, Abbott Northwestern Hospital, Minneapolis, USA

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Purpose: To examine the effects of integrative medicine (IM) on pain and anxiety in an inpatient orthopedic population.

Methods: Data were obtained from the electronic health record (EHR) for selected orthopedic inpatient admissions during 2010. Four orthopedic populations were identified by APR-DRG categories: 1) hip replacement, 2) knee replacement, 3) back surgery, and 4) medical back pain. Receipt of IM therapies was the treatment of interest. Primary outcomes were change in patient reported pain and anxiety. Patients rated pain and anxiety levels before and after IM treatments using a self-report intensity scale (0 to 10), with higher scores indicating higher levels of pain and anxiety. Chi-square tests were used to test for significant differences in the percentage of patients who received specific IM therapies. Significant differences in mean pain and anxiety score changes were evaluated using paired t-tests.

Results: Overall, there were 2,866 patients with a hip replacement, knee replacement, or back pain/surgery DRG. Of these, 1,013 (35.3%) received at least one IM visit. Of those, 584 (57.7%) had a single therapeutic treatment. Overall, 63.1% of the patients received acupuncture alone or in combination with another therapy, and 24.7% received Korean hand therapy alone or in combination. The most common single treatment was acupuncture (39.7%). All DRG groups experienced significant reductions in pain and anxiety after IM treatment. Knee replacement patients reported the greatest pain reduction, with a decrease of 1.7 points (58.4% reduction), on average, after receiving IM treatment ($p < 0.001$). Back surgery patients reported the greatest post treatment difference in anxiety scores among DRG groups, with a mean decrease of 1.4 points (70.8% reduction) ($p < 0.001$).

Conclusion: Orthopedic patients reported lower pain and anxiety scores after receiving integrated therapies. Further research should be done to evaluate the efficacy of specific IM interventions on pain and anxiety within an orthopedic patient population.

P165

P02.109. Stress management counseling in primary care: results of a national study

A Nerurkar^{1*}, A Bitton², R Davis¹, R Phillips¹, G Yeh¹

¹Beth Israel Deaconess Medical Center; Harvard Medical School, Boston, USA;

²Brigham & Women's Hospital, Boston, USA

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Purpose: Evidence suggests an association between stress management and improvements in conditions commonly seen in primary care. Few data, however, are available on the characteristics of primary care visits that include stress management counseling.

Methods: Using cross-sectional data from the 2006-2009 National Ambulatory Medical Care Surveys (n=123,192), we examined the prevalence of physician counseling about stress in the primary care setting. We used logistic regression analyses to identify characteristics (patient sociodemographics, health status, diagnoses, and health utilization) associated with visits offering stress management counseling (n=1,020) and compared these to visits without stress management counseling (n=33,045).

Results: Physicians offered stress management counseling in 39.3 million visits, representing 3.0% of all primary care visits. Of visits with some type of counseling provided (n=8,527), counseling about stress management was the least common (12.2%) followed by physical activity (30.3%), nutrition (22.2%), weight reduction (21.5%) and tobacco cessation (13.7%). Patients counseled about stress were younger compared to those who were not counseled (mean age 51.4 vs. 54.5). After adjusting for patient age, sex and race, visits addressing a flare of a chronic problem were more likely to be associated with counseling (aOR 1.45 [1.06, 1.98] compared to a stable chronic problem). Longer visits and those for more chronic conditions had a greater likelihood for stress management counseling (aOR2.07 [1.60, 2.66] for 21-40 minute visits and aOR1.76 [1.17, 2.63] for visits \geq 40 minutes, compared to visits \leq 10 minutes; aOR1.75 [1.34, 2.29] for 1-2 conditions, aOR2.01 [1.35, 2.98] for 3-4 conditions, and aOR3.45 [2.30, 5.18] for \geq 5 conditions, compared to no conditions). Visits for depression were associated with physician counseling about stress (aOR 3.87 [2.87, 5.20]).

Conclusion: Stress management counseling is uncommon in the primary care setting. When offered, it is associated with longer visits for complex patients who have numerous, chronic medical conditions. This may reflect potential missed opportunities.

P166

P02.110. Recruitment experiences from piloting the LEAP project: an online spirituality based depression intervention for young adults

P Paccagnan¹, S Moritz^{1*}, N Rickhi¹, C Dennis¹, S Malhotra², C Hart², R Maser², B Rickhi¹, J Toews¹, J Cohen²

¹The Canadian Institute of Natural and Integrative Medicine, Calgary, Canada;

²Department of Psychiatry, University of Calgary, Calgary, Canada

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Purpose: It is a challenge to recruit young individuals with mental health problems to a clinical trial. Here we describe the recruitment efforts and resulting enrollment for recruiting depressed adolescents to a community based clinical trial that piloted an 8-week, online, spirituality-based intervention (<http://www.leaproject.com>).

Methods: This trial aimed to recruit adolescents suffering from mild to moderate unipolar depression. A multi-faceted recruitment strategy was used. Poor enrolment during the first 13 months (Phase I) prompted a review of eligibility criteria. Revised eligibility criteria included an age expansion from previously 13-18 to 13-24 and allowance of general, non-depression specific, counselling. An observational study was conducted to assess the impact of investing trial resources into the various recruitment sources pre (Phase I = 13 month) and post (Phase II = 10 months) eligibility change.

Results: In total, 1667 staff hours (mail outs, emails, presentations and personal contacts) were invested to generate 196 referrals from five different referral sources (Health Care Professionals, High Schools, Post Secondary institutions and Public Advertising). In Phase I, 11 participants were enrolled (13% enrollment rate) compared to 27 participants in

Phase II (25% enrollment rate). In Phase I, invested staff hours to generate a referral that would result in a successful enrollment (82 hours/participant) were three fold that required in Phase II (28 hours/participant). Health Care Professionals and Post Secondary Institutions generated the largest number of referrals and had the highest enrolment rates.

Conclusion: Our findings suggest that depressed young people can be successfully recruited to a clinical trial. Eligibility changes accommodated the available client base better, resulting in more referrals and fewer failed eligibility assessments. Recruitment was boosted significantly through referrals from post secondary institutions and through building relationships with health care professionals.

P167

P02.110. Effect of traditional acupuncture on circulating endothelial progenitor cells in patients with coronary heart disease

J Painovich^{1*}, A Phan¹, N Li¹, S Chowdhury¹, S Dhawan¹, D Taylor², E Marban¹, C Bairey Merz¹

¹Cedars Sinai Medical Center, Los Angeles, USA; ²University of Minnesota, Minneapolis, USA

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Purpose: Endothelial progenitor cells (EPCs) are thought to exert beneficial effects on atherosclerosis, angiogenesis, and vascular repair. We performed a randomized pilot "proof of concept" study of traditional acupuncture (TA) and circulating EPCs in patients with coronary heart disease (CHD).

Methods: Thirteen subjects were randomized to TA, sham acupuncture (SA) or waiting control (WC) for 12 weeks. TA received treatments at CHD specific acupuncture points while SA received tube pressure with no needle insertion proximate to the TA site but not considered active. WC received no intervention. EPCs at study entry/exit were quantified by flow cytometry using CD34, CD133 and VEGFR2 cell surface markers.

Results: Eight men and five women (mean age 59 \pm 11 yrs) were included. Compared to entry, TA had a significant increase in percentage change from baseline in level of cells expressing CD34+/VEGFR2+ compared to SA and WC (p=0.03). No group differences were evident in immature EPCs expressing CD34+/CD133+, although these were lowest in the TA group; numbers did not correlate with elevation in the CD34+/VEGFR2+group.

Conclusion: Results suggest that TA may increase mobilization of specific EPC sub-populations (VEGF R2) while simultaneously decreasing levels of a more immature cell type (CD133) and may beneficially alter levels of EPCs. This pilot study provides feasibility and outcome variability data for clinical trial planning purposes. Further studies are warranted to evaluate whether traditional acupuncture can beneficially impact CHD via augmentation of EPC regenerative pathways.

P168

P02.112. Mind-body medicine therapies for the depression spectrum: a systematic review

S D'Silva^{1*}, C Poscablo¹, R Habousha², B Kligler³

¹George Washington University, Washington D.C., USA; ²Albert Einstein

College of Medicine, Bronx, USA; ³Center for Health and Healing, Beth Israel Medical Center, New York City, USA

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Purpose: This paper aims to systematically compare and contrast the evidence for the use of mind-body therapies to address varying degrees of depressive symptoms in populations with and without other chronic comorbidities. Systematic literature searches of PubMed (Medline), Embase, CINAHL, and the 7 databases encompassed by Current Contents, Web of Science and Web of Knowledge were conducted from 1966 onward.

Methods: Studies had to be designed as prospective control-comparison, using a mind-body medicine modality at least 2 weeks long, in an adult population that speaks English, with a sample size $>$ 30, and with depression as a primary or secondary outcome measured on an established scale. Methodological quality was evaluated using the modified Scale for Assessing Scientific Quality of Investigations (SASQI) for Complementary and Alternative Medicine (CAM).

Results: Of the 2964 papers identified by database searches, 90 met our inclusion and exclusion criteria. Sixty percent of these papers received a SASQI score >9 and were deemed of sufficient quality to be included in the review. Seventy-two percent of these selected quality papers demonstrated positive effects on the improvement of depressive symptoms. Self-regulation (biofeedback, guided imagery and hypnosis) and interventions with mixed modalities had a higher proportion of positive results than movement (yoga, taichi and qigong) and mind-based (meditation and mindfulness) categories, although the latter two categories have been better studied.

Conclusion: Along with established psychiatric treatments of therapy and medications for depression, the use of evidence-based mind-body therapies can provide further relief of symptoms in a patient-centered manner. The likely long-term increased cost-effectiveness of integrating these therapies deserves further investigation.

P169

P02.113. The benefits of yoga for women veterans with chronic low back pain

E Groessl^{1*}, K Weingart², N Johnson², S Baxi¹

¹Veterans Affairs San Diego Healthcare System and University of California, San Diego, San Diego, USA; ²Veterans Affairs San Diego Healthcare System, San Diego, USA

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Purpose: Chronic low back pain (CLBP) is prevalent among military veterans and often leads to functional limitations, psychological symptoms, lower quality of life, and higher health care costs. An increasing proportion of US veterans are women, and women veterans may have different healthcare needs than men veterans. The purpose of this study was to assess the impact of a yoga intervention on women and men with CLBP.

Methods: Veterans Affairs (VA) patients with CLBP were referred by primary care providers to a clinical yoga program. Research participants completed a brief battery of questionnaires before their first yoga class and again 10 weeks later in a single group, pre-post study design. Questionnaires included measures of pain (Pain Severity Scale), depression (CESD-10), energy/fatigue, and health-related quality of life (SF-12). Yoga attendance and home practice of yoga were also measured. Repeated measures ANOVAs were used to analyze group differences over time while controlling for baseline differences.

Results: The 53 participants who completed both assessments had a mean age of 53 years, were well educated, 41% non-White, 49% married, and had varying employment status. Women participants had significantly larger decreases in depression ($p=.046$) and pain "on average" ($p=.050$), but larger increases in energy ($p=.034$) and SF-12 Mental Health ($p=.044$) than men who participated. The groups did not differ significantly on yoga attendance or home practice of yoga.

Conclusion: Our results suggest that women veterans may benefit more than men veterans from yoga interventions for chronic back pain. Conclusions are tentative because of the small sample size and quasi-experimental study design. A more rigorous study is being designed to answer these research questions more definitively.

P170

P02.114. Improvement in postural response as a possible mechanism for decrease in falls with vitamin D

A Peterson^{*}, F Horak, M Martina

Oregon Health & Science University/Portland VA, Portland, USA

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Purpose: To evaluate the relationship between balance performance and vitamin D in persons with Parkinson's disease (PD). Postural instability is one of the four cardinal features of PD. Balance problems and falls are a major source of morbidity and mortality late in the disease largely because there are no effective treatments. Vitamin D supplementation reduces falls and reduces sway in quiet stance in elderly fallers.

Methods: Subjects underwent a battery of 5 balance tests on the Neurocom posture platform, were tested for a number of possible confounders: Parkinson's severity (motor UPDRS), cognitive function

(trials A & B, MMSE, verbal fluency, and clock draw), dyskinesias (mAIMS), and had serum drawn for vitamin D levels. A Pearson's product-moment correlation was performed to investigate the association between balance measures and vitamin D levels (correcting for UPDRS score).

Results: The most striking correlation was found between the vitamin D levels and the automatic posture response to backwards translations. The strongest correlations with vitamin D levels were between postural response strength asymmetry and stance weight asymmetry. Correcting for the UPDRS, the correlation coefficients for vitamin D and strength symmetry were 0.41 ($p=0.01$), 0.34 ($p=0.03$), and 0.32 ($p=0.05$) for small, medium, and large perturbation, respectively. The correlation coefficients for vitamin D and weight symmetry were similar at 0.32 ($p=0.05$), 0.42 ($p=0.01$), 0.30 ($p=0.07$).

Conclusion: Automatic postural responses are crucial for avoiding falls. Asymmetry of automatic postural responses puts subjects at increased risk for falls especially when weight shifts are necessary, such as when walking or reaching for an object. It is possible that vitamin D may have a specific effect on neural control of postural responses and this supports further intervention studies to see if vitamin D supplementation decreases fall risk in patients with PD.

P171

P02.115. Optimism and stress: how cultivating a positive view on the future can lead towards reduced basal stress and a more adaptive stress response

Y Meevisseⁿ, M Peters

Maastricht University, Maastricht, Netherlands

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Purpose: Optimism, a personality trait defined as holding general positive beliefs regarding the future, has been associated to improved physical health and longevity. One of the underlying mechanisms may be a reduced physiological stress response. Previous studies found that optimism was related to a lower blood pressure response to experimental stress and to a lower cortisol awakening response (CAR). It remains to be determined whether optimism per se, the associated difference in health behaviors (e.g. physical activity, eating and sleeping behavior) or another third variable is responsible for attenuating the physiological stress response. The aim of the present study was to clarify the causal status of optimism in relation to cortisol responsivity to stress.

Methods: Optimism was experimentally induced by having participants construct and visualize their best possible self (BPS) over a course of 2 weeks. We previously showed that a BPS intervention leads to sustained increases in optimism. A matched control group engaged in a 2-week time management training. Before and after the BPS or control intervention, cortisol assessment in daily life was performed on two consecutive days and the CAR was examined. In addition, all participants were administered the TSST before and after the intervention and stress induced cortisol was examined.

Results: Both groups showed a decrease in CAR after the intervention. Only the BPS group showed a pre to post intervention decrease in the cortisol response and a faster recovery towards baseline after the TSST.

Conclusion: The present study gives evidence for the causal influence of optimism on the physiological stress response. Cultivating a positive view on the future reduces basal stress levels and creates a more adaptive stress response.

P172

P02.116. The relationship between deqi and the effect of acupuncture

Y Choi, S Cho^{*}, J Lee, W Moon, D Yoo

Hospital of Korean Medicine, Kyung Hee University Medical Center, Seoul, Republic of Korea

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Purpose: There is an experimental study that suggests deep needling with rotation produces higher acupuncture needling sensation than superficial needling with mock rotation. Also, there are opposing results about the relationship between acupuncture needling sensation and analgesic effect. In this study, we intend to investigate the relationship

between acupuncture needling sensation and analgesic effect according to acupuncture stimulation.

Methods: Fifty healthy volunteers received 3 different forms of acupuncture in a single-blinded crossover design; these included superficial needling (0.3 cm), deep needling (2 cm), and needling with bi-directional rotation. The time between the interventions was more than 48 hours. All forms of acupuncture were applied unilaterally on the left leg at standard acupuncture points: SP 6, SP 9, ST 36, and GB 39. The effects of acupuncture were evaluated using pressure pain threshold. Each participant completed the Subjective Acupuncture Sensation Scale (SASS).

Results: Both SASS and increases in pressure pain threshold were largest in needling with rotation followed by deep needling and superficial needling. An ANOVA analysis was carried out in order to see whether there is a significant difference; both had *p* values lower than 0.001. Also, the correlation between the sum of SASS and changes in pressure pain threshold was calculated using Spearman's rho; there was a significant correlation (*p*=0.027).

Conclusion: Acupuncture needling sensation and pressure pain threshold increased according to depth and rotation of acupuncture. There is a significant correlation between acupuncture needling sensation and increases in pressure pain threshold. It seems that deqi plays an important role in revealing the effect of acupuncture.

P173

P02.117. Genomic expression changes underlying mind-body practices

J Denninger¹, J Dusek², M Bhasin³, J Huffman⁴, L Slipp¹, M Scult¹, B Mahoney⁵, B Chang⁶, R Zusman⁵, H Benson¹, T Libermann³, G Fricchione¹

¹Benson-Henry Institute at Massachusetts General Hospital, Boston, USA;

²Institute for Health and Healing, Abbott Northwestern Hosp., Minneapolis, USA;

³Beth Israel Deaconess Medical Center, Boston, USA;

⁴Psychiatry, Massachusetts General Hospital, Boston, USA;

⁵Cardiology, Massachusetts General Hospital, Boston, USA;

⁶Boston University School of Public Health, Boston, USA

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Purpose: Genomic markers that reflect responsiveness to a relaxation response (RR) intervention have been detected in healthy volunteers, but have not been examined in clinical conditions for which RR is effective (e.g., hypertension). This study aimed to explore the impact of an RR intervention on gene expression in hypertensive individuals.

Methods: We performed transcriptional profiling analyses on the Peripheral Blood Mononuclear Cells (PBMCs) obtained before (Pre RR) and after (Post RR) 8 weeks of intervention from a pilot group of 4 hypertensives. Transcriptional profiling used Affymetrix HT HG-U133+ PM arrays, containing >47,000 transcripts corresponding to 38,500 genes. The arrays were normalized using the robust multi-chip analysis (RMA) algorithm. After normalization and preprocessing, differentially expressed genes were identified using the random variance model based *t*-test. To understand the underlying biological mechanisms associated with RR regulated genes, we performed Gene ontology (GO), pathways and geneset enrichment analysis (GSEA).

Results: A total of 474 transcripts were significantly differentially expressed (*p*<0.05) between the Pre and Post RR conditions. Hierarchical clustering of the top differentially expressed genes demonstrates striking segregation between Pre and Post RR conditions. The GO analysis identified significantly affected categories (*p*<0.05) that include "mRNA metabolic process," "positive regulation of RNA metabolic process," "Calcium signaling pathway" and "programmed cell death." The pathway analysis identified the over-representation (*p*<0.05) of differentially expressed genes to "cell cycle G/M checkpoint regulation," "P53 signaling," "Inositol metabolism signaling," "Apoptosis Signaling," "MIF Regulation of Innate Immunity," and "Cardiac β -adrenergic Signaling." Furthermore, GSEA analysis identified upregulation of 263 genesets (*p* <0.05) in Post RR including phosphatidylinositol signaling system, IFN- γ endothelial up, B cell receptor signaling pathway, FAS pathway, VEGF signaling pathway, Cardiac EGF pathway and MAPK pathway. Additional results to follow.

Conclusion: These results suggest specific biochemical pathways on which to expand future research in the study of mind/body therapies in clinical populations.

P174

P02.118. Oral chamomile (*Matricaria recutita*) extract therapy of Generalized Anxiety Disorder (GAD): trial in progress

J Mao^{*}, R Derubeis, Q Li, J Baier, D Cristancho, J Hollm, J Minkel, J Amsterdam
Perelman School of Medicine at University of Pennsylvania, Philadelphia, USA
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Purpose: Chamomile is a traditional herb known for its calming effects. We are conducting a long-term, randomized, placebo-substitution study of chamomile for the prevention of recurrent Generalized Anxiety Disorder (GAD) in individuals who have responded to initial, open-label chamomile therapy. We present preliminary results from the trial's open label phase to offer initial evidence of safety and effectiveness of chamomile in GAD.

Methods: A 38-week long-term relapse prevention trial with three phases. I: Eight weeks to determine whether individuals respond to chamomile; II: Four more weeks among responders to determine whether symptoms remain stable; III: An additional 26 weeks to determine whether chamomile is superior to placebo in preventing the recurrence of anxiety symptoms in responders. Subjects meet DSM IV-TR criteria for GAD, moderate severity. Study interventions include pharmaceutical grade chamomile extract (SHR-5) 1,500 mg daily standardized to 1.2% apigenin and comparable placebo. Primary outcome measures are the GAD-7, Hamilton Anxiety Rating (HAM-A), and Clinical Global Impression Severity (CGI/S) scales.

Results: To date, 63 subjects have been enrolled, median age 48, range (24 to 71); 40 women, 23 men; 49 White, 6 African American, 6 Asian, 2 Other. Among the 48 subjects who completed phase I, a significant mean reduction of anxiety symptoms, as measured by GAD-7 (13.4 to 5.4, 59.7%, *p*≤0.001) and HAM-A (16.3 to 5.5, 66.2%, *p*≤0.001) have been observed. By *a priori* defined CGI-S and by 50% symptom reduction in GAD-7, 38 of those completing phase I (79.2%) met criteria for response. No serious adverse events were observed.

Conclusion: Preliminary findings are consistent with our previous RCT finding that over 50% of subjects with moderate or severe GAD symptoms respond to chamomile. The 1500mg dose of chamomile oral extract appears to be safe. More definitive and long-term relapse prevention findings await the completion of the trial.

P175

P02.119. Cognitively-Based Compassion Training reduces peripheral inflammation in adolescents in foster care with high rates of early life adversity

T Pace¹, L Negi¹, B Donaldson-Lavelle¹, B Ozawa-de Silva¹, S Reddy¹, S Cole², L Craighead¹, C Raison³

¹Emory University, Atlanta, USA;

²Research Design Associates, Inc., Yorktown Heights, USA;

³University of Arizona College of Medicine, Department of Psychiatry, Tucson, USA

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Purpose: Children exposed to early life adversity (ELA) demonstrate elevated circulating concentrations of health-relevant inflammatory biomarkers which persist into adulthood. Increased inflammation in individuals with ELA is believed to contribute to the increased risk for medical and psychiatric illnesses observed in these individuals. The objective of this study was to determine whether Cognitively-Based Compassion Training (CBCT) reduces salivary concentrations of C-reactive protein (CRP) in adolescents with high rates of ELA, and to evaluate the relationship between CBCT practice time and changes in CRP. CBCT is a meditation-based program designed to enhance compassion for self and others and to promote prosocial behavior. Based on prior findings, it was hypothesized that practice time during the study would be more strongly associated with reductions in CRP than would group assignment.

Methods: Seventy-one adolescents between the ages of 13 and 17 (31 females) in the Georgia Foster Care system were randomized to either six weeks of CBCT or a wait-list control condition. Saliva was obtained upon awakening prior to randomization and again 6 weeks later, as were self-report measures of depression and anxiety. Saliva was assayed for CRP using a high-sensitivity ELISA (Salimetrics, State College, PA). Trauma/

neglect history was obtained from state records. Participants completed practice time diaries as a means of assessing amount of engagement with the CBCT program.

Results: No between group differences were observed in salivary CRP concentrations, self-reported depression or anxiety symptoms. Within the group randomized to CBCT, increased practice time was associated with reduced CRP from baseline to the six week assessment.

Conclusion: Engagement with CBCT positively impacts an inflammatory biomarker relevant to health in adolescents at high risk for poor adult health and social functioning as a result of significant early life adversity, including placement in foster care.

P176

P02.120. Qualitative systemic review on Complementary and Alternative Medicine treatments in Inflammatory Bowel Diseases

J Langhorst*, R Lauche, H Vorpeil, M Baecker, P Klose, G Dobos
University of Duisburg, Complementary and Integrative Medicine, Essen, Germany

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Purpose: We performed a systematic review (with qualitative metaanalysis) for Complementary and Alternative Medicine (CAM) as defined by the National Institute of Health, with the exception of dietary and nutritional supplements, in Inflammatory Bowel Disease (IBD), i.e., Crohn's disease (CD) and ulcerative colitis (UC).

Methods: A computerized search of databases (Cochrane Library, Medline, PsychINFO, and Scopus) through June 2011 was performed. We screened the reference sections of original studies and systematic reviews in the English language for CAM in IBD, CD and UC. Randomized controlled trials (RCT) and controlled trials (CT) were included. RCTs comparing treatment to controls were assessed by a methodological quality score.

Results: A total of 11 RCTs and 4 CTs in herbal therapy (i.e., plantago ovata, boswellia, barley foodstuff, curcumin, tormentil, aloe-vera gel, wheatgrass-juice, evening primrose oil, andrographis paniculata, sophora and wormwood), 1 RCT in trichuris suis ovata, 2 RCTs in mind-body interventions and self-management, 2 RCTs in acupuncture, and 1 RCT in balneotherapy were found. The 17 RCTs had an average study size of 61 patients (range 20 – 126) with a number of groups ranging from two to three. The quality score assessment of the RCTs yielded a mean score of 57 out of 100.

Conclusion: The average methodological quality of the identified studies was fairly low. Best evidence was found for herbal therapy, i.e. plantago ovata and curcumin in UC maintenance therapy, wormwood in CD, trichuris suis ovata in UC, mind-body therapy and self-intervention in UC, and acupuncture in UC and CD.

P177

P02.121. Psychological outcomes of a mind body program for successful aging

M Scult², J Takahashi¹, A Webster², J Denninger², D Mehta^{2*}

¹Harvard Medical School, Boston, USA; ²Benson-Henry Institute for Mind Body Medicine at Massachusetts General Hospital, Boston, USA

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Purpose: The biopsychosocial model of successful aging is aimed at developing a sense of well-being, high self-assessed quality of life, and a sense of personal fulfillment even in the context of illness and disability. The purpose of this study was to explore key outcomes of a new Successful Aging Mind Body program. We hypothesized the program would increase self-efficacy, which would lead to improved feelings of well-being.

Methods: Sixteen patients completed assessments. The average age of participants was 75 (range: 66-91). The program consisted of weekly 90-minute sessions for nine weeks. Topics included a range of psychological and physical exercises including mindfulness and relaxation training. For measures, we used the Coping Self-Efficacy Scale (CSES) and Philadelphia Geriatric Center Morale Scale (PGCMS). We performed paired t-tests on pre/post data, and used the Wilcoxon signed rank test for the conservative validation.

Results: We found that both the CSES and PGCMS increased among completers of the Successful Aging intervention (pre- to post-intervention change: CSES, 27.6±26.6, p=0.001; PGCMS 1.3±2.6, p=0.06), although the change for PGCMS was not quite significant. In addition, we found a

moderate correlation between the pre- to post-intervention changes in CSES and PGCMS (r=0.4, p=0.14), although the association was not significant. The CSES change pre-post was still significant (p<.05) after a sensitivity analysis.

Conclusion: We found significant changes in self-efficacy after the intervention and an increase in morale with a trend towards significance. A moderate correlation was found between CSES and PGCMS, but the correlation was not significant. These results support the hypothesis that participants can develop greater self-efficacy as a result of a mind body program for successful aging. Future research is needed to explore the relationship between self-efficacy and objective health outcomes.

P178

P02.122. Mindfulness meditation for pediatric chronic pain: effects and precautions

B Golianu^{1*}, L Waelde²

¹Stanford University Medical Center, San Carlos, USA; ²Palo Alto University, Palo Alto, USA

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Purpose: Although there is a substantial literature about the effectiveness of psychological therapies such as relaxation for pediatric chronic pain and about mindfulness meditation (MM) for health and mental health conditions, there has been little systematic attention to the use of MM for pediatric chronic pain. This presentation will address lessons learned from our ongoing clinical trial of MM in a pediatric chronic pain service at a university clinic.

Methods: We present case material from our ongoing pilot clinical trial of a manualized mindfulness meditation intervention, called Inner Resources for Coping with Chronic Pain (Waelde, 2011). Participants are 30 patients diagnosed with chronic pain and aged 11 – 17 receiving a 6-week, group-based meditation intervention that includes daily home practice of the techniques. Case material from two participants will be presented to illustrate effects and precautions.

Results: Our case material indicates that patients are able to learn and practice the MM techniques, with good adherence to the home practice. A male patient with multiple pain complaints was able to learn and practice the meditation techniques and use them to cope with stressors associated with his medical conditions. A 16 year old female patient with longstanding participation in pain management that primarily involved distraction found the concurrent use of mindfulness and distraction to be confusing and ineffective.

Conclusion: MM shows promise as an intervention for helping children and adolescents to deal with chronic pain. The children and adolescents in our clinical trial have evidenced the ability to engage with the material and adhere to regular home practice of the techniques and application of them to presenting problems. However, a note of caution is raised by the possible incompatibility of mindfulness with concurrent therapies emphasizing the use of distraction for dealing with chronic pain.

P179

P02.123. The anti-diabetic and cholesterol-lowering effects of common and cassia cinnamon (Cinnamomum verum and C. aromaticum): a randomized controlled trial

J Dugoua^{1*}, D Perri², D Seely³, J Ardilouze⁴, R Ridout⁵, K Bowers⁶, T Einarson¹, G Koren¹

¹University of Toronto, Toronto, Canada; ²McMaster University, Hamilton, Canada; ³Canadian College of Naturopathic Medicine, Toronto, Canada;

⁴Centre Hospitalier Universitaire de Sherbrooke, Sherbrooke, Canada;

⁵Toronto Western Hospital, Toronto, Canada; ⁶University North Texas, Denton, USA

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Purpose: According to the World Health Organization (WHO), approximately 150 million people worldwide have type 2 diabetes. It is a growing health concern. Common and cassia cinnamon have been reported to have anti-diabetic and lipid-lowering effects. The objective was to determine if the combination of common and cassia cinnamon (Cinnamomum verum and C. aromaticum) reduces fasting blood glucose, insulin, glycosylated hemoglobin (HA1C), triglyceride, total cholesterol, HDL cholesterol and LDL cholesterol levels in people with type 2 diabetes.

Methods: Fifty (50) type 2 diabetic participants were randomized to receive either 140 mg of Cinnamonforce twice daily or placebo over 13 weeks. Physical and laboratory measurements were taken at baseline, 2 weeks, 4 weeks, 8 weeks and at the end of the trial, 13 weeks.

Results: There were no significant improvements in fasting glucose, insulin and lipid parameters between treatment and placebo groups. At endpoint, subjects in the treatment group were found to have a marginally non-significant higher fasting blood glucose level than subjects taking the placebo ($p=0.085$). There was a non-significant decrease in HA1c in the treatment group versus the placebo group ($p=0.172$). In secondary outcomes, significant differences in weight ($p=0.008$), BMI ($p=0.001$) and waist-to-hip ratio ($p=0.020$) were detected in the treatment versus placebo groups.

Conclusion: The combination of common and cassia cinnamon do not impact fasting glucose, insulin and lipid measurements. Through power calculations, there may be an effect on HA1c, however, the sample size in this study was not sufficient to detect a trend, if any. Although secondary outcomes in this study, common and cassia cinnamon should be further investigated for weight loss.

P180

P02.124. A pilot randomized controlled trial of yoga for prediabetes

K McDermott

Univ of California, San Francisco, Osher Center for Integrative Med, San Francisco, USA

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Purpose: To test the effects of a yoga-based intervention on changes in prediabetes measures.

Methods: We conducted an 8-week, randomized, waitlist controlled trial of yoga for prediabetes (diagnosed by two measures of fasting glucose between 100-125 mg/dl) in Bangalore, India. Forty-one participants were randomized to yoga ($n=21$, 1 lost to follow-up) or control ($n=20$, 2 lost to follow-up). All participants attended an 8-hour session on lifestyle changes. Participants in the yoga group also attended 3 to 6 hour-long yoga classes per week. Yoga classes included didactic training, postures and breathing exercises. We measured changes in prediabetes using a 75 gm oral glucose tolerance test (OGTT) with a 2-hour post-prandial blood draw. Fasting glucose and insulin were used to calculate homeostatic model assessment-insulin resistance (HOMA-IR); we also measured mood and perceived stress.

Results: There were significant differences in mean change scores (yoga – control) for weight (-2.3 kg, 95%CI[-4.1, -0.4]), waist circumference (-3.8 cm, 95%CI[-7.6, -0.05]), and BMI (-0.79 95%CI[-1.6, -0.003]). There were also significant improvements in total cholesterol, systolic and diastolic blood pressure, and psychological assessments in both groups during the study. The yoga group had greater improvements than the control group in 2-hour glucose levels on the OGTT (1.4 vs -1.5) and HOMA-IR (-1.1 vs 0.27) but these were not statistically significant. Fasting glucose did not improve in the yoga group compared with the control group.

Conclusion: The yoga group had significant improvements in weight and waist circumference. Both groups improved in cholesterol and blood pressure, possibly due to the lifestyle session. There were trends toward improved glucose control on the OGTT and decreased insulin resistance, though fasting glucose did not show evidence of improvement. The data support promise for yoga-based interventions in prediabetes, and suggest that further optimization of intervention content and duration may be useful.

P181

P02.125. Group acupuncture in an inpatient Joint Replacement Center provides innovative and effective intervention for post-operative pain relief

C Miller*, P Weiss-Farnan, B Hopperstad, J Dusek

Abbott Northwestern Hospital, Minneapolis, USA

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Purpose: To examine the effects of a group model of acupuncture treatment on pain for joint replacement patients in an acute care setting.

Methods: In a large midwestern hospital, group physical therapy is provided to joint replacement patients. Orthopedic surgeons added acupuncture to the standard post-operative care for total knee and hip

replacements provided through the Joint Replacement Center (JRC). Acupuncture is introduced in the pre-hospital class for surgery preparation and provided immediately after physical therapy on post-operative days one and two. Pre- and post-acupuncture treatment scores for pain are recorded in the electronic medical record. Mean differences in self-reported pain scores were analyzed using a two-tailed t-test.

Results: Between 1/1/2010 and 9/30/2010, 654 acupuncture treatments were provided to 427 unique patients. The sample included 252 women and 172 men ages 27 to 95 (mean 65.5; SD 12.4 (women) and SD 11.33 (men)). Average pre-treatment pain scores were 4.1, and average post-treatment scores were 2.3, demonstrating a 45.3% decrease in self-reported pain level ($p<0.001$).

Conclusion: Group acupuncture significantly decreased self-reported pain in a sample of post-operative joint replacement patients. The addition of acupuncture to the JRC model of delivery is a distinguishing characteristic of the services provided by this midwestern hospital that competes with other hospitals to provide this elective surgery, making it unique among the community options.

P182

P02.126. Addition of chiropractic manipulative therapy to standard medical care may improve outcomes for acute low back pain in active-duty military personnel

C Goertz^{1*}, C Long¹, M Hondras¹, R Petri², W Meeker³, D Lawrence³, E Owens⁴

¹Palmer Center for Chiropractic Research, Davenport, USA; ²Fort Bliss Physical Medicine and Integrative Health Services, El Paso, USA; ³Palmer College of Chiropractic, San Jose, USA; ⁴Private Practitioner, Minneapolis, USA

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Purpose: The primary aim of this pragmatic clinical trial was to assess changes in pain levels and physical functioning in response to standard medical care (SMC) vs. SMC plus chiropractic manipulative therapy (CMT) for the treatment of low back pain (LBP) among 18 to 35-year-old active-duty military personnel based at Ft. Bliss, El Paso, TX.

Methods: This was a prospective, 2-arm randomized controlled pilot study for participants with acute low back pain. SMC included education about self-management, analgesics and anti-inflammatory agents, physical therapy and modalities such as heat/ice. CMT included mobilization, brief massage, modalities such as heat/ice, exercises, advice for activities of daily living, postural/ergonomic advice and high-velocity low-amplitude spinal manipulation for up to 2 visits weekly for 4 weeks.

Results: A total of 213 soldiers were screened and 91 were randomized to treatment groups in a 1:1 allocation ratio. The mean age of participants was 26 years; 86% were male and 63% were white. The median duration of their current LBP episode was 9 days and 43% had radicular signs. Mixed linear effects models were fit for each of the 3 outcomes over the week 2 and 4 endpoints, adjusting for the respective baseline level of the outcome. After 4 weeks of care, the SMC+CMT group had significantly more improvement than SMC alone in the Roland Morris disability scores [adjusted mean (95% CI) 4.0 (1.3, 6.7)]; the numerical rating scale for current pain [2.2 (1.2, 3.1)]; and the Back Pain Functional Scale [7.7 (2.6, 12.9)].

Conclusion: This pragmatic pilot study provides preliminary data showing clinically and statistically significant differences in improvement of pain and physical functioning between treatment groups, favoring the SMC+CMT group for young, racially diverse adults with low back pain. A larger clinical trial has recently been funded by the Department of Defense to confirm these results.

P183

P02.127. Recruitment strategies for community-based yoga research in a predominant minority population

J Keosaian^{1*}, D Dresner¹, C Cerrada¹, L Kwong¹, N Goodman¹, M Tam¹,

M Godersky¹, K Sherman², J Weinberg³, A Boah¹, R Saper¹

¹Boston Medical Center, Boston, USA; ²Group Health Research Institute, Seattle, USA; ³Boston University School of Public Health, Boston, USA

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Purpose: The Yoga Dosing Study is the first part of a 4-year NIH/NCCAM funded comparative effectiveness randomized controlled trial of yoga vs.

physical therapy vs. education for chronic low back pain (CLBP) in underserved populations. We sought to recruit a diverse population by reducing barriers such as health literacy, and increasing access and awareness of research studies through community health center partnerships.

Methods: We created a multi-faceted recruitment strategy focusing on community health centers in diverse neighborhoods in Boston. Approaches included flyers posted in waiting rooms, brochures containing culturally relevant pictures, staff and provider presentations at health centers, and targeted letters to patients with a diagnosis of low back pain. Targeted letters were made possible through the Boston HealthNet, an affiliation of Boston Medical Center with community health centers, which allows for shared access to electronic medical records. We utilized designated physicians at each clinic to act as a point person or "site champion" for the study. We will also conducted qualitative interviews on the topic of barriers to recruitment.

Results: In four months, there were 631 inquiries about the study. Targeted letters yielded the largest number of inquires (48%). Twenty-eight percent of patients were recruited by flyers and brochures, and 13% were recruited by a physician. We enrolled 95 participants for the study; a majority was from racial or ethnic minority groups (82%). Of those who were enrolled into the study, the greatest percentage was referred by physicians (27%).

Conclusion: A multi-dimensional recruitment strategy based on community center buy-in and support was successful and efficient. Developing and maintaining connections with community health center physicians and staff was essential for recruitment of participants. Although posted flyers and brochures yielded the most inquiries about the study, people who were recruited by their physician were more likely to enroll in the study.

P184

P02.128. The effects of guided imagery on preoperative anxiety and pain management in patients undergoing Laparoscopic Cholecystectomy in a multi-centre RCT study

M Jong¹, A Pijl², H de Gast³, M Sjöling⁴

¹Louis Bolk Institute, Nutrition & Health, Driebergen, Netherlands; ²Slotervaart Hospital, Amsterdam, Netherlands; ³Rode Kruis Hospital, Beverwijk, Netherlands; ⁴Mid Sweden University, Sundsvall, Sweden

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Purpose: Laparoscopic Cholecystectomy (LC) is common practice in treatment of symptomatic gall stones. LC is often associated with preoperative anxiety and stress which may negatively impact postoperative pain perception and recovery from surgery. The aim of the present study was to investigate whether a "non-pharmacological" intervention with guided imagery can reduce preoperative anxiety, postoperative pain perception and medication compared to standard care in patients undergoing LC.

Methods: In a pragmatic multi-centre randomized controlled study 140 patients were randomized to a Guided Imagery (GI) group or control group. The GI group was provided with a CD to practice guided imagery once a day, 7 days prior to surgery. Patients in the control group received standard care instructions only. Primary outcome measurement was the use of postoperative analgesics. Secondary outcome parameters were preoperative anxiety levels using the Amsterdam Preoperative Anxiety and Information Scale (APAIS), postoperative pain perception (VAS-scale), general patient satisfaction (PSQ) and safety (adverse events) with treatment.

Results: 95 out of 140 randomized patients completed the study, 43 in the GI and 52 in the control group. The major reasons for dropping out were acute LCs or cancellation of LC. Both groups were highly comparable with respect to demographic data. The majority was female (GI: 77%, Control: 75%). Postoperative morphine use was not significantly different between the GI (15.8±18.5 mg) and control group (12.5±13.6 mg, p=0.34). No significant differences were observed in anxiety and postoperative VAS scores. Twenty-three percent of patients did exercises 1-3 times, 65% 4-7 times and 12% >7 times. Within GI group analysis showed significantly less postoperative morphine use upon better compliance to GI exercises (p=0.02).

Conclusion: It is not as simple as replacing a pill with a CD. Guided Imagery seems to reduce postoperative pain medication once compliance to imagery exercises is achieved.

P185

P02.129. Individualized chiropractic and integrative care for low back pain: a randomized clinical trial

G Bronfort^{*}, M Maiers, R Evans, K Westrom

Northwestern Health Sciences University, Bloomington, USA

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Purpose: To determine the relative effectiveness of multidisciplinary integrative care compared to chiropractic care for chronic LBP in patients over 18 years of age using pain as the primary outcome measure. Secondary outcomes were patient self-reported disability, global perceived effect, general health status, satisfaction, self-efficacy, fear avoidance behavior, lumbar dynamic motion, and trunk muscle strength and endurance.

Methods: Patients received 12 weeks of care with followup at 6 and 12 months. Both interventions had care teams who followed a care pathway designed to guide evidence based clinical decision making within the intervention groups. Patient profiles, based on a bio-psycho-social perspective, were created based on history, clinical examination findings, and patient preferences. Care teams met weekly to review patient profiles and make treatment recommendations based on patient presentation, the best available evidence, and their clinical experience. Integrative Care included acupuncture, chiropractic care, cognitive behavioral therapy, exercise, massage and medication in different combinations. Chiropractic care included spinal manipulation, selfcare advice, and home exercise.

Results: Two hundred patients participated. Mixed model longitudinal analysis showed that the integrative care group had statistically significant more pain reduction, perceived global improvement and satisfaction with care in both the short- (up to 12 weeks) and long-term (through 52 weeks; p≤ 0.05). The group differences were relatively small.

Conclusion: Integrative care for chronic low back pain resulted in slightly better short- and long-term outcomes than chiropractic care.

P186

P02.130. The relationship of client expectations of massage to changes in pain and affect: results from a practice-based research study

K Boulanger^{1*}, S Campo²

¹University of Iowa, San Jose, USA; ²Community and Behavioral Health, University of Iowa, Iowa City, USA

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Purpose: The purpose of this study was to examine whether client expectations of massage were related to changes in pain and affect after one massage therapy session.

Methods: Practice-based research was used to collect client data (N=321) before and after a massage provided by one of 24 licensed massage therapists in Iowa. The pre-massage survey included items regarding their chief complaint, the client expectations of massage scale, the numeric rating scale for pain, and the Positive and Negative Affect Schedule Expanded form (PANAS-X). The post-massage survey included the same measures of pain and affect as well as demographics. Paired t-tests were used to test for significant changes in pain and affect. A structural equation model with outcome, interpersonal, clinical, and educational expectations as latent exogenous variables and changes in serenity, negative and positive affect, and pain as endogenous variables was tested using Mplus.

Results: The mean age of the clients was 46 and 78% were female. Reasons for seeking massage were mainly musculoskeletal or for relaxation. There were significant improvements in negative affect, serenity, and pain pre-post massage, but not positive affect. Outcome expectations predicted changes in the serenity subscale of the PANAS-X and pain. Interpersonal expectations predicted changes in serenity. Clinical and educational expectations were not related to the outcomes used in this study.

Conclusion: Client expectations of massage, specifically related to the benefits and interpersonal nature of massage therapy, are important

constructs to measure to account for the changes in pain and affect. Although these findings are consistent with health behavior theories and empirical evidence, more studies with diverse client populations are needed.

P187

P02.131. Effects of meditation on perceived stress, mood, sleep, memory and blood pressure in cognitively impaired adults and their caregivers: a pilot trial

K Innes^{1*}, T Selfe¹, C Brown², K Rose³, A Thompson-Heisterman³
¹West Virginia University, Morgantown, USA; ²JMU, Harrisonburg, USA;
³University of Virginia, Charlottesville, USA
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Purpose: To investigate the effects of an 8-week meditation program on perceived stress, sleep, mood, sympathetic activation and memory function in adults with cognitive impairment and their caregivers.

Methods: Six community-dwelling adults with an established diagnosis of mild cognitive impairment or early stage Alzheimer's disease (4 women, 2 men), together with their live-in caregivers (3 women, 3 men), were enrolled in the study. Each participant dyad was trained in a basic Kundalini yoga meditation and asked to complete an 8-week meditation program (two 11-minute sessions per day) with the aid of an instruction sheet and meditation CD. Major outcomes included measures of stress (Perceived Stress Scale), sleep (General Sleep Disturbance Questionnaire), mood (Profile of Mood States), memory function (Memory Functioning Questionnaire), and sympathetic activation (blood pressure, heart rate). Participants were assessed at baseline and following completion of the 8-week program. Changes in specific measures over time (0-8 weeks) were analyzed using repeated measures ANOVA.

Results: Ten participants (5 dyads) completed the study, including 6 women and 4 men. Compliance was very good overall, with participants completing an average of 11.4±1.1 meditation sessions/week. Although caregivers showed significantly greater sleep disturbance and superior memory functioning at baseline than did the cognitively impaired participants, treatment effects did not vary by participant status; analyses were thus pooled across participants. Participants demonstrated improvement in all major outcome measures following the 8-week intervention, including perceived stress ($p < 0.001$), mood (overall, $p = 0.07$; depression, $p = 0.01$; anger, $p = 0.09$), sleep quality ($p < 0.04$), retrospective memory function ($p = 0.04$), and blood pressure (systolic, $p = 0.004$; diastolic, $p = 0.065$).

Conclusion: Findings of this exploratory trial suggest that an 8-week meditation program may offer an acceptable and effective intervention for reducing perceived stress and blood pressure, and improving certain domains of sleep, mood, and memory in adults with cognitive impairment and their caregivers.

P188

P02.132. Repeatability of pulse diagnosis in traditional Indian Ayurveda medicine

V Kurande^{1*}, R Waagepetersen², E Toft¹
¹Aalborg University, Aalborg, Denmark; ²Department of Mathematical Sciences, Aalborg University, Aalborg, Denmark
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Purpose: In Ayurveda, pulse diagnosis is the unique diagnostic method that determines the proportion of diagnostic variables (vata, pitta and kapha); however, this is only justifiable if pulse diagnosis yields a consistent result. Though pulse diagnosis has a long historical use, still there is lack of quantitative measures on e.g., reliability of the diagnostic method. Reliability means consistency of information. Consistent diagnosis leads to consistent treatment and is important for clinical practice, education and research. The objective of this study is to study methodology to test the test-retest reliability (repeatability) of pulse diagnosis. Another objective is to provide additional interpretation of Cohen's weighted kappa statistic for analysis of categorical pulse diagnosis variables.

Methods: A double-blinded, controlled, observational clinical trial was conducted at the Art of Living Center in Copenhagen, Denmark. The

same doctor, an expert in Ayurvedic pulse diagnosis, examined the pulse of 17 healthy subjects twice in a random order without seeing them. For statistical analysis, a distance measure on pulse diagnosis variables was developed. Cohen's weighted kappa statistic was used as a measure of intra-rater reliability. Permutation tests were used to test the hypothesis of homogeneous diagnosis.

Results: The hypothesis of homogeneous diagnosis was rejected on the 5% significance level (p -value of 0.02). According to the Landis and Koch scale, a weighted kappa value of 0.42 for pulse diagnosis corresponds to a 'moderate' level of agreement.

Conclusion: Results show that there was a reasonable level of consistency between two pulse diagnoses. Further studies using the developed methodology are required to quantify inter-subject and intra-subject agreement for greater understanding of reliability of pulse diagnosis. The developed statistical methodology appears to be appropriate for assessing reliability of pulse diagnosis and will be beneficial for further studies of pulse diagnosis, tongue diagnosis and body constitution (prakriti) assessment.

P189

P02.133. Randomized double blinded clinical trial of Ojeoksan products extracted through different methods for low back pain

S Lee^{*}, J Lee
Kyunghee University, Daejeon, Republic of Korea
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Purpose: The aim of the present study is to observe the efficacy of Ojeoksan and the difference in the results induced by extracting methods among mixtures of independently extracted herbs (MIE group), extract from combined decoction (ECD group) and placebo (Placebo group).

Methods: The study was approved by the Ethics Committee of Kyunghee Oriental Medical Center in Seoul, Korea. Sixty subjects (M: F=26:34) with low back pain were recruited in the study and randomly allocated to MIE group, ECD group and Placebo group. During 4 weeks, the MIE group took the Ojeoksan Mixture of Independently Extracted Herbs, the ECD group took the Ojeoksan Extract from combined Decoction, and the Placebo group took a placebo. The effect of Ojeoksan on pain was measured with VAS (Visual Analogue Scale) and SF-36 Bodily Pain scale. Disability was measured with RMDQ (Roland-Morris Disability Questionnaire). General health was measured with the SF-36 (36-Item Short-Form Quality of Life Questionnaire) and range of motion was measured with MMST (Modified-Modified Schober Test) at baseline, 2 weeks and 4 weeks. Efficacy was evaluated with the SPSS 12.0 paired t-test for intragroup testing and ANCOVA (Analysis of covariance) for intergroup testing.

Results: After 4 weeks, the MIE group showed significant improvement on VAS, RMDQ and MMST; the ECD group showed significant improvement on VAS, SF-36 Bodily Pain scale, RMDQ, SF-36 and MMST; the Placebo group showed significant improvement on VAS and MMST by paired t-test. In RMDQ, each group showed a significant difference, but other scales showed no difference analysed by ANCOVA.

Conclusion: According to the results, Ojeoksan is more efficacious on pain, disability and general health for low back pain patients than placebo. Ojeoksan extract from combined decoction is more efficacious than Ojeoksan mixture of independently extracted herbs and placebo on disability caused by lumbar back pain.

P190

P02.134. Effect of dispositional mindfulness on recovery from an acute laboratory stressor

S Corey^{1*}, P Moran¹, K Koslov², J Daubenmier¹, W Mendes², P Bacchetti³, M Acree¹, M Kemeny², V Goldman¹, M Hall¹, E Epel², F Hecht¹
¹Osher Center for Integrative Medicine, UCSF School of Medicine, San Francisco, USA; ²Department of Psychiatry, UCSF School of Medicine, San Francisco, USA; ³Department of Epidemiology and Biostatistics, UCSF School of Medicine, San Francisco, USA
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Purpose: The potential contribution of mindfulness to stress responses has not been fully described. The parasympathetic nervous system (PNS)

can modulate stress responses and facilitate recovery from stressful events. Low levels of heart rate variability (HRV), a measure of the PNS, and suppressed vagal responses after stress tasks have been associated with increased morbidity, whereas vagal rebound has been related to better psychological adjustment and health outcomes. We hypothesized that dispositional mindfulness may facilitate recovery from a stressful laboratory task as indexed by greater increases in HRV once the stressor is complete.

Methods: Pre-intervention measures of mindfulness (Five Facet Mindfulness Questionnaire; FFMQ), and acute stress (Trier Social Stress Test; TSST) were available for 5 of 6 waves of an obese adult population recruited for a diet and lifestyle study. From the TSST, the mean respiratory sinus arrhythmia (RSA), a key HRV measure, was calculated over 5 minutes at 3 time points: resting, acute stress (speech task), and recovery. HRV was calculated for the stress task (stress task-resting) and for recovery (recovery-stress task).

Results: Of 154 participants from 5 of 6 waves of enrollment, 139 had complete data and were eligible for this sub-study. Mindfulness measures were not significantly associated with the average change in HRV between baseline and the stress task. In univariate analysis, higher scores for the Observing subscale of the FFMQ were associated with higher vagal rebound after the stress task (coefficient=0.32, 95% CI: 0.03, 0.62; $p=0.029$). Adjustment for age and gender resulted in a reduced coefficient=0.23 (CI: -0.06, 0.51; $p=0.12$).

Conclusion: Mindfulness may contribute to recovery of the PNS from stressful events. Although adjustment for age and gender reduced the estimated association, it remained potentially clinically significant even though not statistically significant; further data may clarify this association and address whether changes in mindfulness with training enhance PNS recovery from stress.

P191

P02.135. Measuring mindfulness: which aspects of mindfulness change following a brief telehealth intervention for PTSD?

B Niles^{1*}, A Seligowski¹, A Silberbogen²

¹National Center for PTSD at VA Boston Healthcare System, Boston, USA; ²VA Boston Healthcare System and Boston University School of Medicine, Boston, USA

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Purpose: The goal of this pilot study was to examine changes in self-reported levels of mindfulness in the context of an 8-week mindfulness telehealth intervention for military veterans with combat-related posttraumatic stress disorder (PTSD).

Methods: Participants were 24 male combat veterans with PTSD aged 23 to 66 ($M=55.2$). Participants were randomized to either a mindfulness telehealth intervention or a PTSD psychoeducation telehealth condition. Both interventions consisted of two in-person and six telephone individual sessions. Measures were collected pre- and post-treatment and at 6-week follow-up and included the Mindful Attention Awareness Scale (MAAS), the White Bear Suppression Inventory (WBSI), and the Five Facets of Mindfulness Questionnaire (FFMQ).

Results: Significant condition by time interaction effects were found in the expected direction for the WBSI ($p=.04$) and FFMQ Describing facet ($p=.02$) and trends were detected for the MAAS ($p=.07$) and the FFMQ Observing facet ($p=.07$), indicating gains in skills for the mindfulness group over the course of the study. Results also suggest that a brief telehealth intervention introducing mindfulness skills may be effective in increasing levels of mindfulness as measured by these instruments.

Conclusion: This study represents one of the few published studies to use multiple measures of mindfulness to examine changes in mindfulness skills and the first known published study to examine changes in mindfulness following a brief telehealth intervention. Limitations include a small sample size and lack of intent-to-treat analyses. A short treatment that does not require group participation and that can be easily accessed may be especially appealing to more reluctant participants, such as those with PTSD or other psychological disorders. Identifying the aspects of mindfulness that are sensitive to change represents a first step in determining whether adoption of mindfulness skills may be an important mechanism of action.

P192

P02.136. A randomized controlled trial for the use of qigong in the treatment of pre and mild essential hypertension

J Park^{1*}, S Hong², T Park³, Y Liu¹, J Kim¹, T Kim¹, A Kim¹, S Jung¹, H Park¹, S Choi¹

¹Korea Institute of Oriental Medicine, Daejeon, Republic of Korea; ²College of Oriental Medicine, Dongeui University, Pusan, Republic of Korea; ³Qigong Treatment Center, Dongeui Medical Center, Pusan, Republic of Korea
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Purpose: Hypertension is a risk factor for cardiovascular disease, and the prevalence of hypertension tends to increase with age. Current treatments for hypertension have side effects and poor adherence. Qigong has been studied as an alternative therapy for hypertension; however, the types of qigong used in those studies were diverse, and there have not been many well-designed randomized controlled trials. Our objective is to evaluate the effects of qigong on blood pressure, health status and hormone levels for pre- or mild hypertension.

Methods: Forty subjects with pre- or mild hypertension were randomized to either the qigong exercise group or the non-treated group. Participants in the qigong group conducted qigong exercises 5 times per week for 8 weeks, and participants in the non-treated group maintained their current lifestyle, including diet and exercise. The use of antihypertensive medication was not permitted. The primary endpoint was a change in patient blood pressure. Secondary endpoints were patient health status (as measured by the MYMOP2 questionnaires) and changes in hormone levels.

Results: Of the 40 participants that were randomized, 35 completed the study. Systolic and diastolic blood pressures were significantly decreased after qigong treatment compare to baseline only in the qigong group ($p<.001$ in SBP, $p<.0001$ in DBP). In the non-treated group, there was no significant difference in blood pressure. Change of blood pressure between the qigong and the non-treated group was significant ($p<.01$ in SBP and DBP). The score of MYMOP2 showed a more significant decrease in the qigong group than the non-treated group ($p=.035$). Any differences in the hormones renin, angiotensin, cortisol, or norepinephrine were not significant between the two groups.

Conclusion: Qigong appears safe and has a positive effect on blood pressure and health status in pre and mild hypertension patients. Further long-term studies with a larger number of subjects are warranted.

P193

P02.137. Mindfulness-based stretching and deep breathing exercise reduces symptoms of posttraumatic stress disorder

S Kim^{1*}, M Burge²

¹Dept. of Health, Exercise & Sports Sciences, University of New Mexico, Santa Fe, USA; ²Internal Medicine, School of Medicine, University of New Mexico, Albuquerque, USA

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Purpose: Nurses are known to experience high levels of work-related stress. The purpose of this study is to explore the relationships between changes in biomarkers (ACTH, DHEAS and cortisol) and posttraumatic stress disorder (PTSD) symptom severity resulting from nurses with high levels of stress participating in an 8-week program of mindfulness-based stretching and breathing exercise.

Methods: Thirty-three nurses recruited from the University of New Mexico hospital underwent an 8-week exercise intervention for this randomized, crossover clinical trial. Participants were screened with the PTSD Checklist Civilian version (PCL-C). Participants were randomly assigned to either the wait-list control group or the exercise group. Cortisol, DHEAS, ACTH and PTSD symptom severity were measured at weeks 0, 4, 8, 12, and 16.

Results: The study is currently underway. The preliminary data show that there is a negative relationship between changes in cortisol concentrations and PTSD symptom severity, as well as a positive relationship between changes in cortisol and ACTH levels, and between the ratio of cortisol/DHEA and symptom severity.

Conclusion: The preliminary results provide a better understanding of the relationship between changes in PTSD symptom severity and

biomarker levels as a result of the mindfulness-based intervention. This contribution is likely to be significant because it will advance knowledge about the physiological regulation anomalies of the autonomic nervous system associated with PTSD and increase our understanding of how mindfulness-based exercise affects PTSD symptomatology.

P194

P02.138. Acupuncture and meditation for military veterans: patient satisfaction and self reported symptom reduction

A Hull¹, M Reinhard, K McCoy, J Akhter, A Duncan, K Soltes, C Jecmen, K Berndtson

Veterans Affairs, Washington D.C., USA

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Purpose: Post-deployment health care for military veterans presents challenges to existing treatment models. Currently, the Department of Veterans Affairs (VA) sees numerous veterans with chronic, difficult to treat, and medically unexplained symptoms including, but not limited to, fatigue, chronic pain, headaches, gastrointestinal distress, concentration difficulties, disturbed sleep, anxiety, depression, and posttraumatic stress. The VA is increasingly investigating complementary medicine and integrative health care as resources to enhance its provision of patient-centered, empirically-supported care. Since 2007, the VA's War Related Illness and Injury Study Center (WRIISC) in Washington, D.C. has offered outpatient acupuncture and yoga nidra[®] (meditation) clinics as a complement to standard care for veterans of any combat era.

Methods: Anonymous self-report satisfaction questionnaires were administered periodically throughout the year to a random subset of veterans in the yoga nidra[®] (n=184) and acupuncture (n=130) WRIISC-DC clinics in 2010.

Results: The acupuncture clinic provided a total of 649 full body and 890 group encounters in 2010. Survey respondents reported complete or partial improvement in symptoms (96%), good to excellent quality of care (99%), and 99% would recommend acupuncture to another veteran. The yoga nidra[®] clinic provided a total of 1,318 group encounters in 2010. Survey respondents reported complete or partial improvement in symptoms (95%), very good to excellent quality of care (96%), and 100% would recommend yoga nidra[®] to another veteran. Further analyses show self-reported improvement in specific symptom areas and trends in data based on combat era.

Conclusion: Satisfaction data suggests that the vast majority of sampled veterans who received acupuncture and yoga nidra[®] were satisfied with care quality, noticed symptom improvement, and would recommend acupuncture and yoga nidra[®] to other veterans. These data support further programmatic research to examine the effectiveness of these modalities and how they may best integrate with existing post-deployment health care.

P195

P02.139. A comparative study of Chinese medicine and hormone therapy in the treatment of menopausal symptoms in perimenopausal and postmenopausal women

H Azizi^{1*}, Y Liu², L Du², C Wang³, H Esmaily¹, H Bahrami-Taghanaki¹, H Azizi⁴, M Soleimannejad⁵, X Xue²

¹Mashhad University of Medical Sciences, Mashhad, Iran; ²Beijing University of Chinese Medicine, Beijing, China; ³Peking University People Hospital, Beijing, China; ⁴Islamic Azad University of Mashhad, Mashhad, Iran; ⁵Department of Cardiology, Imam Reza Hospital, Amol, Iran

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Purpose: To compare the therapeutic effect of a Chinese herbal medicine (CHM) named Kun Bao Wan, acupuncture and hormone therapy (HT) on menopause related symptoms of peri- and postmenopausal women.

Methods: Fifty seven Chinese women completed 2 months of treatment with either CHM (5 gr BID, n=22), acupuncture in conjunction with CHM (CHM 5 gr BID + 10 sessions of acupuncture, n=20) or hormone therapy (n=15). Clinical symptoms were assessed by Kupperman index. Levels of FSH, estradiol, and symptom intensity and count were measured before and after the treatment.

Results: CHM, acupuncture+CHM and hormone therapy significantly decreased Kupperman score (p<0.001 in each group) and symptom count (p<0.05). The mean difference in Kupperman score between baseline and 2 months among the 3 groups was significantly varied (p=0.02) with better results for acupuncture+CHM compared with CHM alone. Acupuncture+CHM as well as hormone therapy significantly reduced the level of FSH (p<0.05), but CHM alone didn't cause any significant decrease in the level of FSH (p>0.05). The mean difference in the level of FSH between baseline and 2 months among the 3 groups was significantly different (p=0.02) with significantly better results for HT compared to CHM. The 3 treatments did not make any significant increase in the level of E2 (p>0.05). In postmenopausal women, the effect of HT and acupuncture+CHM were significantly better than CHM alone (p<0.05) whilst in perimenopausal women they were the same.

Conclusion: The combination of Chinese herbal medicine and acupuncture proved as effective as hormone therapy in the treatment of menopausal symptoms, and it achieved better outcomes than herbal medicine alone, especially in postmenopausal women.

P196

P02.140. Comparing the effect of ozonated olive oil to clotrimazole cream in the treatment of vulvovaginal candidiasis

F Tara, Z Zand-Kargar¹, O Rajabi, F Berenji, H Azizi

Mashhad University of Medical Sciences, Mashhad, Iran

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Purpose: Vulvovaginal candidiasis is the most common infection of the vulvovagina which manifests with itching, burning sensation and leucorrhea. Conventional treatments are azoles to which tolerance has been reported, especially in immunosuppressed patients. New studies suggest antifungal effects of ozone, the allotropic form of oxygen. This study compared the effects of ozonated olive oil and clotrimazole in the treatment of vulvovaginal candidiasis.

Methods: One hundred patients with confirmed vulvovaginal candidiasis were randomly classified to two groups and treated by ozonated olive oil or clotrimazole for 7 days. The study outcomes were changes in itching, burning, leucorrhea and culture before and after the treatment, which were evaluated by an interview and paraclinical examination. Statistical analysis was done by SPSS software, version 17. The significance level stood at 0.05.

Results: Ozone and clotrimazole both reduced the symptoms significantly and led to negative specimen cultures (p<0.05). There was no significant difference between the two groups in their effect on itching, leucorrhea and culture (p>0.05). However, ozone decreased burning sensation significantly better than clotrimazole (p<0.05).

Conclusion: Considering the potential efficacy of ozonated olive oil for the improvement of clinical and paraclinical aspects of patients with vulvovaginal candidiasis, it could be suggested as an effective topical treatment for these patients.

P197

P02.141. Effects of a low omega-6 and high omega-3 diet on inflammatory gene expression in patients with chronic daily headaches

S Smith^{1*}, C Ramsden², S Gaylord¹, K Faurot¹, C Lynch¹, J Mann¹

¹University of North Carolina at Chapel Hill Medical School, Chapel Hill, USA;

²NIH Section on Nutritional Neurosciences, Bethesda, USA

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Purpose: Approximately 10 million U.S. adults suffer from chronic daily headache (CDH), resulting in major disability and impaired quality of life. Recent evidence suggests that the cause of pain may be related to inflammation. Dietary interventions that reduce the inflammatory response could help eliminate the development of pain in chronic pain syndromes such as CDH. The goal of this pilot study was to assess whether dietary modifications, designed to decrease dietary omega-6 fatty acids and increase omega-3 fatty acids, influence the expression of genes that are involved in inflammation in patients with CDH.

Methods: Patients with CDH were placed on a low omega-6 diet or a low omega-6 plus high omega-3 diet for 12-weeks. Peripheral blood mononuclear cells were isolated from whole blood before and after the 12-week intervention. Real-time quantitative PCR was utilized to measure

changes in gene expression. The expression of inflammatory cytokines and chemokines, inflammatory enzymes and genes involved in the NF- κ B signaling pathway, were analyzed.

Results: Both the low omega-6 and the low omega-6 plus high omega-3 diets, after 12-weeks, significantly decreased the expression of pro-inflammatory cytokines and chemokines. Additionally, both diets decreased the expression of pro-inflammatory enzymes and genes that are involved in the NF- κ B signaling pathway.

Conclusion: These data reveal that decreasing omega-6 fatty acids may exert clinical effects via the capacity to regulate the expression of pro-inflammatory mediators. Since the study is still on-going, and hence still blinded, we do not know which diet the patients were receiving, just that both diets decrease pro-inflammatory gene expression. Following completion of the study, we will be able to compare the effects of the low omega-6 vs. low omega-6 plus high omega-3 diets on inflammatory gene expression to determine which diet, if either, was more effective in reducing expression.

P198

P02.142. Efficacy of energy therapy in relieving anxiety and pain in patients undergoing lumbar spine fusion surgery

N Cotter¹, W Dowling², C Gatto³, A Gallagher², J Smith³, R Evans⁴, R Musanti³, R Bustami⁵

¹Division of Integrative Medicine Atlantic Health, Montclair, USA;

²Department of Orthopedics, Morristown Medical Center, Morristown, USA;

³Department of Nursing, Morristown Medical Center, Morristown, USA;

⁴Division of Integrative Medicine, Morristown Medical Center, Morristown, USA; ⁵Department of Research, Atlantic Health, Morristown, USA

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Purpose: Energy therapies in the hospital setting are met with various levels of acceptance due to questions of efficacy and evidence base. This prospective randomized controlled study quantifies the impact of one form of energy therapy on post-operative anxiety and pain in the lumbar spine surgery population.

Methods: After meeting inclusion and exclusion criteria, patients that consented to participate in the study were randomized into standard post operative care (Control), standard post operative care plus a Healing Touch therapy intervention (Treatment), and standard post operative care plus an attention-control intervention (Sham). Patients were asked to complete the Visual Analog Anxiety Scale, Visual Analog Pain Scale, and Hospital Anxiety Depression Scale (HADS) both prior to and after receiving four consecutive sessions of Healing Touch intervention, attention-controlled intervention, or the standard of care. Baseline data were compared among the three groups using the chi-square test. The Sham and Treatment group were compared in terms of average change (pre vs. post Healing Touch therapy intervention) in HADS, anxiety and pain scores using the t-test.

Results: A total of 75 patients were included: 25 in the Control group (33%), 24 (32%) and 26 (35%) in the Sham and Treatment groups, respectively. The three groups were similar in terms of baseline factors ($p > 0.05$). Results from comparing the Sham and Treatment group in terms of the change in anxiety and pain scores showed marginally statistically significant differences in anxiety scores in session 2, statistically significant differences in anxiety in session 3, and statistically significant differences in pain scores measured in sessions 2, 3 and 4. No differences were observed between the two groups in terms of the change in HADS ($p > 0.05$).

Conclusion: Healing Touch demonstrated a statistically significant reduction in post-operative pain and is a viable adjunct in the care of patients undergoing lumbar spine surgery.

P199

P02.143. Life, liberty, and the pursuit of mindfulness in higher education settings

L Teitelbaum^{*}, J Ouellette

SUNY Cortland, Fayetteville, USA

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Purpose: The pursuit of wellness can be a challenge for many college students who are under constant pressures to succeed academically as

well as socially. Low levels of psychological wellness can compromise students' concentration and academic performance and, in extreme cases, can lead them to contemplate suicide, making wellness initiatives a critical consideration. Mindfulness meditation interventions used in higher education settings have been found to reduce stress, anxiety, and depression. This pilot study was undertaken to assess mindfulness and other key factors that could be targeted to improve psychological wellness on campus.

Methods: Undergraduate students ($n=49$) enrolled in an introductory psychology class attending a State University in NY completed measures of Mindfulness (MAAS; Brown & Ryan, 2003); Perceived Stress (Cohen & Williamson, 1988); Self-Esteem (Rosenberg; 1989); Psychological Symptoms (SA-45; Strategic Advantage, 1998); and Quality of Sleep (modified Pittsburgh Sleep Inventory). Informed consent for each student was obtained.

Results: Pearson correlation analyses revealed that psychological symptoms were negatively correlated with mindfulness ($r=-.33$; $p < .05$) and self-esteem ($r=-.41$; $p < .01$), and positively correlated with perceived stress ($r=.29$; $p < .05$). In addition, poor sleep patterns significantly contributed to higher levels of perceived stress ($r=-.54$, $p < .01$).

Conclusion: This pilot study revealed that (a) increased mindfulness; (b) lower levels of stress; and (c) higher self-esteem were all related to psychological wellbeing. These findings add to a burgeoning body of literature that suggests higher levels of mindfulness are related to greater emotional wellbeing. Mindfulness can be enhanced through training and practice and has been found to decrease stress and improve sleep quality. Thus, these results support the implementation of mindfulness-based meditation interventions that can decrease stress, as well as increase mindfulness, self-esteem, quality of sleep and psychological wellbeing in this at risk population.

P200

P02.144. Evaluation of health outcomes for members of a managed care organization referred for acupuncture

E Sommers¹, J Kailey²

¹Pathways to Wellness, Boston, USA; ²Boston University School of Public Health, Boston, USA

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Purpose: A community health center and clinic specializing in acupuncture partnered with a large managed care organization to determine whether acupuncture treatment might influence clinical outcomes and costs of care. Members of the managed care organization were referred through their physicians to receive up to 20 treatments for any of the following conditions: pain, headache, menstrual or menopausal symptoms, and carpal tunnel syndrome. Although the project is ongoing, results of the first 4 years of the project will be presented.

Methods: Data for this observational assessment were collected on patient demographics, health history, clinical outcomes, and associated costs of care. All patients received individualized acupuncture treatments provided by licensed acupuncturists according to standards of care.

Results: Data were collected on 307 individuals who were referred for acupuncture treatment. Eighty percent were female, 45% were Hispanic/Latino, 10% were African-American, and the mean age was 38 years. Two hundred sixty-six individuals received one or more acupuncture treatments. Of these, 71% were referred for pain and 18% were referred for headache. Fewer members were referred for menstrual (13), menopausal (6), or carpal tunnel symptoms (7). Mean reduction in pain based on a 10-point Likert scale was -2.3 ($p < 0.0001$) and mean reduction in days/month affected by pain was 12.8 ($p < 0.0001$). Duration of painful episodes decreased ($p=0.0003$) and quality of life improved as indicated by the SF1 ($p < 0.0001$). Headache intensity levels were significantly reduced ($p < 0.0002$) as was headache frequency ($p=0.03$). Preliminary cost estimates suggest a decrease in other healthcare costs (\$40/member/month) and an increased likelihood that individuals who received acupuncture will continue their membership in the managed care plan.

Conclusion: Preliminary results indicate that offering acupuncture in a community health setting is acceptable and desirable by patients and physicians. Favorable clinical and cost-of-care outcomes were observed in this ongoing project.

P201

P02.145. Relationship of treatment beliefs to subject blinding: the case of a placebo-controlled RCT in Irritable Bowel Syndrome

M Quilty^{1*}, L Conboy²

¹Harvard School of Public Health, Boston, USA; ²New England School of Acupuncture, Newton, USA

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Purpose: Subject blinding is critical to minimizing bias in randomized controlled trials (RCTs). Irritable Bowel Syndrome (IBS) is a complex and often chronic condition with physical and psychological components. For many patients, psychological issues such as anxiety and stress can exacerbate the existing condition. Given the mind-body relationship in this illness, we explored if an individual's belief in treatment and a belief in being randomized to an active treatment group could impact their self-reported health outcomes.

Methods: In the parent study, data were gathered in a three-week randomized controlled trial (n=262) testing the therapeutic effect of an Augmented (supportive) patient-practitioner relationship versus a Limited patient-practitioner relationship versus wait list in reducing the symptoms of IBS. During the first three weeks of the trial, all treatments were given in the context of biweekly sham acupuncture treatments to allow the effects of patient-practitioner relationship to be isolated. The second three weeks of the trial began with a blind rerandomization of subjects in the two treatment arms to either continue sham acupuncture or begin real (insertive) acupuncture. Symptom data, expectations, and beliefs concerning blinding were collected at baseline, 3, and 6 weeks. Expectations of treatment group assignment (insertive or sham) and symptom improvement were collected after the first treatment and before weeks 3 and 6 data collection.

Results: For all six of our expectancy and belief variables, the Augmented and insertive treatment groups had more positive reports compared to the Limited and sham acupuncture group, respectively; this trend continued in reported symptom relief as well.

Conclusion: The risk of subject unblinding may be related to qualities of the patient-practitioner relationship and treatment experience; a better understanding of blinding as a data safeguard is necessary.

P202

P02.146. Mindfulness based stress reduction in adults with mild cognitive impairment: a pilot study using fMRI

R Wells^{1*}, G Yeh², C Kerr², J Wolkin⁴, R Davis², Y Tan⁵, R Wall⁶, J Walsh¹, T Kaptchuk², D Press², R Phillips², J Kong⁵

¹Brigham and Women's Hospital/Harvard Medical School, Brookline, USA;

²Beth Israel Deaconess Medical Center/Harvard Medical School, Boston, USA;

³Brown University, Providence, USA; ⁴NYU Langone Medical Center, New York City, USA; ⁵Massachusetts General Hospital/Harvard Medical School, Boston, USA; ⁶Commonwealth Care Alliance, Boston, USA

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Purpose: Fifty percent of adults with mild cognitive impairment (MCI) develop Alzheimer's disease (AD) within 5 years. Preliminary data suggest that mindfulness-based stress reduction (MBSR) increases gray matter density of the hippocampus, which atrophies in AD. We studied the safety, feasibility, and impact of MBSR on brain function, memory, and quality of life (QOL) among adults with MCI.

Methods: We randomized 14 MCI patients (2:1) to 8 weeks of standardized MBSR (n=9) or wait-list control (n=5). Brain activity with fMRI resting state, neuropsychological and QOL measures were assessed at baseline and 8 weeks; the latter two were also assessed at 6 months.

Results: The mean (SD) age was 74 (7); baseline Mini-Mental State Exam score was 27.2 (1.5); class attendance was 88%; and home practice was 26.1 minutes/day (19.6). No adverse events were reported. At 8 weeks, episodic memory was not improved in adults randomized to MBSR compared to the control (median change [Q1, Q3] from baseline, Rey Auditory Verbal Learning Test total recall -2.5 [-5.5, 0] vs. +1 [-1, 4], p=.24). Non-significant trends that suggested improvement with MBSR were detected for change from baseline for MBSR vs. control for AD Assessment Scale-cognitive subscale (-0.5 [-4, 0.5] vs. 0 [-1, 2], p=0.46); Resilience Scale (+7 [2, 21] vs. -2 [-9, 0], p=0.18); QOL-

AD (+2 [-1, 3] vs. 0 [-1, 0], p=0.25); Perceived Stress Scale (-1 [-6,0] vs. 0 [-4, 2], p=.46). Compared with the control group, the regional homogeneity of the left hippocampus and putamen/inferior frontal gyrus were significantly enhanced in the MBSR group. Data for 6 months are not yet available.

Conclusion: MBSR was associated with changes in spontaneous brain activity in the hippocampus and putamen/inferior frontal gyrus in adults with MCI. A randomized controlled trial in MCI evaluating effects of MBSR on neuropsychological, behavioral, and neuroimaging measures is feasible and safe.

P203

P02.147. Emotions matter: sustained reductions in chronic non-structural pain after a brief, manualized emotional processing program

H Schubiner^{1*}, A Burger², M Lumley³

¹Providence Hospital, Wayne State University, Southfield, USA; ²Cedarville University, Cedarville, USA; ³Wayne State University, Detroit, USA

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Purpose: Current treatments for chronic pain have limited effectiveness. Although major life stressors are elevated in those with chronic pain, emotional awareness, expression, and processing have not been utilized. We evaluated treatment outcomes and predictors of outcomes of a novel emotion-oriented intervention for chronic pain.

Methods: An initial individual session was conducted by one of the authors (HS) to assess medical conditions and review life stressors and symptom progression in order to identify linkages between stressors and symptoms. The treatment program consisted of 4 weekly small group 2-hour sessions. Components included readings, writing about emotions, mindfulness and emotional awareness exercises (on CD), and other techniques to help people identify and process emotions related to stress and pain. Homework (e.g., writing, mindfulness exercises) was assigned daily. Patients were assessed at baseline by a research team and at post-treatment and 6-month follow-up. Included instruments were the Brief Pain Inventory (BPI) and the McGill Pain Questionnaire (MPQ).

Results: Fifty-nine adults with chronic musculoskeletal pain, primarily headaches, neck, back, and widespread pain (fibromyalgia), were included. Individuals with significant structural disease processes were excluded. Baseline demographics and characteristics were 76% women (mean age 51 years). 91% Caucasian, mean duration of pain 8.8 years, and baseline pain level 5.03 (0-10). Percent improvement was calculated for pain (% change from baseline BPI score). At post-treatment 64% had $\geq 30\%$ improvement and 43% had $\geq 50\%$ improvement; at 6-months 67% had $\geq 30\%$ improvement and 53% had $\geq 50\%$ improvement. Mean BPI scores were 5.38, 3.04, and 3.03 (p<0.001, d=-1.27), respectively. The MPQ showed similar reductions.

Conclusion: This high rate of improvement may surpass that of cognitive-behavioral interventions for chronic pain. An approach focusing on confronting emotional contributions to pain appears beneficial. Studies with control groups are underway to determine if targeting unresolved stress and emotions offers an advance in the treatment of chronic non-structural pain.

P204

P02.148. Assessing interactions between herbal medicines and drugs: updated review

L Girard¹, C Neczyk¹, S Jassar¹, A Filipelli², P Gardiner³, H Boon⁴, S Vohra^{1*}

¹University of Alberta, Edmonton, Canada; ²Boston University School of Public Health, Boston, USA; ³Department of Family Medicine, Boston Medical Center, Boston, USA; ⁴Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Canada

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Purpose: Natural health products (NHPs) are commonly used, both alone and in conjunction with prescription drugs. This concurrent use has been shown to be a concern due to the potential for harmful interactions. A tool to increase awareness of potential interactions between commonly used NHPs and pharmaceuticals was released in 2009. Given the rapid pace of research, it is likely that new interactions have been published

since then. The purpose of this project is to review the recent primary and secondary literature for information to update the 2009 tool.

Methods: Three databases (Medline, Embase, and International Pharmaceutical Academy) were searched for studies conducted from 2007-2010 pertaining to NHP-drug interactions. In addition, National Medicines Comprehensive Database (NMCD) was searched in July 2011. As a cross check tool to verify that no interaction was overlooked, "Herb, nutrient, and drug interactions: clinical implications and therapeutic strategies" (Stargrove et al, 2008) was reviewed to find literature pertaining to NHP-drug interactions. Potentially relevant studies were identified from the primary and secondary literature, and if an interaction was found, the interaction was verified by a second reviewer.

Results: To date, 1997 studies have been identified from the database search (1910), textbook and NMCD (87) and screened for interactions. Examination of these studies for interactions is ongoing.

Conclusion: This update is intended to increase the knowledge about NHP-drug interactions as well as to fill in any gaps that may have been overlooked in construction of the original tool. The NHP-drug interaction tool is intended to act as a quick guide for users of NHPs and pharmaceuticals in order to avoid adverse reactions. Future steps in this project will include further updates to the tool as well as creating specific grids for different clinical specialties.

P205

P02.149. Integrative integrated migraine care: preliminary evaluation

R Lauche^{*}, H Cramer, J Vasmer, A Paul, G Dobos, T Rampp

University of Duisburg, Essen, Germany

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Purpose: Chronic migraine is one of the most common neurological disorders. Different complementary therapies are available for the treatment of these patients. The Department of Integrative Medicine at the University of Duisburg-Essen offers an integrative integrated migraine care model (IIMC) which is reimbursed by one of the biggest German statutory health insurance companies. Treatment options include naturopathic treatments, Traditional Chinese Medicine including acupuncture and herbs, Mind/Body interventions, and self-help strategies in an outpatient or inpatient setting as well as in a day clinic. For a preliminary evaluation of the effectiveness of the IIMC, we investigated the clinical outcomes of 28 patients who had completed the treatment by December 2010.

Methods: All patients who had completed InVers before December 2010 were asked to fill in a questionnaire about their migraine before, directly after (post1), and 6 months after IIMC (post2). Further data were gained from medical records. Outcomes included frequency and intensity of migraine attacks, medication use and a 5-point Likert global improvement scale.

Results: Twenty-eight patients returned completed questionnaires. Their mean age was 44.9±10.1 years. Patients suffered from 11.5±7.3 attacks a month before treatment; they were reduced to 5.8±5.0 (post1) and 5.6±4.0 (post2) (p=0.002). Migraine pain intensity dropped from 7.5±1.2 to 5.7±2.2 (post1, post2) (p<0.001). Days under medication were reduced more than 50% from 9.8±6.0 to 4.3±4.2 (post1) and 4.6±3.9 (post2) (p<0.001). Global improvement scale indicated that 17 out of 27 patients rated their health at least somewhat better than before IIMC.

Conclusion: The integrative integrated migraine care model seems to be effective in reducing frequency and intensity of migraines and helps reducing migraine medication use. After this first evaluation, a larger prospective observational study is currently being conducted. This study also focuses on quality of life and changes in self-efficacy.

P206

P02.150. Predictors of preference for treatment assignment in a randomized controlled trial of two doses of yoga for chronic low back pain

H Tran^{1*}, R Saper¹, A Boah¹, J Weinberg², K Sherman³

¹Boston Medical Center Department of Family Medicine, Boston, USA;

²Boston University School of Public Health Department of Biostatistics, Boston, USA; ³Group Health Research Institute, Seattle, USA

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Purpose: Although patient preference for CAM therapies has been shown to impact outcomes, little is known about predictors of preference. This study aims to characterize predictors of patient preference for treatment assignment in a RCT comparing two doses of yoga for chronic low back pain (CLBP).

Methods: In an RCT, 95 patients with CLBP were assigned to once or twice weekly yoga classes. Before randomization, we collected data on sociodemographics, low back pain intensity, Roland Morris Disability Questionnaire (RMDQ), SF-36, preference for once or twice weekly yoga, and expectations regarding the helpfulness of these treatments. Bivariate analyses using chi-square and student's t-test were used to determine factors associated with preference for twice weekly yoga. We used logistic regression to determine independent predictors of patient preference. Variables considered for a multivariable model had p values less than 0.3 on bivariate analysis.

Results: Thirty patients (31.6%) preferred weekly yoga, 63 patients (66.3%) preferred twice weekly yoga, and two patients had no preference. Compared to patients preferring weekly yoga classes, patients who preferred twice weekly yoga had higher RMDQ scores [15.6 (SD 4.9) vs. 12.4 (SD 5.7), p=0.007] and lower SF-36 physical component scores [35.9 (SD 7.2) vs. 40.8 (SD 7.5), p=0.003]. Patients who preferred twice weekly yoga had greater expectation of helpfulness [9.0 (SD 1.5)] than patients who preferred weekly yoga [7.0 (SD 3.2), p=0.003]. SF-36 physical component score (OR 0.90, 95% CI 0.84, 0.97) and expectation for weekly classes (OR 0.68, 95% CI 0.50, 0.91) and twice weekly classes (OR 2.0, 95% CI 1.38, 2.90) were independently associated with patient preference for twice weekly yoga after adjusting for education, RMDQ, low back pain intensity, and SF-36 mental component score.

Conclusion: Decreased physical health is associated with preference for more frequent yoga classes, and patients who prefer more frequent classes have higher expectations for these treatments.

P207

P02.151. Effect of Ayurvedic treatment in diabetic sensory polyneuropathy: a non-randomized, observational clinical study

P Kalapi^{1*}, M Patel¹, C Mehta¹, C Kessler², S Gupta¹

¹J.S.Ayurved College, Nadiad, Gujarat, India; ²Charité Medical University, Berlin, Germany

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Purpose: Diabetic sensory neuropathy is a common complication affecting approximately 30% of patients with diabetes mellitus. Conventional drugs are used for symptomatic relief only and, moreover, have certain side effects. In Ayurveda, various treatment modalities for diabetic sensory polyneuropathy have been described in detail and are being used successfully in routine Ayurvedic care.

Methods: Thirty-three patients with clinical features of diabetic sensory polyneuropathy confirmed both clinically and with a neuropathy analyzer machine were included. All patients received Ayurvedic treatment as outpatients or inpatients (depending on the severity) for one month. Treatment included oral administration of Phyllanthus niruri powder 3g twice a day and Abutilon indicum root decoction 40 ml twice a day. Patients also received Ayurvedic dietary advice (in particular avoidance of spicy, sour, deep fried, hot and refrigerated food items). Patients were assessed for changes in clinical features based on subjective scoring at admission and at the time of completion of the treatment. The neuropathy analyzer machine was used for recording sensory perception of vibration and cold and heat sensations in the feet. Data were analyzed statistically by using the student's t-test.

Results: All 33 patients completed Ayurvedic treatment. The results showed significant (p<0.001) relief in numbness (70.2±0.7%), tingling sensations (72±0.5%), burning sensations (77.6±0.8%) and pain in lower limbs (64±0.5%). There were also significant (p<0.001) improvements in right and left foot sensory perception of vibration (31.2±8.7% and 32.6±8.7%, respectively), cold sensation (19.7±5.1% and 23.1±6.4%) and heat sensation (6.9±3.9% and 5.2±3.9%).

Conclusion: The results of this pilot study point towards a possibly effective and safe Ayurvedic treatment approach for diabetic sensory neuropathy. Larger trials are warranted to support these findings.

P208

P02.152. Is electro-acupuncture beneficial for overall quality of life improvement of undergraduates in depressive states? A pragmatic controlled trial

W Zhang^{*}, T Guo, H Zhang, W Ma
Beijing University of Traditional Chinese Medicine, Beijing, China
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Purpose: To assess the efficacy of electro-acupuncture on quality of life improvement of undergraduates in depressive states.

Methods: Fifty undergraduates in depressive states (CES-D score ≥ 16 , HAMD score ≥ 7 , < 17) were assigned to 4 groups based on intervention preference in a pragmatic trial. Electro-acupuncture, cognitive behavior therapy (CBT), and a combined intervention of electro-acupuncture and CBT were implemented as interventions. A rejected intervention group in which no intervention was practiced was considered as a control condition. The electro-acupuncture implemented traditional Chinese medicine (TCM)-style acupuncture. The CBT is practiced as 8 sessions of group counseling (1 time/week). Each 8-week course of electro-acupuncture consisted of 16 sessions (2 times/week) in the clinic of Beijing University of Traditional Chinese Medicine. The combined intervention consisted of 16 sessions of electro-acupuncture (2 times/week) and 8 sessions of CBT (1 time/week) in an 8-week course. WHOQOL-BREF was evaluated at baseline and 8 weeks after interventions.

Results: Two subjects terminated interventions before the completion of the 8-week intervention. Intention to treat and per protocol analyses were applied but there were no differences shown. After 8 weeks, the rejected intervention group and CBT group showed no significant difference ($p > 0.05$), and although the score of electro-acupuncture intervention and combined intervention participants in overall QOL were significantly improved ($p < 0.05$), no evidence of a differential improvement of electro-acupuncture intervention over combined intervention was found ($p > 0.05$).

Conclusion: Electro-acupuncture showed a beneficial advantage in overall QOL improvement of undergraduates in depression states.

P209

P02.153. Effectiveness of biofield therapy for patients with sickle cell disease in Africa

M Mikobi¹, K Suzuki^{2*}

¹The Medical Center for Sickle Cell Anemia, Kinshasa, Congo; ²MOA Health Science Foundation, Tokyo, Japan

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Purpose: Patients with sickle cell disease (SCD) in Africa have a high risk of premature death, mainly due to insufficient medical services. Some SCD patients in the first author's clinic experienced symptomatic improvement after administration of biofield therapy. The objective of this study was to evaluate the effectiveness of biofield therapy for SCD patients over a 4-year period.

Methods: We adopted Okada Purifying Therapy (OPT) as an intervention in this study. We formed a group of 20 SCD patients aged 3-36 years (OPT group), and a control group ($n=20$) of a matching age/gender profile from regular patients at the clinic. OPT was administered by certified practitioners approved by MOA International Corporation (<http://www.moainternational.or.jp/>) every weekday for one year. We examined participating patients' blood tests at the beginning and end of the 1-year period and ran a follow-up survey after 4 years.

Results: During the 1-year study period, the OPT group showed a significant improvement in the blood data: hemoglobin [median value from 6.3g/dl (25-75 percentile: 6.1-7.2) to 10.1g/dl (9.4-11.1), $p < 0.001$], total bilirubin [from 9.3mg/dl (6.5-9.4) to 3.2mg/dl (2.2-4.1), $p < 0.001$], and creatinine [from 1.1mg/dl (0.9-1.7) to 0.7mg/dl (0.6-0.8), $p < 0.001$]. The control group had less improvement in hemoglobin [from 6.3g/dl (6.0-7.0) to 7.1g/dl (6.4-7.9), $p=0.015$] and total bilirubin [from 9.1mg/dl (6.8-9.3) to 6.8mg/dl (6.2-7.6), $p=0.004$] than the OPT group ($p < 0.001$); creatinine increased from 0.9mg/dl (0.8-1.1) to 1.2mg/dl (1.0-1.5) ($p < 0.001$). Three patients in the OPT group and all of the control group needed hospitalization once or more ($p < 0.001$). After 4 years, 17 in the OPT group and 13 in the control group survived ($p=0.27$).

Conclusion: Considering the insufficient medical services, biofield therapy has possibly contributed to the positive outcomes, although the care given by the practitioners may also have had some influences. In conclusion, biofield therapy is considered safe and effective for SCD patients with various symptoms.

P210

P02.154. Stress management and resilience training among Department of Medicine faculty: a pilot randomized clinical trial

A Sood^{*}, K Prasad, V Sharma, D Schroeder, P Varkey
Mayo Clinic Rochester, Rochester, USA

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Purpose: Physician distress is common and related to numerous factors including loss of control over the practice environment, workload, specialty choice, experience with suffering, interpersonal relationships, debt, poor self-care, maladaptive coping strategies and stressful life events such as divorce. The current study was designed to assess the effect of a Stress Management and Resiliency Training (SMART) program, for increasing resiliency and quality of life, and decreasing stress and anxiety among Department of Medicine (DOM) Physicians at Mayo Clinic Rochester.

Methods: Forty DOM physicians at Mayo Clinic Rochester were randomized in a single-blind wait-list controlled clinical trial to either the SMART intervention or a control group for twelve weeks. The intervention involved a single 90 minute one-on-one training in the SMART program. Primary outcome measures assessed at baseline and week 12 included the Connor Davidson Resilience Scale (CDRS), Perceived Stress Scale (PSS), Smith Anxiety Scale (SAS), and Linear Analog Self Assessment Scale (LASA).

Results: Thirty-two physicians completed the study. A statistically significant improvement in resilience, perceived stress, anxiety and overall quality of life at 12-weeks was observed in the study arm compared to the wait-list control arm (CDRS: $+9.8 \pm 9.6$ vs. -0.8 ± 8.2 , $p=0.003$), (PSS: -5.4 ± 8.1 vs. 12.8 ± 6.6 , $p=0.010$), (SAS: -11.8 ± 12.3 vs. $+2.9 \pm 8.9$, $p=0.001$) and LASA ($+0.4 \pm 1.4$ vs. -0.6 ± 1.0 , $p=0.029$). No significant difference in any of these measures was noted in the control group.

Conclusion: This study demonstrates that a single session to enhance resilience and decrease stress among physicians is feasible. Further, the intervention provided statistically significant and clinically meaningful improvement in resilience, stress, anxiety and overall quality of life in the active arm compared to the control group. Future larger clinical trials and wider dissemination of this intervention are warranted.

P211

P02.155. Stress Management and Resilience Training (SMART) program to decrease stress and enhance resilience among breast cancer survivors: a randomized trial

A Sood^{*}, C Loprinzi, V Sharma, K Prasad
Mayo Clinic Rochester, Rochester, USA

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Purpose: Patients with breast cancer experience considerable stress and anxiety related to their diagnosis, with resulting lower quality of life. The current study was designed to assess the effect of a Stress Management and Resiliency Training (SMART) program for increasing resiliency and decreasing stress and anxiety among a group of mentors who themselves previously were diagnosed with breast cancer (pink ribbon mentors).

Methods: Twenty-five pink ribbon mentors at Mayo Clinic Rochester were randomized in a single-blind wait-list controlled clinical trial to either the SMART intervention or a control group for twelve weeks. The intervention involved two 90 minute group training sessions followed by a brief individual session and four weekly telephone calls. After the initial group session, all participants in the intervention arm were provided with a DVD to practice paced breathing meditation. Primary outcome measures assessed at baseline and week 12 included the Connor Davidson Resilience Scale (CDRS), Perceived Stress Scale (PSS), Smith Anxiety Scale (SAS), and Linear Analog Self Assessment Scale (LASA).

Results: Twenty patients completed the study. A statistically significant improvement in resilience, perceived stress, anxiety and overall quality of life at 12 weeks, compared to baseline, was observed in the study arm

(CDRS: 73.6±10.1 vs. 81.3±9.1, $p=0.010$), (PSS: 22.1±5.9 vs. 12.8±6.6, $p=0.003$), (SAS: 49.4±18.2 vs. 33.3±11.7, $p=0.002$) and LASA (38.4±6.1 vs. 44.5±3.5, $p=0.002$). No significant difference in the any of these measures was noted in the control group.

Conclusion: This study demonstrates that a brief, predominantly group-based resilience training intervention is feasible in patients with previous breast cancer. Further, the intervention provided statistically significant and clinically meaningful improvement on resilience, stress, anxiety and overall quality of life. Future larger clinical trials with this intervention are warranted.

P212

P02.156. Effects of a gentle yoga program on Restless Legs Syndrome (RLS) symptoms and related outcomes in women with RLS: a pilot study

K Innes, T Selfe*, K Leeming, P Agarwal

West Virginia University, Morgantown, USA

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Purpose: RLS is a common sleep disorder that negatively affects health, well-being, and quality of life. Although standard drug treatments for RLS can carry serious side effects, promising nonpharmacologic therapies, while widely recommended, remain little investigated. In this pilot pre-post trial, we assessed the effects of a gentle 8-week yoga program on RLS symptoms and related outcomes in women with RLS.

Methods: Participants were 13 women with moderate-severe RLS (International RLS Study Group criteria) who had not been diagnosed with diabetic neuropathy or other serious conditions; did not suffer from another sleep disorder; and were not taking RLS medication. All reported RLS symptoms at least 2 days/week. The intervention was an 8-week lyengar yoga program. All participants attended two 90-minute classes per week and were asked to perform 30 minutes of home practice on non-class days. Primary outcomes assessed pre- and post-treatment were RLS symptoms and symptom severity (IRLS scale) and sleep quality (MOS-Sleep Scale). Secondary outcomes included mood [Profile of Mood States (POMS)] and perceived stress [Perceived Stress Scale (PSS)].

Results: Ten women (mean age 49.5±3.9, range 32-66 years; mean BMI=29.6±2.3) completed the study. Compliance was excellent overall; participants attended an average of 13.4±0.3 classes and completed an average of 4.1±0.1 homework sessions/week. Participants demonstrated a 49% decline in RLS symptoms overall ($p=0.01$), a 62% decrease in symptom severity ($p=0.0006$), as well as significant improvement in sleep, both overall ($p<0.0005$), and in 3 of 4 primary domains [sleep disturbance, sleep adequacy, and somnolence ($p<0.003$)]. Participants also showed declines in perceived stress ($p<0.02$) and multiple domains of mood.

Conclusion: These preliminary findings suggest that yoga may offer a safe, acceptable, and effective therapy for attenuating RLS symptoms, and improving sleep and mood in women with RLS. Larger controlled trials are needed to confirm and further investigate the potential benefits of yoga for RLS management.

P213

P02.157. Dose-response of spinal manipulation for low back pain: outside care outcomes from a randomized clinical trial

D Vavrek*, M Haas, D Peterson

University of Western States, Portland, USA

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Purpose: To assess amounts of outside care amongst participants who participated in a randomized clinical dose trial assessing Spinal Manipulative Therapy (SMT) for chronic low back pain (cLBP).

Methods: Four hundred participants with cLBP were randomized to 4 doses ($n = 100$ /group). Participants were seen three times per week for six weeks, receiving 0, 6, 12, or 18 sessions of SMT, and a light massage control on visits without manipulation. Data were collected until 52 weeks after randomization. Outside care outcomes included prescription and non-prescription use, and treatments outside of the study including the following healthcare providers: chiropractor, primary care physician, surgeon, neurologist, psychiatrist, naturopath/homeopath,

nurse practitioner, acupuncturist, physical therapist / occupational therapist, or massage therapist. Preliminary analysis used the chi-square test or Fisher's exact test of categorized data as appropriate.

Results: Abstinence from prescription use for prevention of cLBP, within the past four weeks, was greater than 75% of participants using none at any time point. The abstinence from non-prescription medication, within the last four weeks, was greatest in the 18 SMT visit group from week 6 through week 39 follow-up time points with the greatest incidence of non-use at 54% at week six. Seeking care from a chiropractor during the follow-up phase did not differ between groups at any time point with average chiropractor seeking behavior across all four groups reaching a maximum at 52 weeks of 10.6%. Differences between groups seeking outside care from a massage therapist were observed at 18 and 52 weeks, with more SMT associated with less massage care, but this was not consistent across all time points.

Conclusion: Preliminary analysis of outside care shows that care was balanced across all four dose groups during treatment phases including use of prescription and treatment visits to non-study medical providers and classes. Results from adjusted models will be presented.

P214

P02.158. Tai Chi community program is effective in reducing elderly fall-related hospital utilization: a prospective observational study

E Ziea

Chinese Medicine Department, Hospital Authority of Hong Kong, Hong Kong, Hong Kong

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Purpose: Overseas studies and reviews showed that about 30% of elderly suffer from falls every year and approximately one fall in ten resulted in fractures. Fall is a major cause of hospitalization in Hong Kong, ranking the fifth in terms of total bed days of all public acute hospitals. Tai Chi (TC) is a Chinese martial art form for centuries and seems to be an effective intervention to prevent falls through improving functional balance and physical response.

Methods: A prospective observational study of 3,222 community-dwelling elderly aged 60 or above was conducted to assess the effect of TC in reducing injurious falls incidence. Participants were community-dwelling elderly aged 60 or above with "Timed Up-and-Go" test (TUGT) less than or equal to 20 seconds. An hour simplified TC session led by recognized TC coaches was performed twice a week in a period of four weeks. Participants were encouraged to practice TC after training. Injurious fall incidents were retrieved and compared from a medical records database 12 months before and after TC training between 2 strata: continue ($n=1,269$) vs cease ($n=1,360$) TC in 12 months post training.

Results: The injurious fall rate dropped from 2.21% (pre) to 1.34% (post) in the continuing TC group while the fall rate increased from 2.06% (pre) to 3.46% (post) in the non-continuing TC group. The percentage of hospitalization due to fall-related injuries was 0.39% and 1.03% in the continuing and non-continuing TC groups, respectively.

Conclusion: Study results demonstrate that TC has a potential preventive effect on injurious falls and hospital utilization.

P215

P02.159. EEG asymmetry, coherence, and temperament in children

Y Wang*, Y Chen

Institute of Natural Healing Sciences, NanHua University, DaLin, ChiaYi, Taiwan

BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P215

Purpose: Although neurofeedback has been used as one of the complementary and alternative medicine approaches, many EEG characteristics are still unknown. In order to develop a reliable protocol, it is necessary to establish a quantitative EEG normative database of the interested study group. Test of Nonverbal Intelligence (TONI) scores and 9 temperament dimensions, including activity level, predictability, approach/withdrawal, adaptability to change, intensity of reaction, threshold of responsiveness, general quality of mood, distractibility, and attention span/persistence were assessed.

Methods: One hundred sixteen children of age 11 and 12 were recruited in this study. Each subject completed a Middle Childhood Temperament Questionnaire (MCTQ) and TONI and completed a 1-minute closed-eye EEG measurement of 14 electrodes. The subjects were separated medially and t-tests were conducted on 42 EEG asymmetry (7 interhemisphere pairs, each of 6 frequency ranges) and 91 EEG coherence variables of each frequency range ($p < 0.05$).

Results: The data affirmed that the majority of subjects were left rather than right active for alpha frequencies at frontal sites under closed-eye resting conditions. General quality of mood, determined by MCTQ, suggested higher frontal and parietal EEGs of right hemisphere are significantly related to more negative moods. No gender effect was observed among all measures of EEG asymmetry. EEG coherence, on the other hand, has identified significant differences between genders, along with activity level, general quality of mood, and TONI score. Boys generally had higher values in EEG coherence, a result consistent with an earlier study by Barry (2007).

Conclusion: Our study suggested that not all children's temperament dimensions are distinguishable by EEG asymmetry or EEG coherence. Among them, mood is the only factor that may be identified by inter-asymmetry. On the other hand, EEG coherence is likely a more sensitive parameter, and higher values in coherence may be related to low activity, negative mood and high TONI scores of these young students.

P216

P02.160. The psychosomatic model for clinical oncology

A Zhirkov, E Stepanchuk

Saint Petersburg State University, Saint Petersburg, Russian Federation
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Purpose: The studies suggested a psychodiagnosis of cancer patients according to the SPb regenerative pyramid model.

Methods: Thirty patients with lymphoma diseases, 30 patients with cancer of the reproductive organs (breast cancer and cervical cancer), and 39 patients with chronic myelogenous and lymphocytic leukemia were investigated.

Results: The peculiarities of response to diseases in cancer patients were found according to the nosological group. It was shown that, despite the dominance of conventional adaptive ergopathic type of attitude to the disease (which is characterized by an obsessive attitude to work) in all studied groups, the presence of a high level of sensitivity component illustrates the lack of success to adapt to the situation of the disease. However, the presence of strong positive correlation between the type of response to disease and the level of depression in a group of hematological malignancies suggests a maladaptive system attitude to the disease in these patients. An analysis of coping behavior (by the method of Ways of Coping Checklist) of these categories of patients revealed a negative correlation between the level of depression and the most stressful coping strategies: seeking social support and positive reappraisal.

Conclusion: The obtained results have theoretical value in understanding the regularities of formation of coping behavior of patients with cancer pathology in different nosological groups.

P217

P02.161. A randomized, active-controlled trial of school-based mindfulness instruction for urban middle-school male youth

E Sibinga*, C Perry-Parrish, S Chung, S Johnson, M Smith, J Ellen
Johns Hopkins School of Medicine, Baltimore, USA

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Purpose: Our research of MBSR for mostly female urban youth showed reductions in conflict, anxiety, and stress, as well as increased self-regulation. Reviews of mindfulness instruction suggest benefit but call for increased methodological rigor, particularly active control conditions. Here, we explore the specific effects of MBSR compared with an active control on stress and coping among young urban males.

Methods: Participants were 7th and 8th grade boys in a small urban middle school for boys. They were randomly assigned to MBSR or an active control (Healthy Topics—HT), an age-appropriate health education program, designed to control for positive adult instructor, learning new

information, and class time. Data were collected at baseline, post-program, and three-month follow-up on psychological symptoms, stress, mindfulness, coping; sleep; teacher-rated behavior; and salivary cortisol, a physiologic measure of stress.

Results: Forty-one (22 MBSR and 19 HT) boys participated. Ninety-five percent were African American, with a mean age of 12.5 years. There were no significant differences at baseline between groups. Following the programs, MBSR boys had significantly less anxiety ($p = 0.01$), less rumination ($p = 0.02$), and less negative coping ($p = 0.06$) than HT boys. From pre- to post-program, daily cumulative cortisol levels increased during the academic terms for HT participants at a trend level ($p = 0.07$) but remained constant for MBSR participants ($p = 0.33$). Otherwise, we did not detect differences in outcomes.

Conclusion: This study of MBSR compared with an active control for urban male youth shows less rumination, anxiety, and an attenuation of cortisol increase among MBSR participants. These results suggest that MBSR specifically enhances self-regulatory processes for urban male youth, including improved coping and emotion regulation. Additional research is needed to explore the impact of mindfulness instruction for urban male youth on self-regulation, the duration of its effect, and related social, psychological, and behavioral outcomes.

P218

P02.162. Parental interest in integrative care for children with attentional concerns

K Kemper*, B Banasiewicz

Wake Forest University Health Sciences, Winston-Salem, USA
BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P218

Purpose: Many families seek natural therapies for children. We describe what families want when they seek consultation for natural therapies for children with ADHD.

Methods: For new patients seen in an integrative pediatric clinic between 1/2010 and 6/2011, we reviewed intake forms, physician reports, and laboratory studies.

Results: Of the 75 new patients, 23 (31%) families had concerns about ADHD. Of these, 70% were male; the average age was 11.2 ± 3.1 years; and 80% also received care from specialists. Eleven patients (48%) were taking a prescription medication, but only 3 (13%) were taking medicine for ADHD; dietary supplements were taken by 12 patients (52%). Most families were interested in health promotion information about diet (87%), exercise (78%), stress management (74%), and sleep (74%). Of 11 patients tested, 82% had low ferritin. Recommendations focused on health promotion (100%), dietary supplements such as multivitamins/minerals (71%) and omega-3 fatty acids (82%), and specialist referrals (30%).

Conclusion: Families seeking natural therapies for children with ADHD have needs for health promotion and care coordination that are well addressed using tools and skills already present in the medical home.

P219

P02.163. Acupuncture and donor egg *in vitro* fertilization cycles: a retrospective chart review comparing two acupuncture protocols

L Hullender Rubin^{1*}, M Opsahl², D Ackerman¹

¹Oregon College of Oriental Medicine, Research Department, Portland, USA;

²Northwest Center for Reproductive Medicine, Kirkland, USA

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Purpose: Research investigating the effect of acupuncture on *in vitro* fertilization (IVF) pregnancy outcomes has focused primarily on non-donor cycles. Most trials excluded donor IVF cycles in their design, as donor IVF live birth outcomes are higher than non-donor IVF. In this retrospective chart review, we compared the effect of two standardized acupuncture protocols on donor IVF live birth outcomes.

Methods: Live births were compared between patients who elected acupuncture treatment before and after embryo transfer (ET) to those who did not. Acupuncture was performed at a private infertility clinic the same day as ET by one of seven licensed acupuncturists. One hundred thirty-four patients had an embryo transfer, of which 43 elected acupuncture. The acupuncture group "A" (Acu A) received the Craig protocol (Paulus protocol plus CV-6/Qihai before and KI-3/Taixi after ET)

from 2005-2007 (N=23). From 2008-2009, the acupuncture group "B" (Acu B) received the Paulus protocol modified only with CV-6/Qihai added pre-ET (N=20). Live birth outcomes were analyzed using crude risk ratios.

Results: There were 20 (87%) live births in the Acu A Group and 31 (66%) in the No Acu A group (RR=1.32, 95% CI 1.02 – 1.71, p=0.04). After removing KI-3/Taixi from the acupuncture protocol, there were 10 (50%) live births in the Acu B group and 28 (64%) in the No Acu B group (RR=1.37, 95% CI 0.76 – 2.47, p=0.29). When comparing Acu A to Acu B, there were significantly more live births in the Acu A group (RR=1.74, 95% CI 1.09 – 2.77, p=0.02).

Conclusion: Donor IVF live births may be improved with the Craig acupuncture protocol. This finding should be taken cautiously as more rigorous research including randomization and a larger sample size is needed.

P220

P02.164. The effects of five sessions of cupping massage on chronic non-specific neck pain: a randomized controlled pilot study

S Schumann^{1*}, R Lauche¹, G Irmisch¹, C Hohmann¹, R Rolke², J Saha¹, H Cramer¹, K Choi¹, J Langhorst¹, T Rampp¹, G Dobos¹, F Musial³
¹Kliniken Essen-Mitte, Department for Internal and Integrative Medicine, Essen, Germany; ²Universitätsklinikum Bonn, Klinik für Palliativmedizin, Bonn, Germany; ³University of Tromsø, Department of Community Medicine, NAFKAM, Tromsø, Norway

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Purpose: To investigate whether five treatment sessions of cupping massage (CM) improve chronic non-specific neck pain (cNP) and influence pain related neurophysiologic measures.

Methods: 50 patients with cNP (age 53.3 ± 10.4 yrs) were examined at baseline and then randomized to treatment (TG) or standard medical care (SMC). Data were collected at baseline (T1) and T2 (for TG after treatment). TG received five treatment sessions of CM, while the SMC group was waiting. Subjective outcome measures included visual analogue scale for pain (VAS), Neck Pain Disability Index (NDI), and quality of life (SF36). Neurophysiologic testing included Quantitative Sensory Testing subtests mechanical detection threshold (MDT), pressure pain threshold (PPT), vibration threshold (VDT) and two-point discrimination (2PD) at the point of maximum pain (Pmax), close to maximum pain (Pclose), and hand and foot as control areas. ANCOVA analyses were conducted across post-pre differences with baseline values as covariates.

Results: CM reduced pain (TG: pre 52.41 ± 20.9 vs post 29.94 ± 22.9; SMC: pre 45.89 ± 13.74 vs post 42.84 ± 15.83; p=.037) and NDI scores in TG, while SMC showed no change (TG: pre 14.47 ± 3.9 vs post 10.53 ± 3.7; SMC: pre 13.29 ± 6.1 vs post 13.35 ± 5.4; p=.003). "Physical health" (SF36) increased (TG: pre 35.35 ± 14.2 vs post 54.18 ± 19.8; SMC: pre 41.95 ± 14.24 vs post: 41.89 ± 14.01; p=.002). Neurophysiological data: TG showed an increase for PPT at Pmax (TG: pre 2.41 ± 0.2; post 2.45 ± 0.2; SMC: pre 2.43 ± 0.19 vs post 2.35 ± 0.24; p=.027).

Conclusion: CM improved pain and increased subjective well being in cNP patients. The increase in PPT is consistent with a reduced peripheral sensitization of deeper tissues and supports previous findings on dry cupping in chronic cNP (Lauche et al., 2011).

P221

P02.165. A comparative effectiveness trial of high-quality vitamin D3 nutritional supplements to replete serum vitamin D

M Traub^{1*}, R Bradley², J Finnell²
¹Lokahi Health Center, Kailua Kona, USA; ²Bastyr University, Kenmore, USA
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Purpose: The primary aim is to compare the change in serum 25-OHD concentration between three forms of supplemental vitamin D3: a lipid-emulsified form administered in a sesame oil base, a non-emulsified chewable tablet, and a non-emulsified form administered to 25-hydroxycholecalciferol (25-OHD) insufficient <33ng/ml (75 nmol/ml) patients. The secondary aim is to compare the proportion of participants reaching an "optimal" 25-OHD concentration ≥33ng/ml (75 nmol/ml) between Vitamin D supplement groups following supplementation.

Methods: This three-arm, randomized clinical trial compared the difference in serum 25-OHD concentration between the three arms at

baseline and after random administration of one of the three vitamin D preparations for 12-weeks at a dosage of 10,000 IU Vitamin D per day (N=60 vitamin D insufficient subjects and N=30 sufficient controls).

Results: Enrollment occurred from August 2010 to August 2011. Vitamin D insufficient, age-eligible participants were enrolled in the study (N=66), with the addition of sufficient controls (n=37). Overall loss to follow up was n=11 (16.7%). Between group differences were not significant for age, gender, height, weight or baseline Vitamin D 25 status. One-way analysis of variance (ANOVA) was used to estimate the difference in between group means. The mean unadjusted intra-group increase in serum 25-OHD were: Group A, 33.3 ng/mL (95%CI 24.1 – 42.4); Group B, 33.5 ng/mL (95%CI 19.6 – 47.4 ng/mL); Group C, 53.6 (95%CI 40.7 – 66.4). The serum levels of 25OHD were significantly different between groups (p=0.0215), while the serum levels of 1,25-OH2D did not reach between group significance (p=0.4850). The proportion of participants reaching 25-OHD ≥33ng/ml were: Group A 100%; Group B 82%; and Group C 100%.

Conclusion: Between group differences reached significance for mean change in 25-OHD status. Final analysis of results will adjust for confounding, after which the treatment arm assignments will be unblinded. Analysis of cardio-metabolic data, Klotho protein expression and TLR-4 expression are in process.

P222

P02.166. Group yoga intervention leads to improved balance and balance self-efficacy after stroke

A Schmid^{1*}, M Van Puymbroeck², K Miller¹, N Schalk³
¹Roudebush VAMC and Indiana University, Indianapolis, USA; ²Indiana University, Bloomington, USA; ³Heartland Yoga, Indianapolis, USA
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Purpose: Evaluate the impact of an 8-week group yoga intervention on balance, balance self-efficacy, and falls-efficacy in individuals with chronic stroke.

Methods: This is a prospective pilot study of a modified yoga intervention. All study participants: had chronic stroke (>9 months); completed all rehabilitation after stroke; were able to stand but self-reported some residual disability related to walking, balance, or functional loss after stroke; and scored >4 out of 6 on the Short Mini Mental Status Exam. Forty-seven individuals with stroke were recruited and randomized 3:1 to yoga or waitlist control. The yoga group completed one hour yoga sessions twice a week for 8 weeks. Yoga was taught by a certified yoga therapist and included modified physical postures, yoga breathing, bilateral movements, and concluded with relaxation while seated, standing, and supine. Assessments before and after the 8 weeks included: Berg Balance Score (balance), Activities Balance Confidence Scale (ABC, balance self-efficacy), and Falls-Efficacy Scale (falls-efficacy). We compared groups with a t-test/Mann Whitney. We used paired t-tests to compare baseline and 8-week data.

Results: The average age of participants completing the study was 64; 76% were male; and 63% were white. There were no differences in demographics or outcomes between the yoga and control groups. There were no improvements in the waitlist control group. In the yoga group (n=29), significant improvements were found after the 8-week intervention in balance (Berg 40.7±12.1 vs 47±9.6, p<0.001) and balance self-efficacy (ABC 61.25±21.8 vs 67.2±23.1, p=0.035). Falls-efficacy did not improve (p=0.164).

Conclusion: Our findings suggest an 8-week yoga intervention impacts balance and balance self-efficacy for people with chronic stroke. Yoga activities may have improved neuromuscular control, allowing for strength improvements in affected limbs/side or areas of disuse, thereby improving balance. Continued testing with a larger sample is warranted to determine the impact of yoga on balance and self-efficacy.

P223

P02.167. Long term evaluation of homeopathy on post treatment impairment of pulmonary tuberculosis

S Sharma^{1*}, N Sharma²
¹NMP Medical Research Institute, Jaipur, India; ²Brett Research (UK), London, United Kingdom
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Purpose: Previous studies show that treated and cured pulmonary tuberculosis patients do suffer from pulmonary impairment, lower health related quality of life, disability and long term morbidity, thus responsible for a majority of the disease burden. Despite this, no effective management is available for most of the patients. Therefore, the present study was undertaken to evaluate the impact of homeopathy on pulmonary, functional and quality of life status of patients with pulmonary tuberculosis who have completed treatment.

Methods: Patients who were cured and had completed anti-tuberculosis treatment within a period of 5 years were enrolled in a randomized double-blind placebo-controlled trial. Individualised homeopathy treatment was given to 61 patients and identical placebo to 57 patients. Symptomatic changes, pulmonary function tests, and health related quality of life were assessed prior to treatment, after 6 months of intervention, and followed up for a year after completing the intervention.

Results: Significant improvement was observed with the homeopathy treatment in FEV1 ($p < 0.001$), forced vital capacity ($p < 0.001$), and FEV1/FVC ratio ($p = 0.002$). Symptom scores for cough and breathlessness were significantly lower with homeopathy than with placebo ($p < 0.001$). At the end of treatment, patients on homeopathy had increased body weight ($p < 0.0001$), and better quality of life ($p < 0.05$) compared with placebo ($p = 0.003$). Benefits were maintained in the homeopathy group after a year whereas symptoms ($p < 0.01$) and impact score ($p < 0.001$) deteriorated in placebo. Physicians visits were reduced in the homeopathy group by 58.0% ($p = 0.002$) compared to placebo ($p < 0.0001$).

Conclusion: Homeopathy is effective in improving lung capacity and health status. Benefits remain evident after a year. This suggests that homeopathy could make an important contribution to post treatment tuberculosis pulmonary impairment.

P224

P02.168. Safety issues and orthorexia in paediatrics

I von Rosenstiel¹, J Stam, W Schats

Slotervaart Hospital, Amsterdam, Netherlands

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Purpose: As an antithesis to the paediatric obesity pandemic, the eating disorder of orthorexia in parents and children is an emerging condition. Well-intentioned parents strictly limit their childrens' food groups, be it carbohydrates, trans fats, animal products, dyes or sugars, leading to dangerous extremes and malnutrition.

Methods: We describe our clinical experiences with families with extreme diets at our outpatient integrative medicine clinic in Amsterdam, the Netherlands. Data were analysed on parent and child demographics and clinical characteristics, family health concerns, educational level, lifestyle and social consequences.

Results: During 12 months, a total of 4 cases of extreme diets were reported from a cohort of 41 patients. Two cases concerned sugar-free diets, one case of a vegan diet and one case of 100% raw food. Negative medical outcomes were nutritional deficiencies, stunting, concentration and developmental disorders, and social isolation. The raw food case involving a mother with orthorexia and her 14 year old son has led to a court case, causing a national debate on autonomy of the family versus child abuse.

Conclusion: Pediatricians should be more knowledgeable about the phenomenon of orthorexia and the potential warning signs. The so-called "worry factor" and "feelings towards food groups" are the biggest indicators to aid in preventive efforts. More studies in the pediatric field addressing effectiveness and safety issues of specific diets are needed to assist the experts in daily practice and medical court cases.

P225

P02.169. The effects of massage therapy on Multiple Sclerosis patients

B Schroeder^{*}, K Premkumar, J Doig

University of Saskatchewan, Saskatoon, Canada

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Purpose: Mobility difficulties are prevalent in patients with Multiple Sclerosis (MS) and often result in a loss of independence and a diminished quality of life. Massage therapy is a non-invasive supplemental treatment

that many MS patients utilize to assist in their symptom management. We explored the effect of massage therapy on mobility and overall quality of life (QoL) of MS patients.

Methods: Twenty-four MS patients with scores ranging from 3.0 to 7.0 on the Expanded Disability Status Scale (EDSS) received four weeks of Swedish massage treatments. The Six-Minute-Walk-Test (6MWT) was used to assess their exercise capacity and leg function and the Hamburg Quality of Life in MS (HAQUAMS) instrument was used to assess changes in client QoL. These assessments were measured before and after a massage period and a rest period where no massages were employed.

Results: The results displayed no significant changes in 6MWT distances or HAQUAMS scores after massage or rest periods. However, clients' personal health rating improved after massage and deteriorated when massages were removed. Client comments collected at the end of the study supported this change. The improvement in patient perception could have been due to an analgesic effect of massage that decreases pain. In addition, the relaxation induced by massage is very beneficial in stress management and thus symptom management for MS individuals.

Conclusion: Although the results from this study display a limited significant change after massage treatments, it is important to note that no harm was being done. Thus, massage is a safe, non-invasive supplementary treatment option that may assist MS patients to manage the stress of their symptoms and improve quality of life.

P226

P02.170. Mindfulness-based stress reduction (MBSR) for breast cancer: a systematic review of randomized-controlled trials

H Cramer^{*}, R Lauche, A Paul, G Dobos

University of Duisburg, Complementary and Integrative Medicine, Essen, Germany

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Purpose: To assess the effectiveness of mindfulness-based stress reduction (MBSR) in patients with breast cancer.

Methods: MEDLINE, PsychInfo, EMBASE, CAMBASE, and the Cochrane Library were screened through October 2011. Randomized controlled trials (RCTs) comparing MBSR to controls were analyzed. Risk of bias was assessed using the Cochrane risk of bias tool. For each outcome, standardized mean differences (SMD) and 95% confidence intervals (CI) were calculated, if at least 2 studies assessing this outcome were available. As a measure of heterogeneity, I^2 was calculated.

Results: Three RCTs with a total of 319 subjects were included. One RCT compared MBSR to usual care; one RCT compared MBSR to free choice stress management; and one three-arm RCT compared MBSR to usual care and nutrition education. MBSR was superior to usual care in decreasing depression (SMD=-0.37 [95% CI -0.65 to -0.08], $p = 0.01$, $I^2 = 0\%$) and anxiety (SMD=-0.51 [95% CI -0.80 to -0.21], $p = 0.0009$, $I^2 = 0\%$) but not in increasing spirituality (SMD=0.27 [95% CI -0.37 to 0.91], $p = 0.41$, $I^2 \geq 79\%$).

Conclusion: There is some evidence of effectiveness of MBSR in improving psychological health in breast cancer patients. However more RCTs are needed to underpin these results.

P227

P02.171. Lessons learned from a preliminary study of Whole Food Diet used by primary care patients

Y Zhang^{1*}, K Chauncey¹, Q Gan², M Ragain¹

¹Texas Tech University Health Sciences Center, Lubbock, USA; ²Texas Tech University, Lubbock, USA

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Purpose: To address the low dietary adherence issue in clinical practice, it is important to promote a diet plan that has a broad spectrum of diet options to better match individual patient food preferences, lifestyles, and personal health profiles. Whole Foods Diet (WFD) offers more diet options to patients and guides them on how to make the right diet choices. This preliminary study assessed patients' adherence to the WFD and summarized the lessons learned.

Methods: A two-site non-randomized clinical trial was conducted among primary care patients. Physicians prescribed WFD to the patients at the

intervention site and suggested the patients at the comparison site follow a dietary plan other than WFD. Measures included self-reported dietary adherence rates, waist to hip ratio (WHR), BMI, and eating behaviors measured by the Dutch Eating Behavior Questionnaire (DEBQ). Data collected at baseline, month 1, 2, 6 and 12 were analyzed using individual growth curve (IGC) models with the SAS Mixed Procedure.

Results: We encountered much unexpected hardship in recruiting the comparison group participants. We enrolled 29 participants in WFD and 14 in comparison group at baseline. There was no statistical difference in participant profiles between the two groups at baseline. Of them, 14 in WFD and 10 in the comparison group remained at month 6, while 7 and 6 remained at month 12, respectively. No difference of adherence rates was found between the WFD and comparison groups. Both restrained and external DEBQ subscale scores increased significantly from baseline to month 6 in the WFD group only. IGC models reveal that WFD participants' WHRs are declining.

Conclusion: WFD may help the patients be more cautious about nutrition and caloric balance, but loss to follow-up/adherence is the major issue of this diet study. Our finding suggests that a 6th month diet refresher or re-intervention may be needed for better compliance.

P228

P02.172. 1-year sustaining efficacy of multidimensional therapy for inpatients with different conditions of chronic musculoskeletal pain

R Stange¹, U Hackermeier¹, G Franzen¹, T Ostermann², B Uehleke¹, A Michalsen¹

¹Charité, University of Medicine and Immanuel Hospital, Berlin, Germany;

²Center of Integrative Medicine, Dprmt. of Medicine, Witten, Germany

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Purpose: Chronic pain is the predominant condition for use of complementary medicine in Western countries. While many modalities have proven efficacy as a single intervention, therapeutical failure is often due to longer histories, comorbidities or complex etiologic conditions. Therefore, individually tailored therapies may show more efficacy, but little research could be retrieved. We investigated outcomes of inpatients after an intensive period of approximately 2 weeks with individual combinations of therapies, composed of diet and fasting, physical therapy, relaxation, herbs, acupuncture, and neural therapy.

Methods: Ongoing inpatients (age 18 – 70, M and F) with chronic musculoskeletal pain of different origin (Gerbershagen classification III and IV, multi-morbidity allowed) for more than 2 years were included. Main outcome parameters were changes in VAS (0-100) for global pain and SF-36 between T1 before therapy and final visit T5 after 1 year with no further protocol treatment. Results of this pivotal uncontrolled trial were interpreted as descriptive.

Results: Two hundred twenty-one patients (intent to treat, mean age 57.2+12.2y) were enrolled with full data sets from 101 (per protocol). Most frequent diagnoses were low back pain (n=53, 24.0%), fibromyalgia (44, 19.9%), rheumatoid arthritis (25, 11.3%), and chronic neck pain (22, 10.0%). Mean VAS decreased by 15.1 from 60.7+23.0 (T1) to 45.6+26.2 (T5) (p<0.0001, two-sided t-test), with highest improvement for low back pain (decrease of 17.5) and no differentiation for multi-morbidity (n=46 with, n=55 without). SF-36 physical and mental component scores improved significantly from 40.0+12.2 to 44.3+12.5 and from 29.6+8.2 to 32.9+10.5, respectively (p<0.0001 for each).

Conclusion: An individual multidimensional treatment for chronic musculoskeletal pain with inpatients may result in sustaining beneficial effects over one year. Surprisingly, differential improvement in quality of life extended to both physical and emotional dimensions. Non-compliance was attributed to the long interval between the end of therapy and visit for primary outcome measurement.

P229

P02.173. Objective and subjective adherence in mindfulness meditation trials

H Wahbeh¹, B Oken

Oregon Health & Science University, Portland, USA

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Purpose: Home practice is frequently prescribed as part of mind-body medicine interventions although rarely objectively measured. As part of our ongoing mind-body medicine research program, we created iMINDr, a custom monitoring software program to collect objective adherence data. The goals for these analyses were to assess: 1) any differences in objective versus subjective adherence, and 2) which baseline measures predict adherence in ongoing mindfulness meditation randomized clinical trials being conducted at our lab.

Methods: Objective and subjective adherence data were collected from 20 participants. Measures were collected in minutes and transformed into percent out of total minutes possible. Objective adherence was collected with iMINDr, an iTouch (Apple Inc) software program designed to administer the mindfulness meditation intervention and record adherence. Age, gender, education, Perceived Stress, Positive and Negative Affect, depression inventory, Five Factor Personality, General Perceived Self Efficacy, Life Events Questionnaire, and Credibility/Expectancy were examined as potential predictors of adherence. A paired t-test was used to compare objective with subjective adherence. Objective and subjective adherence relationships were evaluated with Pearson's correlation. Linear regression analysis was conducted for each potential predictor.

Results: Participants reported that iMINDr was straightforward to use. Subjective adherence was greater than objective (86% ± 31% subjective, 76% ± 30% objective; t=-2.5 (df=19), p=.02). Objective adherence was correlated with subjective adherence (r=0.82, p=.0005). There were no predictors for objective adherence (all p's > 0.05). Education predicted 47% of the variation of subjective adherence (F(1,19)=5.2, p=.04).

Conclusion: The iMINDr is a simple objective method researchers can use to examine how home practice adherence affects outcomes in mind-body clinical trials. Objective adherence was strongly correlated with subjective adherence in study completers, although participants self-report more home practice time than actual practice time recorded from iMINDr. Higher education predicted increased adherence in meditation study participants.

P230

P02.174. Effectiveness of acupuncture in improving perioperative patient centered outcomes: a comparative effectiveness study

S Attias¹, E Schiff

Bnai Zion Medical Center, Haifa, Israel

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Purpose: Perioperative symptoms such as pain and anxiety are common in spite of standard of care. Such symptoms are associated with a negative surgery experience, and moreover, are correlated with increased perioperative morbidity. The aims of this study were to evaluate whether acupuncture as an add-on to standard of care improves these symptoms. In addition, we assessed whether outcomes are correlated with expectations from CAM.

Methods: We conducted a pragmatic trial of 479 adult patients undergoing various abdominal operations. Eighty-nine patients received standard medical care, and 390 patients received acupuncture on top of standard medical care, according to patient preference and practitioner availability. Numeric VAS scores for anxiety, pain, nausea and well-being were collected pre and post treatment. Acupuncture was provided according to Traditional Chinese Medicine syndrome categorization.

Results: There was a significant reduction of VAS scores for all outcomes in the acupuncture group: Anxiety scores were reduced from 4.4 to 2.6 (n=394, p<0.0001), pain from 4.8 to 2.5 (n=380, p<0.0001), nausea from 2.7 to 1.4 (n=380, p<0.0001) and well-being improved from 5.1 to 6.8 (n=384, p<0.0001). Symptomatic improvement was significantly better in the acupuncture group as compared to the standard of care group for all parameters p<0.0001. In the subgroup of patients experiencing moderate to severe symptoms, improvement was even more prominent: anxiety scores were reduced from 6.9 to 3.8 (n=214, p<0.0001); pain from 6.9 to 3.6 (n=231, p<0.0001); nausea from 7.2 to 3.3 (n=111, p<0.0001); and well-being improved from 3.7 to 6.2 (n=252, p<0.0001). We did not find a correlation between outcomes and patients' expectations regarding acupuncture.

Conclusion: Our results demonstrate that acupuncture therapy significantly improved common symptoms in patients undergoing surgical interventions.

P231

P02.175. A randomized controlled pilot study assessing quality of life, stress and feasibility of yoga practice in women newly diagnosed with breast cancer

S Pruthi¹, L Solberg Nes, J Boughey, M Huebner, B Borg, S Jenkins, D Stan, R Singh, S Kohli, V Lemaire
Mayo Clinic, Rochester, USA
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Purpose: This study's aim was to assess feasibility and the impact of yoga in improving quality of life for women after breast cancer diagnosis.

Methods: With IRB approval a prospective randomized study was conducted of women newly diagnosed with breast cancer. Patients were randomized to yoga practice or control group. Both groups (15 patients in each) completed questionnaires and provided saliva samples at baseline and at 12 weeks for cortisol level evaluation. After surgery, the yoga group received 2 individual weekly sessions followed by 8 weekly group sessions and were provided with a gentle yoga DVD for home use at least once per week.

Results: Lumpectomy rates were 67% in the yoga group and 47% in the control group. Among yoga participants, 13 attended the individual sessions, 11 the group classes (median of 3 classes), and 12 used the DVD at least weekly. Both groups had significant improvements in QOL scores from pre- to post-treatment: the median FACT-B emotional well-being score increased by 2.9 (yoga) and 3.7 (control); POMS tension-anxiety, depression-dejection, and confusion-bewilderment scores also improved (medians ranged from 0.5 to 0.9). There was no significant difference between the groups in level of improvement. Pre to post treatment median cortisol and cortisone levels also decreased; in the yoga group by 10 ng/dL and 86 ng/dL, respectively, and in the control group by 12 ng/dL and 74.5 ng/dL respectively. The yoga practice was rated as "very effective" for providing relaxation (85%), stress relief (69%), reduction of muscle tension (62%), and a general feeling of wellness (62%).

Conclusion: From initial breast cancer diagnosis to post treatment there was significant improvement in emotional well-being, anxiety, depression and confusion. Cortisol levels decreased over this time period. In this small pilot study, addition of yoga did not produce a significant improvement in these variables when compared to the control group.

P232

P02.176. Acupuncture for symptom management in hemodialysis patients: a prospective, observational pilot study

K Kim³, T Kim¹, J Kang², M Lee¹, J Kim², M Shin¹, S Jung¹, A Kim¹, K Kang¹, S Choi¹, G Yang^{3*}, S Noh³

¹Korea Institute of Oriental Medicine, Daejeon, Republic of Korea; ²Kyung Hee University, Seoul, Republic of Korea; ³School of Korean Medicine, Pusan National University, Yangsan, Republic of Korea

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Purpose: Patients undergoing hemodialysis suffer from a variety of complications related to end-stage renal disease. This prospective, observational pilot study aims to determine the feasibility, safety, and possible benefits of acupuncture for symptom management in patients undergoing hemodialysis.

Methods: Twenty-four patients undergoing hemodialysis received acupuncture treatment for their symptoms. Manually stimulated, individualized acupuncture treatments were provided twice a week for 6 consecutive weeks on a nondialysis day or on the day of hemodialysis prior to initiating treatment. Symptoms were evaluated using the Measure Your Medical Outcome Profiles 2 Questionnaire, and quality of life was measured by the Kidney Disease Quality of Life-Short Form (KDQOL-SF™) Version 1.3 at baseline, 7 weeks and 11 weeks from baseline. Statistical analysis was conducted on the basis of the intention-to-treat principle.

Results: Twenty-one patients (87%) completed the whole treatment course and follow-up evaluation. Three patients dropped out due to increased fatigue (n=1), pancreatic and renal transplantation (n=1), and infections of the arteriovenous fistula used for hemodialysis access (n=1). Patients experienced a significant improvement of symptoms considered the most bothersome, reporting a decrease of 1.87 and 2.08 points on a 0-6 symptom scale at 7 weeks and 11 weeks, respectively (both $p < 0.0001$). Some subscales of KDQOL-SF™ showed significant improvement at 7 weeks (effects of kidney disease, burden of kidney disease, role-limitations physical, emotional well-being, and energy/fatigue) and 11 weeks (physical functioning and energy/fatigue). No serious adverse events related to acupuncture occurred.

Conclusion: Acupuncture seems feasible and safe for symptom management in patients undergoing hemodialysis. Future controlled trials are needed to confirm the benefits of acupuncture.

P233

P02.177. Effects of Bach Rescue remedy on cardiac autonomic balance in healthy women

S Yang, Y Wang^{*}
Institute of Natural Healing Sciences, NanHua University, DaLin, ChiaYi, Taiwan

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Purpose: The Rescue remedy has been used as a stress relief formula by practitioners of Bach flower remedies. The objective of the present study is to evaluate the effect of Bach Rescue remedy on cardiac autonomic balance in healthy women.

Methods: In this two-stage crossover trial, seven females (mean age 26 ± 4 years) were randomly assigned to a sequence of two treatments (Rescue remedy and placebo) with a one-month wash-out period. The Rescue remedy consisted of four drops of five flower essences (cherry plum, clematis, impatiens, rock rose and Star of Bethlehem) dissolved in brandy and 250 ml of distilled water. The placebo consisted of four drops of brandy in 250 ml of distilled water. Cardiac autonomic functions were evaluated by frequency domain indices (LF, low frequency power and HF, high frequency power) of heart rate variability at baseline and after the intervention. Percentage changes were calculated and compared between the Rescue remedy and placebo groups using Wilcoxon signed rank sum test.

Results: Both the mean percentage changes of LnLF (natural logarithm-transformed LF) and LF/HF ratio were significantly different between the two groups. The mean percentage change of LnLF in the Rescue remedy group was $-15.9 \pm 7.4\%$ compared with $18.3 \pm 21.6\%$ in the placebo group. The mean percentage change of LF/HF was $-27.8 \pm 13.0\%$ in the Rescue remedy group compared with $53.2 \pm 89.1\%$ in the placebo group.

Conclusion: This is the first study using a double-blind randomized crossover design to evaluate the effect of Bach Rescue remedy on heart rate variability in healthy women. Increased parasympathetic activity and decreased sympathetic activity were observed in individuals receiving Bach Rescue remedy. These changes may explain the stress relieving effect of Bach Rescue remedy.

P234

P02.178. Skin conductance at 24 Source (Yuan) acupoints in 8637 patients: influence of age, gender and time of day

S Chamberlin^{1*}, A Colbert¹, A Larsen²

¹National College of Natural Medicine, Helfgott Research Institute, Portland, USA; ²Meridia Technologies, Inc., Meridian, USA

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Purpose: The clinical practice of recording skin conductance (SC) at acupuncture points (acupoints), as a diagnostic and/or therapeutic monitoring aid may have scientific merit. However, influences of age, gender and time of day on these recordings are unknown and it is unclear whether SC at acupoints differs from SC levels in general (as reported in psychophysiology research). This research will investigate these influences.

Methods: This analysis summarizes SC data obtained with the AcuGraph 3 Digital Meridian Imaging System between June 2005 and March 31, 2010. An initial dataset of 117,725 SC examinations was scrubbed to include only the first SC examination on individual patients and exclude potentially faulty data. The final dataset consists of SC recordings at the 24 Source (Yuan) acupoints in 8637 patients, collected by 311 practitioners. Twelve left/right average conductance measures and an overall average of the 24 acupoints were assessed. Statistical analyses included two sample t tests, three way analyses of variance and linear regression.

Results: Results indicate that mean SC at acupoints, similar to SC in general, is higher in males, higher in afternoons and declines with age. Not previously reported, the rate of SC decline with age differs at different acupoints between males and females.

Conclusion: These findings have substantial implications for acupuncture research and practice. Patterns derived from measures such as these should be investigated as potential early detectors of disease and predictors of treatment responsiveness.

P235

P02.179. Effects of an integrated yoga program on mood, perceived stress, quality of life and immune measures in HIV patients: a pilot study

R Rao^{1*}, U Deb², N Raghuram², N Hongasandra Rama Rao², A Burke³, F Hecht³

¹HCG Bangalore Institute of Oncology, Bangalore, Karnataka, India; ²Swami Vivekananda Yoga Anusandhana Samsthana, Bangalore, India; ³Osher Center for Integrative Medicine, UCSF, San Francisco, USA

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Purpose: HIV seropositive subjects experience psychological distress that impacts their quality of life and disease progression. In this pilot study we evaluated the effects of a yoga intervention on mood, perceived stress, quality of life and immune responses in HIV+ subjects.

Methods: Seventy HIV+ subjects not on HAART and with a CD4 count >250 were recruited from a HIV referral center in Bangalore to participate in a two arm randomized waitlist control trial. Subjects were randomized to receive a yoga intervention (N = 36) or serve as wait-list controls (N = 34). While the yoga group received an integrated set of one hour daily yoga therapy sessions (asanas, pranayama and meditation) for 3 months, the waitlist control group received only education and counseling during clinic visits. Both groups were assessed at baseline and after the intervention period using the Hospital Anxiety and Depression Scale, Perceived Stress Scale, the HIV WHO QoL BREF, the Positive and Negative Affect Schedule; CD4, CD8 counts were measured using flow cytometry, and viral load using RT PCR. There were 11 dropouts in yoga and 9 in the control group.

Results: Data were analyzed using the intention to treat principle. There was a significant decrease in perceived stress ($p=0.001$) and psychological distress ($p=0.04$), and an increase in positive affect ($p=0.003$) in the yoga group compared to waitlist controls on ANCOVA with the respective baseline measure as a covariate. There was a decrease in self-report anxiety ($p=0.02$), depression ($p=0.009$), negative affect ($p=0.02$) and fatigue ($p=0.001$) in the yoga group alone on paired t-test.

Conclusion: The results suggest benefit with yoga in reducing psychological distress and improving quality of life in HIV seropositive patients. However, larger randomized controlled trials are needed to validate these findings.

P236

P02.180. Arts speech therapy influences heart rate variability indices

U Wolf^{1*}, U Gerber¹, M Wolf², S Klein¹, F Scholkmann¹

¹University of Bern, Institute of Complementary Medicine KIKOM, Bern, Switzerland; ²University Hospital Zurich, Zurich, Switzerland

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Purpose: Previous studies revealed that arts speech therapy (AST) affects the cardiorespiratory system, hemodynamics and oxygenation. The aim of this study was to further investigate effects of AST by assessing changes in heart rate variability (HRV) indices.

Methods: Measurement in 24 adults comprised 8 minutes pre-baseline, 5 minutes recitation, 5 minutes recovery, 5 minutes recitation, and

20 minutes post-baseline. Measurements were performed for 3 different AST tasks [recitation of alliterative (RA), hexameter (RH), and prose (RP) verses] and a control task [mental arithmetic (MA) with voicing of the result] in a randomized crossover design. HRV was determined using a Medilog AR12 holter ECG. Multifractality of HRV was determined using the multifractal detrending moving average method. Statistical analysis was applied to the difference between pre-baseline, 2 recitation and 5 baseline periods. The four tasks were tested separately; $p \leq 0.05$ was considered significant.

Results: (1) During recitation: Heart rate increased during RA, RH and MA but not during RP. The coefficient of variation increased during RH and MA. Normalized high frequency (nHF, 0.15-0.4 Hz) and low frequency (nLF, 0.04-0.15 Hz) power of the HRV decreased (nHF) and increased (nLF) during RA, RH and RP. The multifractal parameter α_{mode} showed a decrease during MA. The degree of multifractality ($\Delta\alpha$) increased during PR and MA. Heart rate coherence (HRC) decreased during RP, RH and MA. (2) After recitation: PR caused an increase in $\Delta\alpha$; RH caused an increase in the very low frequency (VLF, <0.04 Hz) power, and the HR decreased after RA and RH. HRC decreased after RH.

Conclusion: AST affects HRV indices during and after the AST. The changes indicate that AST during the recitation decreases the activity of the parasympathicus. The multifractality of HRV changed during MA and after MA and PR. The decrease in HRC after RH indicates a change in the activity of the hypothalamus-pituitary-adrenal axis.

P237

P02.181. Heart rate variability and peripheral temperature during whole body immersion at different water temperatures

F Edelhäuser, S Goebel, C Scheffer*, D Cysarz

University of Witten/Herdecke, Herdecke, Germany

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Purpose: Whole body immersion in water (WI) constitutes a significant role in the area of CAM as well as in rehabilitation facilities. WI has strong effects on the autonomic nervous system. In this study, we investigate the effects of different water temperatures (33°C, 36°C, and 39°C) on heart rate variability (HRV), peripheral and core body temperature (PT and CBT, respectively).

Methods: Twenty-one healthy subjects (age: 24.3 ± 2.3 years, 11 female) underwent WI with water temperatures of 33°C (WI33), 36°C (WI36), 39°C (WI39). The procedure was: supine rest (30 minutes), WI (20 minutes) and supine rest (30 minutes). An ECG, the nasal/oral airflow, core body and temperature of extremities were recorded. The results of the last 5 minutes at the end of each interval are presented.

Results: During WI33 and WI36 CBT decreased compared to rest before WI, whereas WI39 led to an increase of CBT. Peripheral temperature was determined by the water temperature. The average RR-interval increased during WI33 (970 ms) compared to rest before WI (910 ms), whereas it decreased during WI36 (850 ms) and WI39 (636 ms). The standard deviation of the RR-intervals (SDNN) was reduced during WI39 (26 ms), whereas it was augmented during WI33 (78 ms) compared to rest before WI (63 ms). The square root of the mean squared difference of successive RR-intervals (RMSSD) decreased during WI39 (14 ms) and WI36 (43 ms), whereas it increased during WI33 (72 ms) compared to rest before WI (52 ms).

Conclusion: Each water temperature showed specific effects on CBT, PT and HRV during WI. WI39 lead to an increase of CBT and PT and a decrease of HRV whereas WI33 showed opposite effects. Hence, WI39 induces moderate cardiovascular stress and moderate hyperthermia whereas WI33 induces mild hypothermia and cardiovascular relaxation. The water temperature is crucial for therapeutic purposes.

P238

P02.182. Integrative management of low back pain during pregnancy: a prospective case series

K Pohlman^{1*}, A Haan¹, C Long¹, T Rubley², K Roush²

¹Palmer College of Chiropractic, Davenport, USA; ²Holzer Clinic, Gallipolis, USA

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Purpose: Fifty to 80% of pregnant women suffer from low back pain (LBP), a condition commonly treated by doctors of chiropractic (DC). Holzer Clinic, an Appalachian integrative health facility with 140

multispecialty physicians, utilizes both conventional prenatal and chiropractic care for their pregnant patients. This study assessed the feasibility to conduct a prospective case series of LBP patients receiving concurrent conventional prenatal and chiropractic care overseen by an off-site project manager (PM).

Methods: Women age 21 and over receiving conventional prenatal care at Holzer Clinic who were referred to chiropractic care for LBP complaints were invited to participate in this IRB-approved study. The PM conducted a phone screen interview to determine eligibility. Completed baseline and 4 week questionnaires were mailed to the PM. Assessments included the Bournemouth Disability Questionnaire (BDQ), Numerical Rating Scale (NRS) for LBP, global improvement (GI) and adverse events (AE).

Results: Thirty-nine women consented to participate in the study; 17 met all eligibility criteria. Exclusions were for age, LBP before pregnancy and no DC visit. Of the 13 participants who completed both questionnaires, all were white with a mean age of 28.4 (SD 1.1) and a median gestational age of 11.0 weeks (range 2-30). After 4 weeks of care the mean GI was 72%; mean improvement in BDQ was 5.8 (16%); and mean improvement in pain 2.3 (SD 2.18). AEs were mild (e.g. muscle soreness of less than 48 hours).

Conclusion: Although patient outcomes were favorable in this small study, recruitment and follow-up data collection were challenging. It is important to investigate the effectiveness of integrative care for LBP during pregnancy; however, it will require the commitment of adequate resources and collaborations.

P239

P02.183. Comparing the bioavailability of two forms of liponic acid in multiple sclerosis

S Salinthoné^{1*}, V Yadav², M Ganesh², G Cherala², L Shinto², D Koop², D Bourdette², D Carr¹

¹Portland VA Medical Center, Portland, USA; ²Oregon Health & Science University, Portland, USA

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Purpose: Liponic acid (LA) stimulates production of an immunomodulatory molecule, cAMP, that may have therapeutic benefit in multiple sclerosis (MS). The study sought to determine the bioactivity of two forms of oral LA, racemic (R/S-LA) and R-LA, to identify factors that may improve the therapeutic effectiveness of LA in MS.

Methods: Participants met the following criteria: age 18-70 years and a definite multiple sclerosis diagnosis. Consenting participants were randomized to 2 groups: R/S-LA (n=20) or R-LA (n=8). Blood was collected at baseline, 5, 10, 15, 30, 60, 90, 120, 180, 240, and 300 minutes after ingestion of a single 1200 mg LA dose. Bioactivity was determined by measuring immune cell cAMP levels (pmol/mg) at baseline and 240 minutes post ingestion. Group differences were analyzed by repeated measures analysis of variance (cAMP) and t-test (pharmacokinetics).

Results: For R/S-LA, mean baseline cAMP levels were 8.6 (SE 0.83) pmol/mg protein, which increased to 14.1 (SE 1.7) 240 minutes post-ingestion. For R-LA, baseline cAMP levels were 5.7 (SE 0.54), which decreased to 4.7 (SE 0.41) 240 minutes post-ingestion. The mean change in cAMP levels were different between groups, $p < 0.01$. The two groups showed no differences in serum LA levels at 240 minutes ($p = 0.29$), but showed a difference in the mean AUC (min*mcg/ml): R/S-LA is 681.8 (SE 83.4) and R-LA is 389.5 (SE 43.9) ($p < 0.01$). Tmax (minutes) between groups differed: R/S-LA was 81.0 (SE 8.9) and R-LA was 13.1 (SE 2.7); $p < 0.001$.

Conclusion: At 1200 mg oral dose and comparable serum LA levels at T240, R/S-LA showed higher cAMP levels compared to R-LA. Since R-LA had an earlier Tmax, it is plausible that increases in cAMP may have occurred at earlier undetected time-points. This pilot study warrants further investigation as differences between R-LA and R/S-LA in bioactivity and pharmacokinetics would impact clinical trial design and patient care.

P240

P02.184. Abstract withdrawn

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Abstract withdrawn:

P241

P02.185. The effects of tactile massage (TM) on blood pressure, heart rate and blood glucose in a sample of women suffering from primary insomnia

M Sjöling^{1*}, M Jong¹, K Ljadas², E Englund², J Appelberg²

¹Mid Sweden University, Sundsvall, Sweden; ²Västernorrland County Council, Sundsvall, Sweden

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Purpose: The overall objective of this pilot study was to study the direct effects of tactile massage (TM) on blood pressure, heart rate and blood glucose in a sample of women suffering from primary insomnia.

Methods: The study had an experimental prospective design, with a total of 10 women (mean age; 53 years, ± 5.4). The participants underwent TM twice a week for six weeks resulting in a total of 120 treatments. For short-term effects, systolic and diastolic blood pressure, heart rate and blood glucoses were assessed by the therapist before and after each treatment. Long-term assessments were made at baseline, week 7, and week 13.

Results: As a short term result after the treatment with TM, the participants reached a statistically significant reduction of systolic blood pressure (-5.5 mmHg, ± 5.0), diastolic blood pressure (-2.0 mmHg, ± 4.4), heart rate (-5.1 beats per minute, ± 3.4) and blood glucose (-0.2 mmol, ± 0.5). No long-term effects with respect to the studied variables can be observed.

Conclusion: In summary, we have shown in a normotensive but highly stressed sample of women, that TM has beneficiary effects on parameters of stress and cardiovascular function. In total, 120 TM treatments were analyzed with respect to the objective of the study, but in order to more understand the practical effects, and to more deeply evaluate TM's place in the modalities of stress reduction, we recommend further studies with larger samples.

P242

P02.186. CAST (Centella asiatica selected triterpenes): stability, safety, and effect on diabetic neuropathy (DN)

A Soumyanath^{*}, D Dimitrova, G Arnold, H Belding, N Seifer, N Le, J Lou Oregon Health & Science University, Portland, USA

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Purpose: The Ayurvedic nerve tonic herb Centella asiatica demonstrates potential neuro-regenerative properties in *in vitro* and *in vivo* models. The aims of the present study were to evaluate the safety and therapeutic effects of CAST (Indena[®], Milan, Italy) in humans with DN, while monitoring the stability of CAST during the trial period.

Methods: The stability of CAST was monitored throughout the study using reversed phase high performance liquid chromatography. CAST or placebo capsules were administered to 33 DN subjects, in a randomized double-blind, placebo-controlled study. The dose of CAST was escalated from 60 mg to 240 mg/day over the first 12 weeks, followed by a stable dose of 240 mg/day for the remaining 40 weeks. The primary outcome was total symptom score (TSS), while secondary outcomes were nerve conduction studies, neurological disability score (NDS) and qualitative sensory testing (QST).

Results: CAST was stable (<10% change from starting values) at room temperature for the duration of the study. At baseline, there was no difference in outcome measures between treatment (n=15, 3F/12M) and placebo (n=18, 6F/12M) groups (TSS: 8.4 \pm 2.9 vs 8.3 \pm 2.5; combined sensory nerve action potential amplitude of sural and radial (SNAP): 18.8 \pm 8.9 vs 17.7 \pm 15.4 μ V). At week 52, subjects in the treatment group had significantly lower TSS scores (6.4 \pm 0.4 vs 7.5 \pm 0.4, $p < 0.05$) and higher SNAP (20.3 \pm 2.4 vs 14.8 \pm 2.2 μ V, $p < 0.05$) than the placebo group. Other outcome measures did not differ significantly between the two groups.

Conclusion: CAST was stable and well tolerated by subjects at up to 240 mg per day. Compared to placebo, CAST significantly improved subjective DN symptoms (TSS score) and prevented deterioration in an objective measure of nerve conduction (SNAP). Current treatments for DN provide symptomatic relief rather than ameliorating disease progression. Multicenter trials are clearly warranted to further evaluate the role of CAST as a novel disease-modifying agent for DN.

P243

P02.187. Schematic body drawings (mSBD) as an outcome measure for CAM interventions in chronic back and neck pain

M Rasche^{1*}, R Lauche¹, R Lüdtkke², S von Hein¹, F Saha¹, T Rampf¹, J Langhorst¹, G Dobos¹, F Musial³

¹Complementarity and Integrative Medicine, University of Duisburg-Essen, Essen, Germany; ²Karl und Veronica Carstens Foundation, Essen, Germany; ³NAFKAM, University of Tromsø, Tromsø, Norway

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Purpose: Body image may be distorted in chronic back pain patients (Moseley 2008). We thus asked pain patients to complete (by drawing) pre-defined, printed body schematics, which were lacking the outlines of the particular body parts affected (neck and back). This way the patients were free to complete the outlines according to their subjective perception of their body. The primary aim of this study was to evaluate these drawings as an outcome tool for pain related CAM interventions.

Methods: Ninety-one patients who participated in two waiting-list controlled randomized trials on wet cupping in chronic neck pain (N=45) and dry cupping in chronic low back pain (N=46) were included. Each patient completed two drawings, one pre and one post intervention. Each drawing was evaluated by three different raters by 37 pre-defined items which aimed to describe its characteristics. Raters were blind to group assignment, intervention, order of drawings, gender, and whether patients benefited from therapy. Inter-rater reliabilities were determined by linearly weighted Cohen's kappa (κ) coefficients (Berry and Johnston 2008).

Results: All kappa coefficients were significant and only two were lower than $\kappa=.40$. Raters agreed on group assignment ($\kappa=.57$) and on the order of the drawings ($\kappa=.55$). The highest level of agreement ($\kappa = .66$ to $.74$) were found for the six items asking for changes in pain related areas. All other values were acceptably high ($\kappa = .40$ - $.60$). Furthermore, consistent correlations between the raters' judgements for pain related items, in particular regarding the trapezius muscle and the patients' pain ratings, were found.

Conclusion: Drawings represent a particularly difficult material to evaluate, nonetheless the inter-rater reliability was fairly good. Evidently, the schematic body drawings conveyed specific information about pain related changes in body scheme and should be regarded as an additional tool for the assessment of treatment effects in pain.

P244

P02.188. Integrative health care services as a function of body mass index

N Yang⁴, R Wolever¹, R Roberts², A Perlman¹, R Dolor², G Ginsburg³, L Simmons^{4*}

¹Duke Integrative Medicine, Durham, USA; ²Duke Clinical Research Institute, Durham, USA; ³Duke Institute for Genome Sciences & Policy, Center for Personalized Med, Durham, USA; ⁴Duke University Center for Research on Prospective Health Care, Durham, USA

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Purpose: The prevalence of obesity in the U.S. has become a serious health threat in the last two decades. Despite increased use of integrative medicine (IM) for chronic disease, research on the utilization and effectiveness of IM for management of obesity is limited. The purpose of this study was to: (1) examine how patient reasons for seeking IM care, patient treatment goals, and services provided differs based on body mass index (BMI); and (2) characterize psychosocial functioning, health behaviors, and current medical conditions across BMI classifications in patients seeking IM.

Methods: We analyzed data from eligible participants in the BraveNet practice-based research network who saw a physician at one of eight IM clinics (N=2,036). Participants self-reported demographics, health behaviors, psychosocial data, their reasons for seeking IM care, and treatment goals. Providers reported medical condition(s) treated and services provided.

Results: Comparing across BMI categories, more overweight and obese subjects reported decreasing pain as a primary goal of their IM care, while more underweight and normal weight subjects reported seeking improvements in mood. Further, more overweight participants reported seeking IM care because someone they trust recommended the center,

while more obese participants reported wanting greater input into their health care decisions. The services most frequently provided to all patients included acupuncture, IM consultation, nutrition services, and preventive care, with significantly greater frequency of preventive care provided to underweight participants. Differences in psychosocial and behavioral factors included: decreased frequency of aerobic exercise and muscular strengthening and increased depressive symptoms, fatigue, and pain with increasing BMI. There were no significant differences in the prevalence of chronic diseases across BMI categories.

Conclusion: This is the first study to characterize IM patients based upon BMI. Results may lay the groundwork for future studies aimed at tailoring IM strategies for the prevention and management of obesity and comorbidities.

P245

P02.189. GOALS: bundled services to reduce the length of hospital stay in women undergoing gynecology oncology surgery

J Mrachek¹, J Dusek², D Trebesch², S Sendelbach², J Haupt²

¹Northwest Anesthesia, Minneapolis, USA; ²Allina Health System, Minneapolis, USA

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Purpose: To examine if a multi-modal integrative intervention (education, early feeding/activity, epidural, integrative therapies) impacts length of hospital stay (LOS) compared to historical controls in women undergoing surgery for known or suspected endometrial, ovarian, or cervical cancer.

Methods: The multi-modal intervention combines various therapies into a cohesive program. Prior to surgery, participants receive explicit patient education, acupuncture and mind/body therapies to assist with physical and mental preparation for surgery. On the day of surgery, an epidural is placed prior to general anesthesia administration to manage post-operative pain. Patients undergo standard of care surgery. The evening after surgery, patients eat a high protein "surgical soft" dinner and nurses assist patients in walking down the hospital halls. Acupuncture is provided on post-operative days one and two for post-surgical pain relief, nausea control and for stimulation of bowel function. Patients' electronic medical records are reviewed to obtain intra-operative and post-operative details including amount of medications administered, length of surgery, time of admission to post-anesthesia care unit, time of first ambulation out of the room, percent of diet eaten first 24 hours, nausea/pain level, discharge date/time/disposition, and patient satisfaction scores. The primary endpoint is the difference in patient LOS following surgery relative to a historical control. Secondary endpoints include FACT-G, State-Trait Anxiety Inventory, Patient Activated Measure before admission and roughly six months after discharge from the hospital.

Results: Forty-one women were enrolled to date. The preliminary analysis indicated an average LOS of 2.57 days as compared to 2.89 to 3.39 days for historical controls. Final analyses will be presented at the meeting.

Conclusion: A bundled approach to care appears to reduce hospital LOS in women having surgery for endometrial, ovarian, or cervical cancer. Further research is needed to examine the efficacy of this approach in a controlled clinical trial.

P246

P02.190. Neural structural/functional and physiological correlates of massage therapy in response to physical stress

M Zhang^{1*}, M Menard², J VanMeter², L Lozier², S Browning², R Renton², A Breeden², J Brar³, R Savani², P Seales⁴, B Basdag⁵, S Kenmore², T Mena⁶, M Dutton², H Amri²

¹University of Maryland School of Medicine, Baltimore, USA; ²Georgetown University Medical Center, Washington, D.C., USA; ³University of Virginia School of Medicine, Charlottesville, USA; ⁴Uniformed Services University School of Medicine, Bethesda, USA; ⁵Johns Hopkins School of Medicine, Baltimore, USA; ⁶Massage Therapy Clinic, Silverspring, USA

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Purpose: Massage therapy is very popular in the U.S. and rated by patients as helpful self-care modality. It is used for a variety of conditions: most commonly for chronic pain and musculoskeletal problems, but also to alleviate stress, anxiety, and depression. It has been reported that changes in regional cerebral blood flow measured by PET scanning when palm-pressure back massage was applied to subjects in prone position.

However, the mechanism of massage therapy effect is not yet known. Therefore, we sought to examine the effects of massage on the acute stress response in healthy subjects using functional imaging and plasma catecholamines measurements.

Methods: Seven healthy right-handed young males, naïve to massage therapy, qualified for the study. Exclusion criteria ranged from having depression to cardiovascular diseases. The study used a within-subject design and the cold pressor test (CPT) to trigger the acute stress response before and after a 20 minute-standardized verum or sham foot massage. Blood samples were collected at each step of the protocol. fMRI data were collected using the arterial spin labeling technique to allow for quantification of cerebral blood flow. The functional paradigm included collection of baseline (rest) and CPT both before and after massage.

Results: There was a significant decrease in activity during stress after massage compared with pre-massage in the left caudate nucleus, rectus gyrus (Brodmann Area 11), and bilaterally in the inferior frontal gyrus. A decrease in the epinephrine and norepinephrine levels was also observed after the massage session.

Conclusion: The decreased response following massage suggests a calming of the limbic-prefrontal cortical circuit that is activated during stress and effects on the sympathetic nervous system. These results provide preliminary evidence for the mechanism of massage therapy effects related to pain processing being related to reduction in a sympathetic response.

P247

P02.191. A pruritic, psoriasiform rash in an 82 year old patient: clues to diagnosing atypical celiac disease

J Yang^{*}, M Kogan

George Washington Center for Integrative Medicine, Washington, D.C., USA
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Purpose: Celiac disease is a common autoimmune disease that is under-diagnosed. Challenges in its diagnosis are due to the frequent presentations of silent celiac disease, without overt diarrhea, and the perceived rarity of the disease despite recent studies showing that its prevalence approaches 1% of the United States population. Published studies have shown that the diagnosis of celiac sprue is frequently delayed, even with typical symptoms. Atypical and "silent" diseases are the most common presentations for gluten-sensitive enteropathy as less than 50% of patients present with the classic diarrhea-predominant disease.

Methods: We present the case of an 82 year old African American man who presented as a new patient from our dermatology department after he had undergone evaluation and treatment for an extensive, chronic, pruritic, psoriasiform rash that started from his upper chest and back and covered over 70% of his body. He had undergone a skin biopsy that revealed superficial perivascular infiltrate of lymphocytes, numerous eosinophils, and rare plasma cells. He was treated for presumptive psoriasis with a high-potency topical corticosteroid without benefit. Thrombocytopenia on his labs prompted a referral to the Geriatric clinic to establish care and undergo evaluation for his abnormal labs. His wife reported that the patient was forgetful, had mild weight loss, and occasional constipation. His labs were significant for thrombocytopenia without anemia, eosinophilia, hypoalbuminemia, severe Vitamin D deficiency, and borderline B12 levels.

Results: His celiac panel was positive and a gluten-free diet was prescribed. His follow-up appointment two months later revealed marked improvement of the rash, as well as resolution of his thrombocytopenia and hypertension.

Conclusion: This case highlights the challenges in diagnosing celiac disease in the elderly. Targeted screening for celiac sprue is critical to diagnosing this treatable disease, reversing debilitating morbidity, and preventing neoplastic consequences.

P248

P02.192. The mediating role of bodily dissociation and emotion regulation on PTSD symptoms among women in substance use disorder treatment

C Price^{*}, J Herting

University of Washington, Seattle, USA
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Purpose: Dissociation from the body involves a sense of separation from bodily self and typically involves a lack of attention to sensory awareness. Dissociation from the body is common among women with a history of sexual trauma and interferes with emotion regulation. Interoceptive awareness (inner body awareness and processing), has recently been posited as important to homeostasis and regulation to facilitate relapse prevention among individuals in substance use disorder treatment. The purpose of this study was to explore the mediating role of bodily dissociation and emotion regulation on PTSD symptoms among women in substance use disorder treatment.

Methods: The sample (N=46) were women in substance use disorder treatment participating in a NIH-funded study to examine a body-oriented therapy intervention that teaches interoceptive skills. The majority of the sample (~70%) had been exposed to the body-oriented therapy intervention. We used a SEM modeling approach with maximum likelihood estimation to test the effect of bodily dissociation and emotion regulation on PTSD symptoms across the 9 month study period involving assessments at baseline, 3, 6 and 9 month follow-up. The Scale of Body Connection, Difficulties in Emotion Regulation, and Modified PTSD Symptom Scale were used.

Results: The results showed significant indirect effects of bodily dissociation and emotion regulation on PTSD symptoms. Specifically, the mediation model indicates the following temporal relationship between variables: bodily dissociation → emotion regulation difficulties → PTSD symptoms where bodily dissociation has no direct effect on later PTSD symptoms but operates through its effect on emotion regulation difficulties.

Conclusion: The results suggest the role of bodily dissociation reduction in emotional regulation among women seeking treatment for a substance use disorder that have a history of sexual trauma. These findings support current theoretical models specific to interoception for relapse prevention, and point to the need for interventions that teach interoceptive skills.

P249

P02.193. Yoga of awareness: a randomized trial in fibromyalgia: post intervention and 3 month follow up results

C Wright^{*}, J Carson, K Carson, R Bennett, S Mist, K Jones

Oregon Health & Science University, Portland, Oregon, USA
BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P249

Purpose: Comprehensive fibromyalgia (FM) treatment requires medications, exercise and improvement of coping skills. However, existing exercise protocols exert inadequate analgesic effects and suffer from poor adherence. The central hypothesis of the study is that yoga practiced with concurrent substantive mindfulness will reduce pain-related fear, increase pain acceptance and pressure pain thresholds, resulting in long-term adherence.

Methods: Fifty-three women with FM were randomized to an 8 week RCT of 2 hours weekly supervised group yoga + mindfulness or wait listed control. Yoga + mindfulness consisted of gentle poses, meditation, breathing exercises, yoga-based coping instructions, and group discussions drawing strongly on the Kripalu school of yoga.

Results: Immediately post-intervention women assigned to the yoga + mindfulness program compared to wait listed controls showed significantly greater improvements on standardized measures of FM symptoms and functioning (Revised Fibromyalgia Impact Questionnaire, FIQR), including pain, pain pressure thresholds, fatigue, mood, pain catastrophizing, acceptance, and other coping strategies. Post-treatment results in the wait-list group largely mirrored results seen at post-treatment in the immediate treatment group, with the FIQR Total Score improving 31.9% across the two groups. Follow-up results showed that patients sustained most of their post-treatment gains, with the FIQR total score remaining 21.9% improved at 3 months. Multilevel random effects models demonstrated that those who practiced more had greater improvements. Home practice was 31 minutes daily vs 40 minutes daily in the wait listed vs immediately treated groups, respectively.

Conclusion: This novel pilot RCT indicated that yoga + mindfulness may be a safe, effective and durable intervention for women with FM.

P250

P02.194. Newly developed functional medicine program in diabetes: impact on clinical and patient reported outcomes - functional medicine and quality of life

D Franic¹, C Snapp^{2*}, R DeBusk²

¹University of Georgia, Athens, USA; ²Family Medicine Residency Program

Tallahassee Memorial Healthcare, Tallahassee, USA

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Purpose: To determine the effectiveness and impact of a newly developed functional medicine program in diabetes patients using widely used quality of life measures, instruments frequently/increasingly used in functional medicine, in addition to traditional clinical outcomes.

Methods: Adult clinic patients with diabetes were eligible to participate in a longitudinal comprehensive mindfulness-based therapeutic lifestyle change program involving weekly educational classes dedicated to teaching wellness and lifestyle changes. Patient outcome assessments were administered at baseline, 3- and 6- months, and included traditional clinical parameters and self-completed patient reported outcome measures: Five Facet Mindfulness Questionnaire (FFMQ) and Medical Symptom Questionnaire (MSQ); two generic quality of life measures, EuroQol's EQ5D and Short Form 12 (SF-12); and the Summary Diabetes Self-Care Activities Questionnaire (SDSCA), a diabetes specific instrument. **Results:** Twenty-six patients with diabetes (96% type 2) participated in the study [mean age of 64.1 years (SEM=2.05), 70% Female]. Patients' weight, waist circumference and BMI decreased over 6 months ($p<.05$). FFMQ's nonjudging on inner experience dimension improved over 6 months ($p=.004$). MSQ's joint, weight, energy and emotion dimensions improved over 6 months ($p<.05$). EuroQol's EQ5D-VAS showed patients' overall quality of life improved ($p<.05$). SF-12's role functioning and emotional health dimensions improved ($p<.05$, ES=.3 - .4). SDSCA showed significant improvements in diet, exercise, and glucose control ($p<.05$). By self-report at 6 months all diabetes patients participating reported improved quality of life.

Conclusion: A functional medicine program piloted in a small group of patients with diabetes was effective. Patients showed significant improvements in traditional clinical parameters in addition to functional medicine metrics and widely used quality of life scales. This clinical trial is ongoing and expanded to include other conditions with the aim of integrating mindfulness based approaches to chronic disease into medical education at the Tallahassee Memorial HealthCare Family Medicine Residency Program.

P251

P02.195. Acupuncture for acute pain management in an emergency department: an observational study

T Zhang^{1*}, D Smit², D Taylor³, S Parker¹, C Xue¹

¹RMIT University, Australia, Melbourne, Australia; ²Alfred Hospital, Melbourne, Australia; ³Austin Hospital, Melbourne, Australia

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Purpose: To evaluate the impact on clinical outcomes by providing acupuncture as an option for acute pain management in the emergency department (ED) of a major metropolitan hospital in Melbourne, Australia.

Methods: Adult patients (aged 18+ years) with acute pain attending the ED were initially assessed by medical staff and/or acupuncture staff for the suitability of acupuncture treatment. A total of 200 patients received acupuncture treatment. The selection of points for treatment was based on Chinese medicine diagnosis and theory. The treatment duration was 30 minutes on average with or without electrical stimulation. A Visual Analogue Scale (VAS) to measure pain scores before and after acupuncture treatment was the primary outcome.

Results: Pain in the abdominal or flank region and muscle and musculoskeletal related pain were the common conditions treated (83%). A significant difference in the scores of before (mean = 7.01) and post treatment (mean = 4.72) was observed [$t(193) = 14.81$, $p<.001$]. Four patients (2%) reported adverse events during the course of the acupuncture treatment. These included two cases of slight bleeding with the other two cases of mild pain at the needling sites. No serious adverse events were reported. More than half (52.5%) of patients indicated that

they would definitely consider acupuncture in the future for the same health condition and a further 31.8% said they probably would consider acupuncture again.

Conclusion: Acupuncture can be an effective and safe adjunct intervention for patients with acute pain in settings such as the emergency pain management environment.

P252

P02.196. Changes in medication use associated with Traditional Chinese Medicine for chronic pain

C Elder^{1*}, C Ritenbaugh², M Aickin², R Hammerslag³, S Dworkin⁴, S Mist⁵, R Harris⁶

¹Kaiser Permanente Center for Health Research, Portland, USA; ²University of Arizona, Tucson, USA; ³Oregon College of Oriental Medicine, Portland, USA;

⁴University of Washington, Seattle, USA; ⁵Oregon Health and Science University, Portland, USA; ⁶University of Michigan, Ann Arbor, USA

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Purpose: A randomized trial of Traditional Chinese Medicine (TCM) for temporomandibular joint dysfunction (TMD) showed a linear decline in pain over 16 TCM visits. Here we investigate whether medication increases could account for improvement, or whether pain medications were also reduced.

Methods: One hundred sixty-eight TMD patients received TCM or enhanced self-care using a stepped-care design where those who failed on self-care were offered TCM. This report includes 121 patients during their first 16 TCM visits. The initial 8 occurred more often than weekly; patients and practitioners determined subsequent schedules. Outcome data were collected via study-administered questionnaires at standard times, and self-report at every treatment visit. Here we report on average pain (VAS 0-10) and pain medications over the previous week, collected at treatment visits. We converted pain medication intake to equivalent weekly doses of aspirin (for NSAIDs and acetaminophen) or morphine (7.5mg for narcotics). Pain was analyzed by linear regression with random effects for within-individual correlations. Medication use was log-transformed and analyzed using quadratic splines.

Results: The sample was 85% female and on average 44 (SD=13) years old. Narcotics users' (n=32) average pain improved -2.56 units over 16 visits ($p<0.001$). Narcotics use declined until visit 11 (-1.73 doses/wk total, $p=0.067$), and then increased to week 16 (+1.34 doses/wk total, $p=0.076$). NSAID use declined linearly ($p=0.019$), -0.47 and -0.20 doses/wk over visits 1-11 and 11-16, respectively. For the 18 participants in the top quartile of NSAIDs-only users, average pain decreased linearly over 16 visits (-1.6 units, $p=0.043$). Dose of NSAIDs declined between visits 1-7 (-6.39 doses/wk, $p=0.038$) and increased between visits 7-16 (+1.42 doses/wk, $p=0.386$). NSAID use among the rest remained low and stable.

Conclusion: Among patients using narcotics and those who had the highest NSAID intakes, we observed a short-term reduction in medication use that was partially sustained as TCM visits became less frequent.

P253

P02.197. Self help intervention to decrease stress and increase mindfulness: a pilot trial

V Sharma^{*}, B Bauer, K Prasad, A Sood, D Schroeder

Mayo Clinic, Rochester, USA

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Purpose: The Stress Management and Resiliency Training (SMART) program has shown efficacy for reducing anxiety and perceived stress and increasing resilience and quality of life. SMART has traditionally consisted of an in-person training session with an instructor and follow up teleconferences over 12-24 weeks. The purpose of this study was to assess whether self-directed SMART training using only written material would have efficacy.

Methods: Thirty-eight subjects working at a large midwestern medical center were recruited and given a book and workbook that provided them with the background and training in the SMART program. Subjects were instructed to read through and practice the various SMART principles and techniques. These techniques included education about the neurophysiology of stress and resilience, training attention to focus

on present moment awareness, refining interpretations, and cultivating higher values such as gratitude, forgiveness and higher meaning. Primary outcome measures assessed at baseline and week 12 included the Connor Davidson Resilience Scale (CDRS), Mindfulness Attention Scale (MAAS), Perceived Stress Scale (PSS), Smith Anxiety Scale (SAS), and Overall Quality of Life (QoL).

Results: Thirty-three subjects completed the study and provided baseline and follow up data. Mean age was 48.1 years (range 27 to 66 years) and 85% of participants were female. Statistically significant improvements in resilience, mindfulness, perceived stress, anxiety, and overall QoL were observed at 12-weeks compared to baseline: (CDRS: 73.4±10.8 vs. 81.8±13.8, $p<0.001$), (MAAS: 3.7±0.7 vs. 4.3±0.9, $p<0.001$), (PSS: 25.7±5.6 vs. 19.5±7.3, $p<0.001$), (SAS: 55.5±15.4 vs. 41.7±14.9, $p<0.001$), and (QoL: 7.0±1.7 vs. 8.0±1.5, $p=0.001$).

Conclusion: This study demonstrates that a brief, self-directed program to decrease stress and enhance resilience and mindfulness is feasible. Further, the program provides excellent short-term efficacy for enhancing resilience, mindfulness and quality of life, and decreasing stress and anxiety. Future randomized trials with larger sample sizes are warranted to study the effectiveness of the intervention.

P254

P03.01. Characteristics of residents and training sites influence successful completion of the Integrative Medicine in Residency program

P Lebensohn^{1*}, S Dodds¹, B Kligler², A Brooks¹, P Cook¹, V Maizes¹
¹University of Arizona, Tucson, USA; ²Beth Israel Medical Center, New York City, USA

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Purpose: To describe resident and training site characteristics influencing resident completion of a 200-hour curriculum in integrative medicine (IM).

Methods: Resident and residency site characteristics were examined to determine factors influencing completion of the Integrative Medicine in Residency (IMR) curriculum for the 2011 graduating class. Completion criteria included finishing ≥80% of the online courses plus a final score on the medical knowledge test of ≥70%. Resident characteristics used as predictors included demographics; medical school type [US MD, DO, foreign medical graduates (FMG)]; and, responses to a post-match survey administered before the residency began in 2008 on previous participation in CAM courses or experiences, importance of the IMR in choosing residency, and interests in learning IM and applying IM after graduation. Site characteristics included: extent of IM in the residency culture (e.g., faculty practicing IM consultations; IM consultation on site; an IM 4th year fellowship at the site); faculty characteristics (i.e., faculty leader IM fellowship trained; faculty leader with designated IM teaching time); and curriculum delivery (i.e., using the IMR plus other IM teaching/rotation/electives; monthly IM case conferences; resident IM clinical application).

Results: Residents completing the curriculum and passing the final test were more likely to be female than male (88.9% vs. 60%; $p=0.02$) and US MDs (90.3%) or DOs (87.5%) than FMGs (52.9%) ($p=0.023$). There were no statistically significant differences on completion rates for the post-match survey items. Sites with the highest rates of resident course completion were those that had on-site IM consultations ($p<0.001$), an IM 4th year fellowship ($p=0.01$), and a faculty leader with designated IMR time ($p<0.001$). Medical knowledge test scores were significantly correlated with a greater number of faculty characteristics, culture characteristics, and total site characteristics but not with curriculum delivery.

Conclusion: Characteristics of residents, residency faculty and culture are crucial to successful completion of a core curriculum in Integrative Medicine.

P255

P03.02. From CAM practice to CAM research: a bridge fellowship for CAM practitioners to pursue careers in clinical research

R Evans^{1*}, G Bronfort¹, M Kreitzer²
¹Northwestern Health Sciences University, Bloomington, USA; ²Center for Spirituality and Healing, Bloomington, USA

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Purpose: Patient oriented clinical research, particularly randomized clinical trials, is a complex field. Complementary and alternative medicine (CAM) educational institutions typically place less emphasis on research than what is typically seen in conventional university settings; consequently CAM practitioners are less prepared to pursue careers in clinical research than their conventional medical counterparts. The purpose of this presentation is to present a unique "bridge" fellowship that prepares CAM practitioners to pursue careers in CAM clinical research.

Methods: Through a CAM Research Education Partnership Project (R25), Northwestern Health Sciences University (NWHHSU), in collaboration with the University of Minnesota (UM), has designed a fellowship program which incorporates academic coursework, meaningful clinical research experiences, and one-on-one mentorship. Fellows enroll in the UM's Masters of Science in Clinical Research program, where they receive formal research training in clinical trial methods, and have access to a wide variety of research training resources through the UM's Center for Translational Research Institute. Hands-on research training occurs through a comprehensive program of multiple clinical research rotations at NWHHSU's clinical research center, where several CAM randomized clinical trials are underway. Individualized mentorship is provided by experienced, funded CAM and conventional scientists, who provide career guidance to fellows and involve them in all aspects of the conduct of CAM clinical research, including grant-writing, study design and implementation, grant management, team-building and leadership.

Results: While the program is relatively new, it has begun to yield outcomes. Three CAM fellows (two chiropractors, one AOM practitioner) have been accepted and are enrolled in the UM's Clinical Research Program. Collectively, they have authored several presentations and publications, and participated in the design and funding acquisition of two NCCAM funded projects.

Conclusion: A fellowship program emphasizing coursework, practical training and mentorship may be effective in transitioning CAM practitioners into clinical research careers.

P256

P03.03. Facebook use and professionalism among CAM students

G Hinck^{*}, R Evans
Northwestern Health Sciences University, Bloomington, USA
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Purpose: Social media sites such as Facebook have become a popular way for students to interact, share, and communicate. Studies have found incidents of unprofessional social media use such as posting of protected information or inappropriate photos in both medical and pharmacy students, which has raised concern in healthcare educational settings. To our knowledge, there have been no studies investigating social media use among complementary and alternative medicine (CAM) students.

Methods: This was an observational study which systematically evaluated the Facebook profiles of all enrolled students at an accredited CAM institution, for type and professionalism of publicly viewable content. Content was deemed unprofessional if there was evidence of alcohol consumption, overt sexuality, foul language or gestures, violence, or patient privacy violations.

Results: Of 744 students enrolled, identity could be confirmed in 57% with Facebook profiles publicly viewable for 307/492 (chiropractic), 73/116 (oriental medicine) 22/73 (massage) and 23/63 (undergraduate). Unprofessional content was found to a greater degree in undergraduate (48%) and chiropractic (42%) students and less frequently in massage (27%) and oriental medicine (22%). The majority of this unprofessional content involved photos showing alcohol consumption. Patient privacy violations were found in < 1% of sites, only in chiropractic.

Conclusion: Results indicated that a majority of these CAM students have identifiable Facebook sites and many do not select privacy settings that limit viewing of personal content. Many of these sites contain unprofessional content that could have a negative effect on the reputation and professionalism of the student as well as their program, school, and profession. Posting of unprofessional content varies by program and may be more prevalent in programs with younger students. It is important to understand how our students use social media so that

we can develop curricula that support professionalism and responsible use of social media.

P257

P03.04. Attitudes and knowledge of medical students towards complementary therapies

L Shih Min^{*}, N Mendes Morales

Universidade Federal de Santa Catarina, Florianopolis, SC, Brazil

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Purpose: To evaluate the attitudes and the degree of knowledge of medical students from Universidade Federal de Santa Catarina, Florianopolis, Brazil, towards complementary therapies of the National Policy on Complementary and Integrative Practices of the SUS.

Methods: Observational transversal quantitative survey using a questionnaire, which was built by the authors and consisted of two parts: the first part contains the student's personal data, besides some questions about knowledge, self use and willing to recommend the therapies; the second part is about the beliefs and attitudes toward complementary therapies.

Results: Three hundred ninety-two students (65.2% of all undergraduates) answered the questionnaire, with a uniform distribution between genders. Of these, 30.7% affirmed they had been treated with complementary therapies. Eighty-eight percent knew about complementary therapies with the most known being herbal medicine (90.3%). Eighty-three percent declared they got the knowledge about the therapies from non-academic sources such as media. The majority demonstrated favorable attitudes towards the therapies, and 84.7% of them would recommend or support their use by their patients and family, and 75.3% of them would like to learn about the subject in curricular classes. Few students (15.6%) claimed this subject was taught in undergraduate curricular classes.

Conclusion: The UFSC medical students demonstrated favorable attitudes towards complementary therapies, willing to recommend and support their use by their patients or family. They were inclined to learn about the subject in curricular classes, especially the students belonging to the central phase (third and fourth years) and among females. The students also revealed they knew about the therapies through non-academic sources and that the teaching level during the medical undergraduate course in UFSC is low.

P258

P03.05. Creating an interprofessional curriculum in integrative medicine for medical, nursing, pharmacy, and dentistry students: curriculum mapping strategies

S Adler^{*}, Y Coulter

University of California, San Francisco, San Francisco, USA

BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P258

Purpose: An increasing number of academic health institutions are committed to integrative medicine (IM) principles, including partnership between patient and practitioner; collaborative, interprofessional health care; and promotion of health and the prevention of illness. The objective of this five-year project is to develop, implement, evaluate, and disseminate a multidisciplinary, interprofessional curriculum in IM. Our first aim was to map the existing IM curricula to examine the content longitudinally within each school, as well as across schools. To do this, we added to traditional curriculum mapping methods by eliciting faculty and students' perspectives through interviews.

Methods: We formed multiprofessional working groups of IM educators, practitioners, and students. Our enhanced curriculum mapping process included collection of online and paper-based syllabi and other materials from courses, as well as semi-structured interviews with course faculty, members of an IM student interest group, and other health professions students. We assembled a database of the collected components to examine content differences and areas of overlap within and across the schools. Three investigators coded transcripts independently, identified themes, and reconciled differences.

Results: The curriculum map revealed isolated and scattered content within each school and different educational emphases across the health

professional schools. Faculty and learners perceived the absence of a systematic and coordinated approach to IM curricula and emphasized the lack of both sequential development and an iterative pattern within and across schools.

Conclusion: Traditional curriculum mapping makes curriculum development more effective and efficient. Adding faculty and student interviews helped contextualize the mapped results. An unanticipated benefit of our enhanced approach to curriculum mapping was that it generated enthusiasm and fostered collaboration for the interprofessional curricular innovation. Using IM principles to educate and engage interprofessional learners enables individuals to work together more effectively; share problem-solving and decision-making tasks; and integrate disparate knowledge structures into a single action plan.

P259

P03.06. Mind body interventions in medical education: a review of the literature

A Natarajan¹, D Mehta^{2*}

¹Harvard Medical School, Boston, USA; ²Benson-Henry Institute for Mind Body Medicine, Boston, USA

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Purpose: While many schools have made efforts to promote student wellness using various interventions, little is known about the impact. In 2000, Shapiro et al. conducted a literature review of stress reduction in medical education, and concluded the need for more rigorously defined studies. A decade later, there has been dramatic progress in understanding the deleterious consequences of stress on medical trainees. Given the sense of urgency to reform medical education, this study seeks to provide a descriptive review of studies examining mind body interventions in medical education.

Methods: We searched Medline, Pubmed, PsychInfo, EMBASE, CINAHL, and ERIC for peer-reviewed primary studies of stress management interventions for medical trainees (medical students, interns, and residents) in the English language. The following subject heading terms and search strategy were used: (stress [psychological/prevention and control] or complementary therapies or spiritual therapies or spiritualism or religion or biofeedback or relaxation therapy or adaptation [psychological]) and (student, medical or education, medical).

Results: Twenty-two studies met the eligibility criteria. There was great diversity in the types of interventions, combination of techniques, and frequency of meeting. Outcomes studied included stress, depression, anxiety, and overall mental health and quality of life. The majority of interventions show immediate value (either positive qualitative results from students) or positive improvements in outcome measures, but no studies examined if these results persisted over time.

Conclusion: This review demonstrates the utility of a standardized mind body curriculum in medical education to buffer against the negative impacts of stress. Future research should focus on developing effective, evidence-based interventions alongside standardized instruments to examine medical student well-being. Future research may also seek to examine if multiple interventions provided at different points in training may serve as a buffer during these transition times.

P260

P03.07. Thematic analysis of resident application essays for a nutrition education program

R Graham^{*}, C Ngamwajasat

Lenox Hill Hospital, New York City, USA

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Purpose: Obesity is on the rise in the United States and there has been a conscious effort on the part of the government and physicians to provide measures to counteract the epidemic. Diet is an important part of therapeutic lifestyle modification, but many physicians feel lacking in their ability to provide sound and adequate counseling. Our objective was to assess the main reasons why residents at Lenox Hill Hospital chose to enroll in a nutrition education program.

Methods: Sixteen residents of varying specialties at Lenox Hill Hospital wrote essays to apply to a nutrition education program given by the

hospital. A theme analysis was applied to assess common reasons why residents chose to apply to the program. Each theme was assigned a letter and the number of appearances of a theme was tabulated.

Results: There were seven main themes that were consistently present in the residents' essays as to why they wanted to enroll in a nutrition education program: 56% alluded to a lack of nutrition education; 44% listed diseases with relation to diet; 44% wrote about a desire to make changes to their own lives; 31% spoke about improving patient health outcomes; 25% spoke about the obesity epidemic; 19% about wanting to "practice what they preach" in terms of nutrition; and 13% thought the program could help them field patients' questions about nutrition.

Conclusion: Young physicians at Lenox Hill Hospital chose to apply to a nutrition education program because of a recognition of a disease epidemic related to diet, a desire to improve personal and patient education and outcomes, and above all, the perception that they lack sufficient nutrition education.

P261

P03.08. The case for a well-being program for residents in training: preliminary findings

H Saadat^{1*}, D Snow¹, S Ottenheimer¹, F Dai¹, Z Kain²

¹Yale University, Woodbridge, USA; ²University of Irvine, Irvine, USA
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Purpose: This study evaluates the effects of a comprehensive preventive intervention with anesthesia residents at all levels of training at Yale University.

Methods: This randomized controlled trial was undertaken with 60 anesthesiology residents at a large teaching hospital in an urban area. The study had three groups: 1) wellness intervention group, 2) no-treatment control group with release time (NTC-RT), and 3) no-treatment control group with routine duties (NTC-RD). Residents in the wellness group were given release time in order to participate in a wellness intervention, Coping with Work and Family Stress, which consisted of 16, 1.5-hour weekly sessions. Residents in the NTC-RT group were given the same amount of release time each week and chose activities such as reading and studying. Residents in the NTC-RD group continued their regular schedule of clinical assignments (or routine duties) in the operating rooms. Coping strategies, stressors, social support, anxiety, depression, somatic complaints, and the frequency of alcohol and tobacco use were measured prior to and after the completion of the study.

Results: Residents in the wellness group reported lower parent role stressors ($p=0.03$) compared to those in the NTC-RD group, increased social support from work compared to both the NTC-RT group ($p=0.02$) and NTC-RD group ($p=0.02$), decreased anxiety compared to the NTC-RD group ($p=0.02$), and reduced alcohol consumption compared to those in the NTC-RT group ($p=0.02$). Residents in the wellness intervention group and the NTC-RT group reported greater increases in problem-solving coping compared to the NTC-RD group ($p=0.02$ and $p=0.01$, respectively).

Conclusion: Residents in the wellness program reported significantly fewer stressors in their role as a parent, higher levels of perceived social support at work, greater use of problem-solving coping, greater reductions in anxiety, and reduced alcohol consumption.

P262

P03.09. Development of an interprofessional model of collaborative care by doctors of chiropractic and medical doctors for older adults with low back pain

C Goertz¹, S Salsbury^{1*}, R Vining¹, A Andresen², M Hondras¹, M Jones², L Killinger³, C Long¹, K Lyons⁴, R Wallace⁵

¹Palmer Center for Chiropractic Research, Davenport, USA; ²Genesis Quad Cities Family Medicine Residency Program, Davenport, USA; ³Palmer College of Chiropractic, Davenport, USA; ⁴Thomas Jefferson University, Philadelphia, USA; ⁵The University of Iowa, Iowa City, USA

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Purpose: Although low back pain (LBP) is a common reason older adults seek treatment from either medical doctors (MD/DO) or doctors of

chiropractic (DC), collaborative care between these providers is rarely reported. The purpose of our study is to develop a model for such collaborative care in LBP patients, based upon an existing integrative medicine model (Hsiao et al., 2006), focusing on four facets of interprofessional collaboration: attitudes, knowledge, referral, and integrative practice.

Methods: An interdisciplinary committee composed of DCs, MDs, a pharmacist, biostatistician and health services researchers developed a collaborative care model for implementation within the context of a clinical trial. Family medicine physicians ($n=18$) and chiropractic clinicians ($n=29$) completed a survey, including the Integrative Medicine Questionnaire (IM-30). A pre-selected group of MD/DO residents and DC clinicians then completed five interprofessional education sessions (IPE) on the model and clinical trial, and participated in job shadowing experiences.

Results: Median IM-30 scores measured pre-IPE indicated DC and MD/DO providers had comparable overall (61.1 vs 59.3) and subscale scores for openness to working with alternate paradigm practitioners (60.8 vs 55.0); readiness to refer patients to alternate paradigm practitioners (66.7 vs 66.7); and provision of patient-centered care (66.7 vs 75.0). DCs scored higher than MDs/DOs on subscales measuring willingness to learn from alternate paradigms (55.0 vs 30.0) and integrative medicine safety (80.0 vs 60.0). These data will be compared to Year 1 follow-up surveys currently underway. IPE fieldnotes documented collegial debate on the evidence-base supporting chiropractic and medical LBP treatments, clinical examination and imaging interpretation, and safety concerns.

Conclusion: Early evaluation of our collaborative care model revealed similarities in DC and MD/DO attitudes towards working with alternate paradigm health practitioners on LBP care for older adults. Provider safety concerns and willingness to learn from alternate disciplines may require additional IPE training to overcome.

P263

P03.10. The quality of integrative postgraduate medical education within the public health care system of Germany: the example of anthroposophic hospitals

H Peter^{1*}, S Eberhard¹, M Siegrist², P Orlow²

¹University of Witten/Herdecke, Herdecke, Germany; ²Swiss Federal Institute of Technology, Zürich, Switzerland

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Purpose: Integrative medicine (IM) health care requires appropriate education in IM. In Germany, hospitals providing conventional medicine (CM) and anthroposophic medicine (AM) have been training residents in IM for over four decades. In view of growing public interest for IM, we evaluated the quality of postgraduate medical education (QPME) in these hospitals.

Methods: We conducted an anonymous survey among all 215 residents of the 34 departments of all 11 German hospitals providing AM and IM and regular postgraduate medical education (PME), using an instrument with 71 scaled questions developed by the ETHZ for assessing QPME in CM hospitals, complemented by 22 additional questions for AM aspects of PME. Forty-two percent responded. Data were analyzed descriptively and according to department sizes and clinical disciplines.

Results: QPME received the highest ratings in small (1-3 residents) departments, intermediate ratings in intermediate size departments (4-10 residents), and the lowest ratings in large (>11 residents) departments. This was consistent for overall satisfaction in CM and AM, overall clinical competency in CM and AM, cultures in learning, leadership, decision making, organization, evidence based medicine, and for the working situation, although working hours were comparable. Among the clinical disciplines, internal medicine, pediatrics, surgery and anesthesiology scored lower than gynecology/obstetrics, psychiatry/psychotherapy, and neurosurgery, whereby working hours were high in surgery and internal medicine, but also in neurosurgery, and low in pediatrics and psychiatry/psychotherapy. Reasons for constraints to an optimal QPME in AM were given as (in this order): high work load, too much administrative work, organizational problems; inadequate payment, not enough relation to practice, insufficient AM competency of educators, lacking financial resources, and insufficient didactic competencies of educators were not very important reasons for constraints to an optimal QPME.

Conclusion: QPME in IM was related to department sizes and disciplines. Main reasons were working loads (not working hours) and organizational problems; less important reasons were inadequate payment or insufficient clinical or didactic competencies of educators.

P264

P03.11. Relaxation response intervention induces respiration and heart rate variability changes in hypertensives

T McConville*, K Dusek, J Dusek

Penny George Inst. for Health & Healing, Abbott Northwestern Hospital, Allina Health, Minneapolis, USA

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Purpose: Mind/body practices that elicit the relaxation response (RR) have been used for health purposes for thousands of years, but mechanisms of action are not clearly understood. Our research team seeks to identify mechanisms underlying the impact of a mind/body relaxation response intervention on blood pressure. As an extension of that effort, the purpose of the current substudy explores physiologic measurements and heart rate variability (HRV) analysis during elicitation of the relaxation response in hypertensive adults.

Methods: The current dataset includes 34 subjects (aged 50-75) half of whom were randomized to either an eight week relaxation response (RR) intervention or eight week health education (HE). HRV, heart and respiration rate were collected by ECG and respiratory band in a controlled laboratory setting before and after subjects completed their eight week intervention. Both 75 minute pre and post sessions were exclusively conducted in the morning and included the following periods: habituation, baseline, CD listening and rest. During the pre session CD listening period, all subjects listened to a health education recording. Whereas in the post session CD listening period, RR subjects elicited the RR through audio instructions and HE subjects listened to another health education recording.

Results: Preliminary results indicate a 19% decrease in respiration rate during acute RR elicitation, without influence on heart rate. However, there was a significant increase in HRV as measured by SDNN, and RMSSD (five minute increments). Both respiration rate and HRV response persisted for approximately 10 minutes beyond RR elicitation. In contrast, HE subjects did not exhibit significant changes to respiration rate, heart rate or HRV measures.

Conclusion: Hypertensive patients receiving RR training exhibited significant reductions in respiration rate and increase in HRV, whereas HE subjects did not. These types of physiological findings may assist in our eventual exploration of blood pressure changes from the parent study.

P265

P03.12. Use of the electronic medical record to teach complementary and alternative medicine: what's the impact?

R Teets², A Cohrsen², P Jennifer¹, J Silberlicht^{2*}

¹Albert Einstein College of Medicine, Bronx, USA; ²Institute for Family Health, New York City, USA

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Purpose: Although some progress has been made in recent years, training in how to counsel patients effectively on complementary/alternative medicine (CAM) is not widely integrated into undergraduate medical education. Our purpose in this study was to evaluate the impact of a teaching intervention utilizing the electronic medical record (EMR) as a point-of-care learning tool on students' attitudes and knowledge of CAM and on their self-reported competence in counseling patients on this subject.

Methods: Students are oriented to the EMR by the preceptor and provided with a one-hour didactic centered on CAM. This lecture orients students to available CAM modalities; discusses evidence-based medicine and CAM; surveys herbs and supplements with supporting evidence; and finishes with a case-study illustrating how CAM can be brought into a patient encounter, using CAM "smartphrases," which are essentially premade templates readily accessible in the EMR. These smart-phrases provide a real-time reference for students during their patient encounters. Pre- and post- surveys consisting of nine questions using a likert scale

examined changes in students' attitudes about, and use of CAM. These surveys were given anonymously to our medical students. A group of similar medical students who did not rotate here were also given the same surveys, thus representing a control group.

Results: Among the 27 students in our intervention group, we saw an increase of 48% and 43% in the number of students who felt comfortable counseling patients on fish oil and probiotics, respectively. Among the 38 students in our control group, no significant differences were observed.

Conclusion: Results of this small sample pilot study suggest that CAM lectures plus EHR-based CAM assessments and tools can increase student comfort with counseling on probiotics and fish oil. The fact that this effect was not seen for acupressure and mind-body interventions suggests a different intervention may be needed.

P266

P03.13. Assessment of student learning at a CAM institution - why and how?

S Vinjamury*, G Thompson, M Nagare, K Rose

Southern California University of Health Sciences, Whittier, USA

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Purpose: The purpose of this paper is to describe the importance of proper assessment of student learning and the process adopted by a CAM institution in the establishment of Student Learning Outcome Departments to assess student learning.

Methods: Student Learning Outcomes (SLOs) are specific statements that describe the knowledge, skills and attitudes that students are expected to learn at the successful completion of the curriculum. They provide the students with what to expect of the program and themselves. SLOs also assist in programmatic review, evaluation and improvement of the curriculum. As a result of their extensive role, outcome based education has become a priority in health professions. While it has been successfully implemented in medical, dental and nursing schools, outcome based education is gradually evolving in the complementary and alternative medicine professions. Our institution created four exclusive SLO Departments to develop, refine, and manage SLOs across all the programs. Furthermore, these departments were given the responsibility of assessment of student learning.

Results: The development of SLOs occurred in two phases: (1) Faculty training that focused on the significance of learning based curriculum and the first draft of SLOs were created by faculty at large. (2) Establishment of four exclusive departments that are headed by Department Chairs. These departments were populated with both pre-clinical and clinical faculty across both programs at our institution. These assignments were in addition to their primary academic affiliation to a department. The Department Chairs and the faculty work together to ensure that SLOs are being assessed and that Student performance on the SLOs is tracked.

Conclusion: SLOs provide a framework by which an institution's efforts, goals, mission, and objectives are made explicable to both internal and external constituencies. Independent SLO Departments may be helpful in assessing student learning better as it is their exclusive task.

P267

P03.14. Cancer complementary and alternative medicine research among NCI's cancer centers program and the integrative medicine programs: an inventory

I Mikhail¹, E Austin¹, S Buckman², C Lee¹, N Goodman², J White¹

¹National Cancer Institute-DCTD-Office of Cancer CAM (OCCAM), Bethesda, USA; ²National Cancer Institute, Office of Cancer Education (OCE), Bethesda, USA

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Purpose: The National Cancer Institute (NCI) supports a Cancer Centers Program (CCP) including 66 NCI-designated cancer centers. Several CCPs have associations with Integrative Medicine Programs (IMPs). However, limited information is available regarding cancer-CAM research and collaborations between them. An inventory by NCI's Office of Cancer Complementary and Alternative Medicine (OCCAM) was conducted to learn about CAM related services and resources at NCI's CCPs and IMPs,

including members of the Consortium of Academic Health Centers for Integrative Medicine (CAHCIM).

Methods: Sixty-six NCI-designated cancer centers of the CCP and 41 IMPs were eligible to participate in a brief inventory about clinical services, education, and research. This project examines the CCP-IMP cancer research results of this inventory.

Results: Most CCPs and IMPs indicated collaborating with each other and also working independently. CCPs conducted more independent research (38%) than IMPs (28%). Types of research collaborations included mainly clinical research (93% at CCPs; 88% at IMPs). International collaborations were higher among CCPs (27%) compared to IMPs (11%). Both CCPs and IMPs reported NIH as their major source of funding (76% and 59%, respectively). About 70% of CCPs and IMPs reported having CAM research experts in their centers. When asked if their institutions would find an NCI training on cancer CAM research grants beneficial, both CCP (85%) and IMP (94%) respondents were interested in such training and considered it to be beneficial.

Conclusion: This inventory shows that research collaborations between CCPs and IMPs are ongoing. However, additional in depth details are needed. Research training on cancer CAM grants can be beneficial in fostering research collaborations and in advancing cancer CAM research among CCPs and IMPs.

P268

P03.15. Developing a Health Qigong program for children: a 16-week curriculum

C Wang¹, D Seo¹, R Geib², N Wroblewski³, M Van Puymbroeck¹

¹Indiana University Bloomington, Bloomington, USA; ²Indiana University School of Medicine, Terre Haute, USA; ³Monroe County YMCA, Bloomington, USA

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Purpose: With the increasing use of Traditional Chinese Medicine (TCM) in the West, Qigong has gained popularity for a variety of chronic health issues. However, there is a paucity of available literature that has systematically described the details and teaching strategies of Qigong. The purpose of this paper is three-fold: to demonstrate how to structure lesson content, to provide efficient teaching strategies, and to increase understanding of the underlying mechanisms of such programs' potential benefits.

Methods: A comprehensive literature review and a five-step process based on a theoretical framework (i.e., a formative evaluation approach) were used to develop a Health Qigong for Children program. The procedures include: (1) identifying the program, (2) developing educational strategies, (3) teaching pilot lessons, (4) consulting experts, and (5) drafting the curriculum.

Results: Sixteen theme-based lesson plans were generated based on two traditional Health Qigong forms. Five promising teaching strategies were synthesized: (1) using theme-based lesson plans, (2) building mind-body connections, (3) balancing repetition and creativity, (4) interweaving pictures, stories, volunteers, and teamwork, and (5) involving parents and school teachers. Suggestions from an expert panel and student volunteers were solicited and incorporated into the program, that is, changing TCM-Based names for each Qigong movement into new names related to plants, animals, or interesting objects, and integrating some fun facts about the plants or animals into each lesson.

Conclusion: The use of a theoretical framework was not only innovative but also effective. The Health Qigong for Children program has been successfully applied at several local elementary schools. Theme-based lessons and effective teaching strategies helped the Health Qigong program to be fun and age-appropriate for children. Suggestions from experts in a variety of fields strengthened the program design. The newly developed curriculum needs to be replicated with larger and various pediatric populations.

P269

P03.16. Student centered learning to practice patient-centered integrative medicine: the ESPRI2T approach

C Scheffer^{*}, D Tauschel, D Cysarz, G Lutz, M Neumann, F Edelhäuser
University of Witten/Herdecke, ICURAM, Witten, Germany

BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P269

Purpose: In 2004, the Integrated Curriculum for Anthroposophic Medicine (ICURAM) was launched to educate medical students in patient-centered integrative care and to develop appropriate didactic formats for that purpose.

Methods: A six-year program was developed with longitudinally integrated modules complementing the regular medical curriculum. The educational strategy behind the program is the ESPRI2T approach. It combines Explorative learning, Supported participation, Patient-based learning, Reflective practice, Integrated Learning, Integrative Approach and Team-based learning. Student participation was assessed based on credit points achieved per year (ctp/y) through the ICURAM (1 ctp = 25–30 hour workload). The impact of the new and innovative didactic formats was evaluated by examining those adopted for use outside the ICURAM.

Results: Fifty-five percent of 412 medical students participated in the program: 16% full participation (>4 ctp/y), 18% partial participation (1–3.99 ctp/y) and 22% occasional participation (0.25–0.99 ctp/y). Five didactic innovations were adopted by the medical school for use in the regular medical curriculum.

Conclusion: The ICURAM program has been widely accepted and appreciated by both medical students and the medical school. The combination of patient-centeredness and student-centeredness as in the ESPRI2T approach presents a promising means of educating students in patient-centered integrative care.

P270

P03.17. A fellowship program for CAM providers in evidence informed geriatrics

C Vihstadt^{*}, K Westrom, R Evans

Northwestern Health Sciences University, Bloomington, USA

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Purpose: Elderly residents in long term care (LTC) settings experience a myriad of health complaints that may be amenable to complementary and alternative medicine (CAM) therapies. However, specialized training addressing the unique features of geriatric health care, particularly in LTC settings, will be required if CAM professionals are to play a meaningful role. The purpose of this presentation is to describe an evidence informed geriatric fellowship program at a CAM institution which educates acupuncture, chiropractic and massage therapy practitioners.

Methods: Six core competencies and 20 learning objectives were identified for preparing the CAM practitioners to deliver care in LTC. These were addressed throughout the fellowship using a variety of training approaches such as weekly seminar-style meetings, facilitated discussions, directed readings, clinical demonstration and practice, online learning programs, and individual meetings. The core competencies focused on the skills needed to provide care safely within LTC and to a frail population. Training concentrated on preparing practitioners to find and utilize the best available research for clinical decision making and how to effectively communicate with other health workers, patients and family members.

Results: Six fellows participated in the fellowship and provided services in LTC. Five fellows completed the program. Of these, all have utilized the experience to further their careers in education and research at CAM institutions. Individuals have gone on to teach evidence informed practice, specialized geriatrics techniques, and supervise a student internship in geriatrics in LTC. One fellow serves as Director of Consultative Services in a skilled nursing facility; another is enrolled in a Clinical Research Fellowship with a career focus on musculoskeletal conditions and CAM for seniors.

Conclusion: A fellowship program designed to develop the skills CAM practitioners require to work with senior and frail populations can be effective in furthering the role of CAM in LTC settings and research.

P271

P04.01. Complementary and alternative medicine use and health outcomes among urban adolescents with asthma

C Luberto^{*}, S Cotton, M Yi, J Tsevat

University of Cincinnati College of Medicine, Cincinnati, USA

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Purpose: Many adolescents with asthma use complementary and alternative medicine (CAM) for asthma symptom management. The

purpose of this study is to examine the relationship between CAM use and health outcomes among urban adolescents with asthma.

Methods: We examined cross-sectional and longitudinal relationships between self-reported CAM use and health outcomes in urban adolescents with asthma. Participants (Time 1: N=151; Time 2: N=132) completed questionnaires regarding the use of 10 CAM modalities following two clinic visits one year apart as part of a larger study. CAM use was dichotomized (high/low) due to its non-normal distribution. T-tests examined between-group differences in outcomes at both time points. Multivariable regression analyses using backwards elimination examined relationships between CAM use at Time 1 and health outcomes at Time 1 and Time 2, when controlling for key covariates and, in longitudinal analyses, Time 1 functioning.

Results: Participants (mean age= 15.8 years) were 85% African-American and 60% female. Cross-sectional results demonstrated bivariate between-group differences for several health outcomes (t-score: -1.48-2.48, $p < .10$ to $p < .01$). In multivariable analyses, more frequent use of guided imagery was associated with fewer depressive symptoms ($\beta = -.16$, $p < .05$), and more frequent use of prayer was associated with more frequent asthma symptoms ($\beta = -.13$, $p = .06$). Longitudinal results demonstrated bivariate between-group differences for several health outcomes (t-score: -1.60-3.62, $p < .10$ to $p < .001$). In multivariable analyses, more dietary changes (e.g., eating more fruit) were associated with more frequent asthma symptoms ($\beta = -.19$; $p < .01$). No other CAM modalities were significantly associated with health outcomes.

Conclusion: Small but significant differences were shown for several health outcomes between high and low CAM users, though few remained significant in multivariable and/or longitudinal analyses. Most relationships involved high CAM use and poorer outcomes, though the reason for this remains unclear. Further research (e.g., randomized controlled trials) is needed to determine the safety and efficacy of CAM use for this population.

P272

P04.02. How familiar are infectious disease (ID) physicians with integrative medicine (IM) modalities and are they willing to recommend them?

K Shere-Wolfe^{1*}, J Tilburt², C D'Adamo¹, B Berman¹, M Chesney³

¹University of Maryland, Baltimore, USA; ²Mayo Clinic, Rochester, USA;

³University of California, San Francisco, San Francisco, USA

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Purpose: The purpose of this study was to assess ID physicians' familiarity and use of various IM modalities.

Methods: A national survey of 1,000 practicing ID physicians in the United States was conducted in 2010. The IM modalities studied were mind-body based modalities (MBM), biologically based modalities (BBM), manipulative and body-based modalities (MBBM), energy based modalities (EBM) and whole medical systems (WMS). Participants were asked to indicate their familiarity of each modality. If they were familiar with the modality they were then asked to indicate whether they recommended it to patients.

Results: A total of 311 (31%) ID physicians responded to the survey. The mean age was 49 years and 64% were male. ID physicians were most familiar with the following modalities (n=311)*: vitamins and mineral supplementation (83%), massage (80%), acupuncture (79%), chiropractic (77%), yoga (74%), and herbal medicine (72%). They were less familiar with meditation (69%), tai chi (61%), homeopathy (55%), hypnosis/Guided Imagery (GI) (52%), and Traditional Chinese Medicine (TCM) (49%). ID physicians were least familiar with qi gong (17%), Ayurveda (26%) and Healing Touch (HT)/Reiki/Therapeutic Touch (TT) (39%). ID physicians most recommended the following IM modalities: vitamins and mineral supplementation (80%, n= 252), massage (62%, n=247), yoga (52%, n=227), acupuncture (46%, n=241) and yoga (45%, n=214). ID physicians less frequently recommended chiropractic (33%, n=233), herbal medicine (32%, n=219), hypnosis/GI (28%, n=163) and tai chi (26%, n=189). Finally, they least recommended qi gong (6%, n=77), homeopathy (8%, n=173), TCM (11%, 158), Ayurveda (12%, n=95) and HT/Reiki/TT (16%, n=126).

Conclusion: ID physicians are familiar with and recommend IM modalities, particularly BBM and MBBM. They are least familiar with and also least likely to recommend EBM and WMS based modalities.

P273

P04.03. Primary care providers' attitudes and beliefs about, and personal use of, complementary and alternative medicine (CAM)

M George^{1*}, A Johnson¹, R Pinilla¹, C Rand²

¹University of Pennsylvania School of Nursing, Philadelphia, USA; ²Johns Hopkins University, Baltimore, USA

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Purpose: To identify primary care providers' (PCP) attitudes and beliefs about, and personal use of, complementary and alternative medicine (CAM).

Methods: PCPs who referred patients into a research study about asthma self-management, including CAM, completed three surveys. The modified Integrative Medicine Attitude Questionnaire (m-IMAQ) is a 23-item survey that solicits beliefs about CAM and its role in treatment. The 10-item CAM Health Belief Questionnaire (CHBQ) asks about CAM attitudes and beliefs not included in the m-IMAQ. Lastly, the 30-item Morehouse College Survey of CAM Practices (MCSCAMP) characterizes PCPs' personal CAM use. All subjects received a \$100 gift card for participation.

Results: Of the 21 referring PCPs, 14 physicians and two nurse practitioners (NPs) were enrolled. Seven were male (44%); 13 White (81%), two Asian (13%) and one Black (6%). The mean age in years of subjects was 45.7 and mean years in practice was 12.9; all but one was employed full-time. After reverse coding, higher m-IMAQ and CHBQ scores indicate more positive CAM orientation. All 16 providers (100%) endorsed m-IMAQ items: "The spiritual beliefs of patients play an important role in their recovery"; "A strong relationship between patients and their providers is an extremely valuable therapeutic intervention that leads to improved outcomes"; and "In research, measuring quality of life is equally as important as measuring disease-specific outcomes." Only one CHBQ item was endorsed by all: "A patient's expectations, health beliefs and values should be integrated into the patient care process." The MCSCAMP found prayer/spiritual healing to be the most common CAM for providers' personal use (50%), followed by massage and acupuncture (19%), music therapy, herbs and meditation (13%).

Conclusion: PCPs in this sample have a positive CAM orientation uniformly endorsing items related to spirituality, the importance of patient-provider partnerships and quality of life. There was low personal use of CAM other than prayer by providers.

P274

P04.04. Identifying the evidence gaps in acupuncture, experiences of an international project: good practice in traditional Chinese medicine (GP-TCM)

N Robinson^{1*}, A Lorenc¹, W Ding², J Jia², M Bovey³, X Wang²

¹London South Bank University, London, UK; ²Capital Medical University, Beijing, China; ³British Acupuncture Council, London, UK

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Purpose: This project aimed to obtain consensus on acupuncture evidence gaps from European and Chinese practitioners and explores the problems and pitfalls for future clinical trials.

Methods: An online survey to a purposive sample of acupuncture practitioners in the EU and China in 2010/2011 requested information on demographic characteristics, training and education, acupuncture practice, conditions commonly treated, perceived gaps in the evidence and where research should next focus. Data were analysed using bivariate statistics in SPSS, with content analysis of qualitative data.

Results: Of the 1,126 responses, 1,020 (559 from EU and 461 from China) were included in analysis. Chinese acupuncturists were more likely to practice in hospitals, and EU practitioners, private practice ($p < 0.001$). EU practitioners reported perceiving significant adverse effects more commonly than Chinese practitioners, 14% vs 3%, respectively ($p < 0.001$). Pain was the most commonly treated condition by EU acupuncturists and neurological conditions by Chinese practitioners. Main priorities for research in the EU were obstetrics/gynaecology (infertility, dysmenorrhoea and menopause); for China it was stroke and facial paralysis. Chinese acupuncturists were less likely to want to participate in future trials (27% vs 64%, $p < 0.001$).

Conclusion: Acupuncture practice and perception of evidence varied widely between practitioners within the EU and China. This can create difficulties for international projects when trying to obtain clarity on evidence gaps and priorities for future research. This study highlighted issues for conducting international projects. Examples included: differences in training; classifying conditions using both TCM pattern differentiation and Western diagnoses; and different professional structures, identifying representative practitioners. The role of acupuncturists in research is critical, but international multi centre research will also require precise clinical trial standards.

P275

P04.05. Wellness versus treatment? Complementary and integrative healthcare (CIH) in the 2007 national health interview survey (NHIS)

B Stussman^{1*}, L Alekel¹, R Nahin¹, E Edwards¹, P Barnes²

¹The National Advisory Council for Complementary and Alternative Medicine, Bethesda, USA; ²National Center for Health Statistics, Hyattsville, USA

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Purpose: CIH users have been characterized according to the intended use of CIH – treatment or wellness. This analysis examined reasons adults used specific CIH interventions.

Methods: Data are based upon the Adult Complementary and Alternative Medicine supplement, the Sample Adult core, and the Family core components of the 2007 NHIS. The survey contained reasons for using CIH including treatment of a specific health problem, general wellness or general disease prevention, and other reasons. We created four mutually exclusive categories for analysis: 1) “yes” to treatment, “no” to wellness; 2) “yes” to wellness, “no” to treatment; 3) “yes” to both; 4) “no” to both. We also examined additional reasons for using CIH.

Results: More than 50% of adults who used acupuncture, chiropractic or osteopathic manipulation, and biofeedback/hypnosis used it exclusively for treatment, particularly for pain. Vitamin and mineral supplements, diet-based therapies, movement therapies, and yoga, tai chi, and qi gong were most commonly used exclusively for wellness (> 50% of users). Naturopathy and homeopathy were most commonly used for both treatment and wellness (>40% of users). More than 50% of users of non-vitamin non-mineral dietary supplements reported that they used these supplements to improve immune function, to improve physical performance, or because they were recommended by family, friends or co-workers.

Conclusion: Adults used CIH interventions for a number of reasons that vary by the specific modality. Some interventions were used primarily for treatment and some were used primarily for wellness. Additionally, the intended use varied within the four major CIH categories: natural product therapies, mind-body therapies, manipulative and body-based therapies, and alternative medical systems. Modeling will be used to identify associations between specific CIH therapies and their intended use.

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P04.06. Complementary and alternative medicine in the treatment of pain in fibromyalgia: a systematic review of randomized controlled trials

L Terhorst, M Schneider*

University of Pittsburgh, Pittsburgh, USA

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Purpose: The purpose of this study was to systematically review the literature for randomized trials of complementary and alternative medicine (CAM) interventions for fibromyalgia (FM).

Methods: A comprehensive literature search was conducted. Databases included the Cochrane library, PubMed, PsycINFO, Cumulative Index to Nursing and Allied Health, Natural Medicines Comprehensive Database, Manuals of Alternative and Natural Therapy Index System (MANTIS), Index for Chiropractic Literature, and Allied and Complementary Medicine (AMED). Inclusion criteria were: (1) subjects were diagnosed with fibromyalgia and (2) the study design was a randomized controlled trial that compared a CAM therapy vs a control group. Studies were

subgrouped by CAM treatment into 11 categories. Evidence tables and forest plots were organized to display quality ratings and effect sizes of each study.

Results: The literature search yielded 1722 results; 102 abstracts were selected as potential articles for inclusion. Sixty studies met inclusion criteria and were rated by two reviewers; 18 were rated as good quality; 20 moderate quality; 18 low quality; and 4 very low quality. Synthesis of information for CAM categories represented by more than five studies revealed that balneotherapy and mind-body therapies were effective in treating FM pain. This study analyzed recent studies and focused exclusively on randomized controlled trials. Despite common use of manual therapies such as massage and manipulation to treat patients with FM, there is a paucity of quality clinical trials investigating these particular CAM categories.

Conclusion: Most of these studies identified were preliminary or pilot studies, thus had small sample sizes and were likely underpowered. Two CAM categories showed the most promising findings, balneotherapy and mind-body therapies. Most of the other CAM categories showed a trend favoring the treatment group. It appears that several CAM therapies show some preliminary treatment effect for FM pain, but larger trials that are more adequately powered are needed.

P277

P04.07. Patients' reasons for use of traditional East Asian medicine as an alternative treatment

A Burke*, E Herlambang

San Francisco State University, San Francisco, USA

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Purpose: In an effort to better understand why individuals use complementary and alternative medicine a single whole systems provider-based modality was selected, one with the potential for use as an alternative to allopathic care for a broad array of conditions – Traditional East Asian Medicine (TEAM). A survey was conducted with a sample of individuals who had used TEAM examining their motives for use and perceived outcomes in relation to allopathic medical care options.

Methods: Data was collected from a convenience sample of 222 participants using an 88-item survey. Variables included frequency of use, health status, personal experience with acupuncture and allopathic care, satisfaction and perceived efficacy.

Results: The most commonly cited reasons for use were musculoskeletal conditions, followed by gynecological and gastrointestinal. For the majority (62%) this presenting complaint was a chronic condition. When asked how their decision to use acupuncture related to the use of allopathic medical care the most common response (37.5%) was, “I felt that allopathic medicine was not helping, or could not help me.” The majority (61.5%) reported having seen an allopathic provider for the presenting complaint, and nearly half of them were still seeing an allopathic provider for the problem (43.3%). Of those who were relying on TEAM exclusively the most common reason given (28.3%) was, “The treatments (allopathic) were not working for me.” When asked about the perceived efficacy of the two treatments participants were significantly more likely to report that TEAM had helped them manage their health concern. Multiple regression analyses on key outcome variables found perceived efficacy of acupuncture to be one of the strongest predictors of current and intended future use.

Conclusion: A primary motive for use appears to be the need for alternatives to allopathic care for unremitting health issues. This suggests a practical problem solving orientation by consumers to healthcare decision making.

P278

P04.08. Predictors of dietary supplement (DS) use among persons receiving home health care: findings from the 2007 national home and hospice care survey (NHHCS)

A Bercovitz^{1*}, R Nahin², M Sengupta¹

¹NCHS/CDC, Hyattsville, USA; ²National Center for Complementary and Alternative Medicine, Bethesda, USA

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Purpose: Each day in the United States in 2007 there were almost 1.5 million home health care patients. This study examines the use of DSs and factors associated with their use in this population.

Methods: Data were from the 2007 NHHCS - a nationally representative probability sample survey. Medical records of 4,683 current home health patients (Weighted N=1,459,900) were sampled from 677 participating home health agencies (Weighted N=12,300). Therapeutic classes analyzed were Nutritional Products (NP) (vitamins and minerals alone or in combination) and Non-vitamin, Non-mineral Dietary Supplements (NVNMDs). Multivariate analyses were used to examine the independent roles of demographic and health factors with use of NP and NVNMDs, and the association of NP and NVNMDs with pain and pain management strategies. Variables in the multivariate analyses were age, sex, race, number of chronic conditions, whether the patient lived alone and/or had a caregiver, mobility, cognitive impairment, medication assistance and primary payor.

Results: In preliminary analyses 59% of patients had at least one type of NP and 7% had NVNMDs noted on their medical record. In multivariate analyses, use of NPs was associated with age, sex, payor and number of chronic conditions, and use of NVNMDs was associated with age and race. Neither NP nor NVNMDs were associated with reported pain or a standing order (SO) for pain management. NP, but not NVNMDs, were associated with an "as needed" (PRN) order for pain management.

Conclusion: Patients who were older, female, with Medicare as primary payor and more chronic conditions were more likely to use NP. Older and white patients were more likely to use NVNMDs. Patients using NP were more likely to have a PRN order, but not a SO. Continuing analyses will include more detailed coding of DSs and analysis of concomitant use of DS with over-the-counter and prescription medications.

P279

P04.09. Acupuncture and chiropractic utilization among chronic musculoskeletal pain patients at a health maintenance organization

C Elder¹, L DeBar¹, C Ritenbaugh², M Aickin², R Deyo³, R Meenan¹, J Dickerson¹, J Webster¹, B Yarborough¹

¹Kaiser Permanente Center for Health Research, Portland, USA; ²University of Arizona, Tucson, USA; ³Oregon Health and Science University, Portland, USA
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Purpose: To describe acupuncture and chiropractic (acu/chiro) use among 11,960 chronic musculoskeletal pain patients enrolled in a Pacific Northwest Health Maintenance Organization (HMO).

Methods: We identified 119,732 HMO members with chronic musculoskeletal pain from electronic medical records data. Patients were contacted by mail and invited to complete an online survey. Those not responding were either contacted by email or mailed a paper copy of the survey. Survey questions included items related to diagnosis, acu/chiro utilization and payment, and communication about acu/chiro use with HMO clinicians.

Results: Of 119,732 patients invited to participate, 11,960 completed the survey. Self reported pain diagnoses included back pain (65%), joint pain (56%), arthritis (53%), extremity pain (53%), neck pain (37%), muscle pain (30%), headaches (21%), fibromyalgia (13%), and abdominal or pelvic pain (10%). Participants were predominantly caucasian (90%) and female (58%), with mean age of 59 years. Roughly a quarter of participants (n=3,169) reported acupuncture use, while slightly more participants (n=4,712) reported chiropractic use. Of those using acupuncture, 39% did not discuss acupuncture use with their HMO clinician, and 82% paid out-of pocket for at least a portion of the care. Of those using chiropractic services, 38% did not discuss chiropractic use with their HMO clinician, and 91% paid out-of-pocket for at least a portion of the care. The most common reason given for out-of-pocket payment to acu/chiro providers was that insurance coverage didn't cover such care or required a co-payment. Patients with a self referral acu/chiro benefit were more likely to use acu/chiro than those without such coverage (p<.0001), but were not more likely to communicate acu/chiro use to HMO clinicians (p=.13).

Conclusion: Acu/chiro use is prevalent among HMO patients with chronic musculoskeletal pain. However, such use frequently is not reported to HMO clinicians, even by patients having a self referral acu/chiro benefit.

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P04.10. Bipolar disorder and complementary medicine: current evidence, safety issues, and clinical considerations

R Hoenders¹, J Sarris², J Lake³

¹Center for Integrative Psychiatry, Lentis, Groningen, Netherlands;

²Department of Psychiatry, Faculty of Medicine, University of Melbourne, Melbourne, Australia; ³Arizona Center for Integrative Medicine, Tucson, USA
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Purpose: Bipolar Disorder (BD) is a debilitating syndrome that is often undiagnosed and under-treated. Population surveys show that persons with BD often self-medicate with complementary, alternative medicine (CAM) or integrative therapies in spite of limited research evidence supporting their use. To date no review has focused specifically on non-conventional treatments for BD. Our objective was to present a comprehensive review of non-conventional (complementary and integrative) interventions examined in clinical trials on BD, and to offer provisional guidelines for the judicious integrative use of CAM in the management of BD.

Methods: PubMed, CINAHL, Web of Science and Cochrane Library databases were searched for human clinical trials in English during mid 2010 using Bipolar Disorder and CAM therapy and CAM medicine search terms. Effect sizes (Cohen's d) were also calculated where data were available.

Results: Several positive high-quality studies on nutrients in combination with conventional mood stabilizers and antipsychotic medications in BD depression were identified, while branched-chain amino acids and magnesium were effective (small studies) in attenuating mania in BD. In the treatment of bipolar depression evidence was mixed regarding omega-3 fatty acids, while isolated studies provide provisional support for a multi-nutrient formula, n-acetyl cysteine, and L-tryptophan. In one study acupuncture was found to have favorable, but non-significant effects on mania and depression outcomes.

Conclusion: Current evidence supports the integrative treatment of BD using combinations of mood stabilizers and select nutrients. Other CAM or integrative modalities used to treat BD have not been adequately explored to date, however some early findings are promising. Select CAM and integrative interventions add to established conventional treatment of BD and may be considered when formulating a treatment plan for patients diagnosed with BD. It is hoped that the safety issues and clinical considerations addressed in this paper may encourage the practice of safety-conscious and evidence-based integrative treatment of BD.

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P04.11. Factors associated with willingness to participate in a yoga clinical trial among breast cancer survivors

K Desai¹, M Galantino², S Li¹, M Boyle¹, B Hurtubise¹, J Mao¹

¹University of Pennsylvania Health System, Philadelphia, USA; ²Richard Stockton College of New Jersey, Galloway, USA

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Purpose: Due to an increased interest among researchers in studying the efficacy of yoga for symptom palliation among breast cancer survivors, understanding willingness to participation (WTP) in yoga clinical trials is critical for effective recruitment, especially for historically under-represented groups.

Methods: We performed a cross-sectional survey study at an urban academic cancer centre among outpatient postmenopausal women with stage 0 to III breast cancer receiving adjuvant aromatase inhibitor (AI) therapy. Self-reported WTP in a yoga trial was the main outcome variable. Perceived barriers to WTP were collected along with sociodemographic and clinical variables. Multivariate logistic regression was used to identify factors associated with WTP.

Results: Four hundred thirty-three patients participated, 357 (82.5%) whites, 63 (14.6%) blacks, seven (1.6 %) Asians, and six (1.3%) others. Of the participants, 261 (60.3%) reported WTP in a yoga clinical trial and 52 (12%) had used yoga since their breast cancer diagnosis. In multivariate analysis, higher likelihood of WTP was associated with younger age groups: < 55 years [adjusted odds ratio (AOR) 2.42, 95% Confidence Interval (CI) 1.32-4.44] and age 55-65 years (AOR 2.91, CI 1.32-6.41);

having higher education: college education (AOR 3.0, CI 1.64-5.5) and graduate or professional school (AOR 3.27 CI 1.70-6.32); and previous use of yoga (AOR 4.52, CI 1.66-12.22). Perceived barriers including 'responsibilities at home' (AOR 0.55, CI 0.33-0.91) and 'didn't want to be experimented on' (AOR 0.51, CI 0.30-0.87) were associated with decreased WTP in a yoga trial. Unexpectedly, race/ethnicity was not associated with WTP in multivariate analyses.

Conclusion: The majority of breast cancer survivors expressed WTP in yoga research; however, older age and lower education were associated with decreased likelihood to participate. Thus, thoughtful study design and tailored recruitment strategies are needed to minimize disparities in yoga trial participation, particularly those related to age and education.

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P04.12. Medical practices and attitudes of dual medical license holders in Korea

J Ryu¹, Y Yun, B Choi

Pusan National University School of Korean Medicine, Yangsan, Gyeongnam, Republic of Korea

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Purpose: The collaboration of conventional western medicine (CWM) with traditional Korean medicine (TKM) is a critical issue in the Korean medical system. Becoming dual medical license holders (DMD) having both MD and TKMD licenses is considered a way of overcoming conflicts arising from mutual ignorance and misunderstanding. This study aims to investigate medical practices and attitudes of DMDs who are expected to play an important role in the medical cooperation between CWM and TKM.

Methods: The questionnaires on the characteristics of the medical practice and attitudes to co-practice were developed and administered to both DMDs and medical students preparing to obtain a second medical license to become DMD. Some items were measured by the five-point Likert scale, ranging from one (strongly disagree) to five (strongly agree). The data of 77 DMDs and 25 students were collected with the help of the Association of DMDs and analyzed.

Results: Forty-one percent of DMDs have opened medical clinics and Korean medicine clinics simultaneously. DMDs mainly treat musculoskeletal, gastrointestinal, and respiratory diseases in their practices. Co-practice of CWM and TKM is thought to be effective for allergic and endocrine diseases in addition to the three above classifications. They favor CWM modalities in physical examination, laboratory tests, and patients' education, while TKM modalities are favored in treatment and medication. They believe co-practice is more efficient (3.92) and patients are more satisfied with the co-practice than either CWM or TKM alone (3.88). The inadequate medical insurance system is considered the main obstacle for co-practice (4.34). While contradiction between two medical disciplines is not considered a big problem (2.62), clinical guidelines are highly needed for co-practice (4.15).

Conclusion: To promote the role of DMDs in developing an integrative medical treatment model, changes in medical legislation and insurance policies seem to be priorities. Research on the cost-effectiveness of co-practice is also required.

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P04.13. Population-based case-control study of Chinese herbal products containing ephedra and cardiovascular disease risk

Y Lin^{1*}, N Hu², L Chang¹, M Hou³

¹China Medical University, Taichung, Taiwan; ²Department of Information Management, National Formosa University, Yunlin, Taiwan; ³Department of Chinese Medicine, Changhua Christian Hospital, Changhua, Taiwan

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Purpose: After reviewing some adverse events, such as cardiovascular disease, regarding the use of ephedra-containing dietary supplements, the Food and Drug Administration banned the sale of ephedra products on April 12, 2004. However, according to standard prescriptions recommended by the Committee on Chinese Medicine and Pharmacy in Taiwan, ephedra is still a popular ingredient of many Chinese herbal formulas. This paper examined the association between prescribed

ephedra-containing Chinese herbal products (CHP) and cardiovascular disease by using the population-based database in Taiwan.

Methods: All patients newly diagnosed with cardiovascular disease (CVD) from 2006 to 2007 as case subjects, and a random sample of the entire insured population from 1997 to 2007 excluding patients with CVD, including myocardial infarction, stroke, arrhythmias, or cardiac sudden death, as control subjects, were selected from the National Health Insurance reimbursement database. Subjects with incomplete data or any hyperlipidemia-related diagnosis were also excluded. For the association between prescribed ephedra-containing CHP and the occurrence of CVD, we used multivariable logistic regression models to estimate odds ratios and 95% confidence intervals. Models were adjusted for age, sex, residence, prescription of acetazolamide and/or labetalol, and cumulative doses of prescribed ephedra-containing CHP.

Results: There were 1,120 case subjects and 41,409 control subjects in the final analysis. There was a significant reduction of CVD development for consuming ephedra-related CHP (OR=0.183, p<0.001). Only three items (Xiao Xu Ming Shang OR=2.212, p<0.001; Gui Qi Shao Yao Zhi Mu Shang OR=1.701, p<0.001; She Gan Ma Huang Shang OR=1.441, p=0.006) out of a total of 24 ephedra-related CHP were associated with the risk of CVD development. No statistically linear dose-response relationship was observed with the prescribed dose of ephedra.

Conclusion: Consumption of ephedra-containing CHP does not increase the occurrence of CVD.

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P04.14. Acupuncture for carpal tunnel syndrome: a systematic review of randomized controlled trials

H Shim¹, B Shin^{1*}, M Lee², A Jung¹, H Lee³, E Ernst⁴

¹Pusan National University, Yangsan, Kyngnam, Republic of Korea; ²Korea Institute of Oriental Medicine, Daejeon, Republic of Korea; ³Kyunghee University, Seoul, Republic of Korea; ⁴Universtiy of Exeter, Exeter, United Kingdom

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Purpose: Acupuncture is a widely used symptomatic treatment for carpal tunnel syndrome (CTS). The objective of this systematic review was to evaluate the evidence of the effectiveness of acupuncture and acupuncture-like treatments for CTS.

Methods: Systematic searches were conducted on 11 electronic databases without language restrictions. All randomized controlled trials (RCTs) of acupuncture as a treatment of CTS were included. Methodological quality was assessed using the Cochrane risk of bias tool.

Results: Six RCTs met our inclusion criteria. Their methodological quality was generally low. Two RCTs compared the effectiveness of acupuncture with a sham control. The others used active controls. A meta-analysis of acupuncture versus steroid block therapy favored acupuncture (two studies, n = 144; risk ratio, 1.28; 95% CI, 1.08 to 1.52; p = .005; heterogeneity, I² = 10%) in terms of responder rate.

Conclusion: Our systematic review and meta-analysis demonstrate that the evidence for acupuncture as a symptomatic therapy of CTS is encouraging but not convincing. The total number of included RCTs and their methodological quality were low. Further rigorous studies are required to establish whether acupuncture has therapeutic value for this indication.

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P04.15. Patient perspectives on provider communication, self-management, and alternative medicine in conventional and naturopathic diabetes care

K Tippens^{1*}, C Szybala¹, P Elmer¹, S Saha²

¹National College of Natural Medicine, Portland, USA; ²Portland VA Medical Center, Portland, USA

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Purpose: To understand potential differences in characteristics, experiences, and perspectives between patients with diabetes who choose naturopathic or allopathic care.

Methods: As part of an ongoing, mixed-method study of type 2 diabetes care, a survey was administered to patients of medical

internists (MDs) and naturopathic physicians (NDs) from two conventional medical centers (VA and a teaching hospital), and a naturopathic teaching clinic and private naturopathic clinics in Portland, Oregon. Using previously validated scales, we measured patients' ratings of their providers' participatory decision-making, their providers' communication style, their understanding of diabetes self-care and adherence to specific self-care activities (self-management), and CAM use, attitudes, and beliefs.

Results: To date, 45 patients (26 allopathic, 19 naturopathic) have been enrolled. Patients from MD and ND clinics differed by sociodemographic factors (i.e. gender, age, income) and diabetes status (i.e. length of diagnosis, medication use). Insurance coverage and utilization also differed, for example, 19% of ND patients had an additional source of diabetes care. Patients of MDs rated more highly their providers' communication and decision-making style. All patients had a good understanding of and adherence to diabetes self-management practices. Most patients (86.7%) rated their self-management as average or above, with more ND patients reporting "well" or "very well" compared to MD patients (63% vs. 38%, respectively). However, patients of MDs were more likely to test their blood sugar regularly compared to ND patients (88% vs. 74%, respectively), to keep a record (85% vs. 79%, respectively), and to be taking oral diabetes medications (77% vs. 63%, respectively) or insulin (58% vs. 53%, respectively). Alternative medicine use was high among MD patients (75% reported use). Data on attitudes and beliefs about alternative medicine will be presented.

Conclusion: Patients of MDs and NDs differed in sociodemographic factors and their ratings of provider communication and their own self-management. Further exploration of these differences is needed.

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P04.16. Integrative medicine practice patterns across the US: results from a survey of 29 centers

D Abrams^{1*}, B Horrigan², S Lewis², M Acree¹, C Pechura²,
BraveNet Practice Based Research Network

¹University of California, San Francisco, San Francisco, USA; ²Bravewell Collaborative, Minneapolis, USA

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Purpose: Integrative medicine is emerging as a vital part of the US healthcare system. To better understand how integrative medicine is actually being practiced, a study was undertaken to: (1) Describe the patient populations and health conditions most commonly treated; (2) Investigate the interventions utilized; and (3) Ascertain the distinctiveness of treatments used for different conditions; (4) Assess concordance between centers in treating a given condition.

Methods: All 29 integrative medicine centers approached to participate completed a REDCap-based survey in summer 2011. Survey data was exported into SAS for analysis. To assess the degree to which different treatments were used for different conditions, the frequencies of treatments for each condition were ranked. Then, for each pair of conditions, the correlation between treatment ranks was calculated.

Results: All of the centers are affiliated with a hospital/ health care system or medical school. Twenty-six of the 29 centers offer consultative care. Thirteen offer primary care. All centers provide services to adults with 28 offering geriatric services, 25 adolescent, 21 OB-GYN and 18 pediatrics. Overall 63% of patients seen are self-referred. From a list of 20 clinical conditions, respondents chose the top five which they have the greatest success treating as: chronic pain (75%), gastrointestinal conditions (59%), depression/anxiety (55%), stress (52%) and cancer (52%). Of 34 integrative interventions listed in the survey, those utilized most frequently across the 20 conditions include (in descending order): food/nutrition, supplements, yoga, meditation, TCM/acupuncture, massage and pharmaceuticals. Treatments were consistent for like and distinct for different conditions (e.g., correlation between allergies and asthma .92, between allergies and acute pain .36). Concordance between the individual centers in treating a given condition was significant.

Conclusion: Integrative medicine is practiced in diverse sites across the country with high levels of concordance of interventions for specific conditions suggesting that practice is driven by an evidence base.

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P04.17. Adverse effects of homeopathy, what do we know? A systematic review

T Stub^{*}, F Musial, T Alræk

University of Tromsø, Tromsø, Norway

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Purpose: Homeopathy has few legal regulations acting as gatekeepers. The remedies may be in widespread use despite unclear mechanism of effect and safety assessment. Uncontrolled studies of homeopathic practise document consistently strong therapeutic effects and sustained patient satisfaction however, cases of adverse effects have also been reported. According to homeopathic theory transient worsening of patients symptoms (aggravations), are understood as a wanted reaction to the medication. To date, systematic information is lacking on how commonly adverse effects and homeopathic aggravations are reported in RCTs, observational studies and surveys.

Methods: A systematic review addressing this topic was undertaken. Twelve electronic databases were searched.

Results: Twenty-seven RCTs, 26 observational studies and 4 surveys, with a total of 28,917 participants were included in this review. The methodological quality assessed according to the Cochrane handbook for RCTs and STROBE checklist for observational studies and surveys was high. Twenty-one percent of the RCTs, 36.5% of the observational studies and 16% of the surveys reported cases of adverse effects such as gastro-intestinal disorders, headache and dermatitis. Of these, 14% were reported as serious events. Eighteen percent of the RCTs, 36.5% of the observational studies and 8% of the surveys reported homeopathic aggravations which were mostly reported as intensifications of the patient's symptoms.

Conclusion: In order to prevent serious events as a consequence of homeopathic treatment, the identification of an unwanted adverse event is of critical importance. A differentiation of adverse events and homeopathic aggravations, which is accepted as a concept in homeopathy, should be a part of a reporting system where risk and safety are assessed. This is of particular significance in a treatment system like homeopathy, which is in most European countries regulated as an alternative treatment and as such not included in the supervision system of health care.

P288

P04.18. Current status of the dual medical license holders in Korea

B Choi^{1*}, G Han¹, B Lim¹, H Cho²

¹Pusan National University School of Korean Medicine, Yangsan, Gyeongnam, Republic of Korea; ²Department of Health Policy and Management, Sangji University, Wonju, Republic of Korea

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Purpose: Korea's medical system, comprising of conventional western medicine (CWM) and traditional Korean medicine (TKM), is at the same time dichotomistic and dualistic. TKM has its own systems for education and national licensing. While there is a sharp distinction between the practices of medical doctors (MD) and TKM doctors (TKMD) legally, there are also many conflicts arising from crossover practices in reality. Dual medical license holders (DMD) having both MD and TKMD licenses are increasing because of this contradictory situation. This study aims to investigate the status of DMDs and provide basic data for developing strategies of cooperation between CWM and TKM.

Methods: The questionnaires on general characteristics and working status were developed and administered to both DMDs and medical students pursuing second medical license in order to become DMDs. The data from 121 DMDs and 61 students were collected with the help of the Association of DMDs and analyzed statistically.

Results: Since 1996 the number of DMDs has been increasing rapidly and reached 206 in 2010, according to official records. This figure represents less than 1% of TKMDs and less than 0.2% of MDs. The mean age of DMDs is 42.28±6.54 years, and most of them are male (86.0%). Seventy-five percent of DMDs obtained the MD license first. These ratios are reversed among the students, of whom 73.7% are KMD. The mean time for obtaining the additional license was 10.11±4.91 years. Since the revision of Korean medical law in 2009, DMDs can open both medical clinics and Korean medicine clinics. However, only 41.9% of DMDs are opening both clinics.

Conclusion: It can be expected that more KMDs will choose to become DMDs in the future, and the number of DMDs as well as their role in medical collaboration will continue to expand. To promote this process, developing an integrative medical curriculum should be enhanced.

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P04.19. T'ai chi as exercise among middle age and elderly Chinese in urban China

G Birdee^{1*}, H Cai¹, Y Xiang², G Yang¹, H Li², W Zheng¹, X Shu¹
¹Vanderbilt University Medical Center, Nashville, USA; ²Shanghai Cancer Institute, Shanghai, China

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Purpose: T'ai chi is a common form of mind-body practice used as a form of exercise in China. Limited data are available on the characteristics of t'ai chi practitioners in China and factors associated with t'ai chi use.

Methods: We analyzed characteristics of and factors associated to t'ai chi practice among middle age and elder Chinese in Shanghai China utilizing baseline data from the Shanghai Women's Health Study (n=74941, aged between 40-70 years) and Shanghai Men's Health Study (n=61,491, aged 40-74 years). Validated questionnaires were administered in-person collecting data on physical activity including t'ai chi practice, sociodemographics, other health behaviors and chronic medical conditions. Logistic regression modeling was used to identify independent factors associated with the practice of t'ai chi among men and women.

Results: T'ai chi is a common form of exercise in Shanghai, China among women (28%) and men (15%). A majority of adults that practiced t'ai chi used t'ai chi as their exclusive type of exercise. Women and men who practiced t'ai chi were more likely to be older, more educated, currently not working, and more likely to have chronic medical conditions including pulmonary, gastrointestinal, and cardiovascular diseases. Men who practiced t'ai chi were more likely to have cardiovascular diseases. T'ai chi activity was associated with other healthy behaviors including non-smoking, drinking tea, consuming ginseng, watching less TV, and participating in other forms of exercise.

Conclusion: T'ai chi is the predominant form of exercise among middle age and elderly Chinese in urban China, particularly among those with older age and chronic medical diseases. Future research is needed to see if t'ai chi has similar or different benefits than conventional forms of exercise and physical activity.

P290

P04.20. Health information seeking, trust in information sources and use of complementary and alternative medicine

L Rutten^{1*}, S Stevenson²
¹SAIC, Inc, National Cancer Institute, Frederick, USA; ²Nourish - Integrative Medicine Services, Cincinnati, USA

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Purpose: Patient engagement in health information seeking is associated with beneficial social, emotional, and health outcomes. We analyzed data from the 2008 Health Information National Trends Survey to characterize, and compare patterns of health information seeking and trust in sources of health information among persons who use complementary and alternative (CAM) approaches to health and medicine and those who do not.

Methods: SUDAAN was used to calculate population estimates. Weighted frequencies along with crosstabulation and chi-square analyses were conducted.

Results: A significantly higher percentage of CAM users (83.2%) reported health information seeking, compared with non-users (65.4%). Differences in health information sources by CAM use were also observed. A higher percentage of CAM users (17.4%) reported use of print resources (e.g. books, newspapers) and the internet (63.5%), compared to non-users (15.9% and 60.6%, respectively). CAM users (11.6%) reported use of healthcare providers less frequently than non-users (15.0%). Reliance on friends and family for health information was similar among CAM users (3.9%) and non-users (4.2%). An interesting pattern of differences in trust in health information sources by CAM use was also observed. CAM users generally reported less trust in specified sources of information (e.g. family/friends, television, radio, newspaper, government). Additionally, a

lower percentage of CAM users (60.4%) reported trust in healthcare professionals than non-users (71.2%). The only source of health information wherein greater trust was reported by CAM users (21.8%) compared with non-users (19.3%) was the internet.

Conclusion: Results of our analyses point to distinct patterns of engagement in health information seeking among CAM users and non-users. CAM users appear to be more active information seekers with relatively greater reliance on traditional information sources than non-users. Our results suggest that CAM users may be a ready audience for patient-centered interventions and cost-effective strategies to engage patients more fully and to improve population health.

P291

P04.21. What infectious disease (ID) physicians believe about integrative medicine (IM) modalities

K Shere-Wolfe^{1*}, J Tilburt², C D'Adamo¹, B Berman¹, M Chesney³
¹University of Maryland, Baltimore, USA; ²Mayo Clinic, Rochester, USA; ³University of California, San Francisco, USA

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Purpose: The purpose of this study was to assess ID physicians' beliefs regarding the usefulness of IM modalities and how they work.

Methods: A national survey of 1000 practicing ID physicians in the United States was conducted in 2010. We asked ID physicians to rate their degree of agreement with statements about IM modalities ("strongly agree", "somewhat agree", "somewhat disagree", and "strongly disagree"). The statements were regarding IM modalities' (1) usefulness, (2) placebo mechanism, (3) utility in alleviating symptoms, (4) effect on the underlying disease process, and (5) ability to directly affect the immune system. We then asked a subset of the respondents who indicated that they either "strongly agree" or "somewhat agree" to the statements "In general, IM modalities affect the underlying disease process" or "In general IM modalities, affect the immune system" to indicate which areas of IM they were referring.

Results: A total of 311 (31%) responded to the survey. Unless indicated otherwise, 297 participants responded to these set of questions. Seventy-five percent of respondents (n=301) agreed (strongly or somewhat) that IM modalities were useful. Approximately half of the respondents (51%) believed that IM modalities derive their benefit from the placebo effect. Seventy-two percent agreed that IM modalities alleviate symptoms. About half the respondents agreed that IM modalities affect the disease process and the immune system (53% and 53%, respectively). This last subset of respondents (n=157) believed the following IM categories could affect the disease process and or immune function: (1) Mind body medicine (n=90), (2) Botanicals/Supplements (n=96), (3) Manipulative and body based modalities (n=63), (4) Energy medicine (n=24), and (5) Whole medical systems (n=35).

Conclusion: The majority of respondents felt that IM modalities are useful in patient care.

P292

P04.22. Comparison of patient-centeredness and patient-reported health outcomes in integrative medicine hospitals with conventional hospitals in Germany

C Scheffer^{*}, F Edelhäuser, D Tauschel, A Längler, M Neumann
University of Witten / Herdecke, ICURAM, Witten, Germany

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Purpose: Integrative Medicine has been practiced in different hospitals in Germany for several decades. For example, several anthroposophic hospitals integrate conventional medicine with methods including the use of natural remedies, rhythmic embrocations, art therapy and biographic counseling. Moreover, patient-centeredness is a fundamental therapeutic approach especially in Integrative Medicine and many studies have shown significant positive influences on patient-reported physical and psychosocial outcomes. Thus, the purpose of our study is to compare patient-reported health outcomes and patient-provider interaction of integrative medicine hospitals (IMH) with those of conventional hospitals.

Methods: The Picker Inpatient Questionnaire (PIQ) was used to get feedback from patients on the quality of care received in the IMH and conventional hospital over a period of 10 years (2000-2009). In the PIQ patients were asked to report their experience with specific events and processes in the hospital.

The survey includes questions on the patient-provider interaction (e.g. patient-physician-interaction, patient-nursing-interaction, family involvement) and patient reported health outcomes (e.g. medical treatment success, complications after discharge, improvement of main complaints). Problem frequency of items and subscales are compared with a patient control group of matched pairs treated in conventional hospitals. Matched pairs were created according to several criteria of the hospital (same discipline, similar size of department) and of the patient (age, gender, education, patients' self-assessment about their health status and presence of pain). The Mann-Whitney-Test was used for comparison with control groups.

Results: The PIQ was presented to N=5391 patients of several IMH reporting about patient-provider interaction and health outcomes compared with matched pairs of conventional hospitals. Preliminary evaluation showed a lower problem frequency patient-physician-interaction and patient-nursing-interaction in IMH.

Conclusion: According to patients' subjective feedback captured by the PIQ, patient-centeredness of IMH seems to be higher than in conventional hospitals.

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P04.23. A survey to explore the views and practices of CAM practitioners in the UK

A Majumdar^{1*}, S Williams¹, N Adams²

¹London Metropolitan University, London, United Kingdom; ²Northumbria University, Newcastle, United Kingdom

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Purpose: It is currently a transitional time for healthcare and the National Health Service in the UK, making the nature of future healthcare provision and the integration of CAM uncertain. Some studies on effectiveness of CAM for particular conditions are criticised for not representing true practice in terms of conditions treated and methods used. However, there is little extant of literature on the nature of the practice of many CAM therapies in the UK. This study is aimed to provide insight on the views and practices of CAM therapists including homeopaths, acupuncturists, naturopaths and nutritional therapists in the UK.

Methods: Practising homeopaths, acupuncturists, naturopaths and nutritional therapists that were registered with selected key professional affiliations, from 6 geographical areas of the UK, were included in the study. A questionnaire specifically designed for the study was distributed via post or email to a randomly generated sample of registered practitioners, including n=400 homeopaths, n=800 acupuncturists and n=300 naturopaths and nutritional therapists. The data was analysed using appropriate descriptive and inferential statistics. Areas covered included details of practice, conditions encountered, methods used and opinion on medical systems. Ethical approval was sought and obtained from London Metropolitan University and Liverpool JMU ethics committees.

Results: Conditions treated were most commonly chronic conditions, though there was some difference between those most commonly encountered between the different therapies. Similarities and differences within different groups in each profession were apparent between medical and non-medical practitioners, including consultation times, diagnostics and opinions on medical systems.

Conclusion: Findings from the study will inform the integration debate and healthcare models of the future. They will also allow future studies on the included treatments to focus on the most relevant areas.

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P04.24. Use of relaxation techniques and complementary and alternative medicine by adults with insomnia symptoms: results from a national survey

S Bertisch^{1*}, R Erwin Wells², M Smith³, E McCarthy¹

¹Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, USA;

²Brigham and Women's Hospital, Boston, USA; ³Johns Hopkins Bayview

Medical Center, Baltimore, USA

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Purpose: An estimated 1.6 million U.S. adults use complementary and alternative medicine (CAM) for insomnia. The American Academy of Sleep Medicine has graded relaxation training as a "Standard" treatment for insomnia. However, national patterns of CAM and relaxation techniques

by American adults with insomnia are not well-established. In this context, we sought to identify overall rates of CAM and relaxation technique use, determine correlates of relaxation technique use, and to quantify reasons for use and disclosure of CAM and relaxation techniques to conventional medical professionals.

Methods: We analyzed data from the 2007 National Health Interview Survey (n=23,358). We estimated prevalence of CAM and relaxation techniques use among adults by self-reported insomnia symptom status. Among respondents with insomnia symptoms (n=4,415), we examined reasons for use and disclosure to medical professionals. We employed multivariable logistic regression to determine the association between relaxation technique use and insomnia symptoms, adjusting for potential confounders.

Results: Nearly 50% of adults with insomnia symptoms use CAM annually. Twenty-six percent of adults with insomnia symptoms, an estimated 10.8 million, use relaxation techniques annually, and have higher likelihood of use compared with adults without insomnia (aOR 1.48, 95% CI 1.32,1.66). Deep breathing exercises are the most common relaxation technique used by adults with insomnia symptoms. Despite high rates of use of CAM and relaxation techniques, use specifically for treatment of insomnia was uncommon. Only 25% of adults with insomnia symptoms disclosed their relaxation techniques use to medical professionals. Age \geq 70 years, being male, lower educational attainment, low physical activity, and living in the South were associated with lower relaxation technique use among adults with insomnia.

Conclusion: Adults with insomnia symptoms commonly use relaxation techniques and CAM, yet use specifically for treatment of insomnia is low. Increased provider-patient communication regarding the benefits of relaxation techniques for insomnia may facilitate more targeted use.

P295

P04.25. Complementary medicine use and potential adverse reactions amongst HIV-positive people

L Braun^{1*}, M Dooley¹, C Forrester², A Duncan², K Mackie²

¹Monash, Melbourne, Australia; ²The Alfred, Melbourne, Australia

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Purpose: Relatively little is known about the patterns of complementary medicine (CM) use by HIV-positive people in the last decade, since the introduction of contemporary antiretroviral therapy (ART), or their information requirements. As ART use has evolved, CM use is likely to have also changed over time, however this has yet to be established. This is of relevance to health care providers, partly because of potential risks including drug interactions, but also to understand reasons for use and intended benefits, such as managing antiretroviral therapy (ART) side effects and/or addressing existing disease symptoms. The primary aim of this study is to establish the current patterns of use of CMs by HIV-positive people in Australia. Secondary aims are to identify their main information sources and the prevalence of potential drug interactions and suspected adverse reactions to CMs.

Methods: A ten site multi-center study is being conducted at hospital and sexual health centre sites around Australia. Hospital pharmacists are recruiting patients at HIV outpatient clinics and dispensaries. The study aims to collect survey responses from a broad cross-section of over 1000 HIV-positive volunteers.

Results: Data collection began in October 2012 and is due for completion by May 2012. Results from the Victorian sites will be available by February 2012.

Conclusion: It is anticipated that this study will be the impetus for developing specific complementary medicine resources and education to assist healthcare providers in counseling HIV-positive people about the safe and appropriate use of CMs and in helping patients to select the appropriate treatment or therapy to utilize.

P296

P04.26. Prevalence of botanical dietary supplement use among Hispanics in the United States: a systematic review

P Gardiner¹, A Filippelli², K Faurot^{3*}

¹Department of Family Medicine, Boston University Medical Center, Boston,

USA; ²Department of Family Medicine, Boston Medical Center, Boston, USA;

³UNC Epidemiology, Department of Physical Medicine & Rehabilitation, Durham, USA

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Purpose: We aimed to examine the prevalence of botanical dietary supplement (BDS) use among Hispanics in the United States (US) through a systematic review of the literature.

Methods: We performed a systematic review of BDS use among adult Hispanics living in the US. Our strategy included electronic database searches (CINAHL, EMBASE, Global Health, CAB Abstracts, and Medline) with keywords: herbal, herb, medicinal plant, botanical and Hispanic or Latino along with a manual search of retrieved references. We included only studies with at least 1% Hispanics, prevalence estimates for Hispanics, and publication dates 1998-2011. We extracted information on study and sample characteristics, and rates of disclosures to clinicians.

Results: Of the 35 studies reporting prevalence of BDS use among Hispanics, estimates ranged from 5% to 94% with a slightly narrower range restricting to use over the past 12 months (7-75%). Eighty-one percent (n=27) of studies included non-Hispanics and 54% reported <500 subjects. Smaller study size, regional location, convenience sampling, and longer recall periods were associated with greater prevalence of BDS use among Hispanics (Chi square, Fisher's exact $p < 0.05$). Studies with predominantly Hispanic samples also reported higher prevalence ($p = 0.02$). Of the predominantly Hispanic studies (n=11), 64% were conducted in states bordering Mexico, all in both English and Spanish. Rates of use and disclosure to clinicians ranged from 7 to 65% and did not depend on the presence of underlying health conditions. Health conditions included breast cancer, HIV, diabetes, heart disease, menopause, and pregnancy.

Conclusion: Variability in reported prevalence of herb use among Hispanics depends, in part, on sample composition, possibly related to the use of Hispanic-specific instruments. Disclosure rates also varied widely, even in high risk illness. Because of marked variability in estimates, more research is needed to understand patterns of BDS use and disclosure among Hispanic populations in the US.

P297

P04.27. Panax ginseng in randomized controlled trials: a systematic review

J Shergis^{*}, T Zhang, W Zhou, C Xue

Royal Melbourne Institute of Technology, Melbourne, Australia

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Purpose: Panax ginseng is a commonly used herb for improving stamina and vitality. Contemporary clinical studies have purported its usefulness for many conditions including physical and cognitive performance, cardiovascular risk factors and respiratory conditions. With several high quality preparations on the market it is timely to explore their effectiveness in clinical studies.

Methods: A systematic review was conducted to identify randomised controlled trials evaluating mono-preparations of Panax ginseng compared to control in patients with any type of disease or in healthy individuals. Major databases (five in English and three in Chinese) were searched, as well as hand searches to identify suitable studies with no publication date restriction. Included studies were independently assessed by two reviewers using the Cochrane risk of bias tool.

Results: Of the 414 potentially relevant studies, 67 met the inclusion criteria and were reviewed. The conditions investigated included: psychomotor performance (n=15), physical performance (n=10), circulatory system (n=9), diabetes and glucose metabolism (n=7), quality of life/ mood (n=6), respiratory system (n=5), immunology (n=4), erectile dysfunction (n=4), menopausal symptoms (n=2), anti-oxidant function (n=2), cancer (n=2) and dry mouth (n=1). Panax ginseng was compared to placebo in 62 studies, to conventional treatment in four studies and to no intervention in one study. The risk of bias was unclear in the majority of studies. A high level of heterogeneity was seen between studies, most notably differing preparations of Panax ginseng, therefore hindering pooling of results and confounding interpretation. Safety outcomes were evaluated in some studies with minor adverse events reported in 25 studies.

Conclusion: The effectiveness of Panax ginseng varied for different conditions with no solid conclusions deduced. Some promising results can be seen for respiratory diseases and psychomotor performance. Due to Panax ginseng's popularity further studies with larger sample sizes and stronger methodological quality are warranted to produce conclusive results.

P298

P04.28. Implementing a mind-body medicine relaxation training program in an urban high school: changes in health behaviors, perceived stress, and anxiety

H Wilson^{*}, M Scult, M Wilcher, R Chudnofsky, L Malloy, G Fricchione, H Benson, J Denninger

Massachusetts General Hospital/Harvard Medical School, Boston, USA

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Purpose: The negative impact of excessive stress on adolescents is linked to increased substance abuse, violence, and depression. The Relaxation Response (RR), a physiologic response opposite to the fight-or-flight response, has been shown to be effective in treating anxiety/depression and reducing stress in high school students. Several studies have demonstrated that RR-based interventions that involve psychoeducation and teaching relaxation strategies are related to decreased anxiety and perceived stress in high school students. These interventions have previously been led by study staff. This study's objective was to assess the feasibility of having high school teachers implement an RR curriculum with their own students.

Methods: We taught teachers in a local public high school a RR curriculum that used diaphragmatic breathing, imagery, and relaxation training. Teachers then implemented this curriculum with students, and we assessed changes in self-reported teacher and student health behaviors, perceived stress, and anxiety using a pre-intervention/post-intervention survey. A four week follow-up survey was completed by students. All teachers and students received the intervention. Twelve teachers and 77 students completed the study.

Results: Data analysis using paired sample t-tests found that after receiving the intervention teachers and students reported a significant increase in the use of positive health behaviors. Students also reported significantly less state and trait level anxiety after receiving the intervention. Significant results for students were maintained after a four week follow-up. All significant results were at $p < .05$ level when controlling for multiple comparisons.

Conclusion: Further research is needed to replicate findings in a randomized-control study along with analysis of effects on academic performance and physical health. There are also policy implications. By documenting the efficacy of RR based interventions, an argument can be made to incorporate such training into teacher education and educational curricula to make a wide-spread impact on health and well-being.

P299

P04.29. Tai chi and health related quality of life: a systematic review and meta-analysis of randomized controlled trials

S Abariga^{*}, C Wang

Tufts Medical Center, Division of Rheumatology, Boston, USA

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Purpose: Tai Chi, a Chinese mind-body exercise, has a complex multicomponent therapy that integrates physical, psychosocial, emotional and behavioral elements to promote health in a variety chronic condition. Health Related Quality of Life (HRQL) is a multidimensional, subjective patient centered outcome that encompasses those conditions that affects a person's overall well-being. A comprehensive review of the literature of Tai Chi and quality of life is an important step for understanding the mind-body beneficial effects. We conducted a systematic review and meta-analysis of randomized controlled trials evaluating the effect Tai Chi on HRQL on a variety of populations.

Methods: We performed a comprehensive search of 11 data databases through October 2011 with no language restriction. We included randomized controlled trials evaluating Tai Chi in HRQL for both healthy and patients with chronic conditions with a sample size of least 10 subjects; at least two weeks of follow-up and assessed HRQL as an outcome. Study quality was assessed with the Jadad instrument. The differences between treatment groups were reported as mean change (95% CI, p-value). We also conducted a meta-analysis on studies using the SF-36 quality of life instruments.

Results: We identified 61 potentially relevant studies and 31 RCTs with a total of 2662 subjects met our eligibility criteria. Of these, six RCTs used SF-36 and 25 used other HRQL measures. Twenty-six of them reported an improvement in HRQL with Tai Chi practice compared with control. The meta-analysis results showed that five RCTs, average quality of four, enrolling 231 patients with 12 to 15 weeks of Tai Chi therapy, had benefit effects. The pooled effect size for the physical component score was 6.08 (95% CI: 3.7 to 8.45) and for the mental component score was 4.12 (95% CI: 1.32 to 6.93).

Conclusion: The current body of evidence suggests that Tai Chi may improve HRQL across various disease populations.

P300

P04.30. Physical inactivity among employees at major academic medical center and university

G Birdee^{*}, D Byrne, P McGown, L Rolando, M Holmes, M Yarbrough
Vanderbilt University Medical Center, Nashville, USA

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Purpose: In the U.S., one out of three adults are physically inactive (PIA), which is associated with increased mortality. The workplace is a potential venue to promote physical activity.

Methods: We examined data from the 2010 health risk assessment (HRA) among Vanderbilt University employees who are enrolled in the employer insurance plan. The HRA is a 39-item online questionnaire developed by Wellsource, Inc. In 2010, 80% of eligible employees completed the HRA (n=16,976). We analyzed characteristics of PIA among employees, defined as individuals who reported exercising less than one time a week in the last year. We used bivariable models to examine the associations of PIA with sociodemographics, health status, chronic medical conditions, mental health, and health behaviors.

Results: Among the 16,976 employees who completed the HRA, 3,002 individuals reported physical activity less than once a week (18%). PIA levels were higher among women than men (OR 1.3 [1.2-1.4]) and older individuals. Non-faculty employees were less active than faculty employees (OR 2.3 [2.0-2.6]). Individuals who were PIA as compared with physically active reported higher prevalence of hypertension (24% versus 15%, respectively), high cholesterol (14% versus 9%, respectively), history of heart disease, cancer, or stroke (12% versus 7%, respectively), and trouble coping with stress (15% versus 7%, respectively). Higher rates of absenteeism and dissatisfaction with work were reported among PIA than active employees. Individuals who reported fair or poor overall health were five times more likely to be PIA than active (OR 4.8 [4.0-5.6]).

Conclusion: Nearly one out of five employees were PIA and reported higher stress, chronic medical conditions, absenteeism, and dissatisfaction with work compared to physically active employees. Future longitudinal research is needed to identify barriers to physical activity and if increases in physical activity are associated with improved well-being, decreased incidence of chronic health conditions, and/or reduced health utility costs among employees.

P301

P04.31. Determining attitudes and use of complementary and alternative medicine and integrative medicine amongst undergraduates

M Broukhim^{*}, A Reeves, N Huynh, M Liu
University of California, Irvine, Irvine, USA

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Purpose: The purpose of this study was to determine the perceptions, attitudes, and use of Complementary and Alternative Medicine (CAM) and Integrative Medicine (IM) in UC Irvine undergraduate students to better understand the current opinion trends and use of CAM/IM amongst students. It was expected that there would be an overall positive outlook, perception, use, and interest in CAM/IM in the current undergraduate population.

Methods: This is a prospective, cross sectional study using an electronic questionnaire conducted on the undergraduate population at University of California, Irvine from Fall 2010 to Spring 2011. Email invitations were sent to all undergraduate students to participate in this study. All data

were collected anonymously and IRB approval was secured from UC Irvine. Descriptive and comparative analysis was done on the twenty-one questions using SPSS 16. Additional support for the study was obtained from the Undergraduate Research Opportunities Program (UROP).

Results: Out of the 23,000 undergraduates, 2,800 responded to the survey, comprising 12 percent of the campus. One-third of respondents stated that they had used CAM before. Major drives for using CAM were due to friend/relative recommendation (18.4%) followed by efficiency/effectiveness (13.1%), and curiosity (12.4%). Pre-health students' primary preferences for taking education on CAM were classes within their major (72%), as a requirement for graduation (70%), as a holistic major or minor (53%), and outside their major (22%). It was found that only 9% of pre-health majors taking the survey were not interested in more CAM classes.

Conclusion: We find that most students are interested in attaining more CAM education if readily available. Additionally, we found an overall interest in CAM, use of CAM modalities, and a desire for further education if provided.

P302

P04.32. Acupuncture and heart rate variability: a systems level approach to understanding mechanism

B Anderson^{1*}, A Nielsen², B Kligler³, D McKee³

¹Pacific College of Oriental Medicine, New York City, USA; ²Beth Israel Medical Center, New York City, USA; ³Albert Einstein College of Medicine, Yeshiva University, New York City, USA

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Purpose: Recent research has elucidated several different mechanisms for acupuncture. However the inter-relationship between these mechanisms and how acupuncture affects complex physiological systems is still not understood. Heart rate variability (HRV), the beat-to-beat fluctuations in the rhythm of the heart, results from the regulation of the heart by the autonomic nervous system (ANS). Low HRV is associated with increased risk of all-cause mortality and is a marker for a wide range of diseases. Coherent HRV patterns are associated with increased synchronization between the two branches of the ANS, and when sustained for long periods of time result in increased synchronization and entrainment between multiple body systems. This presentation is a systematic review of the clinical trials that have been undertaken examining the effect of acupuncture on HRV and the implications for HRV representing a systems level mechanism for acupuncture.

Methods: The literature was reviewed using Medline, Science Citation Index, Cochrane (Database of Systematic Reviews and Central Register of Controlled Trials), the New England School of Acupuncture library databases, cross-reference of published data, personal libraries and Chinese medicine textbooks.

Results: Results from randomized placebo controlled trials strongly suggest that acupuncture can improve HRV, especially when acupuncture is delivered in clinically valid dosages to subjects with a medically diagnosed condition and with the inclusion of an inert placebo control.

Conclusion: There is sufficient evidence in the literature to support the conclusion that acupuncture improves HRV. Acupuncture may function by mediating global physiological regulation through improvement of HRV and synchronization of the two branches of the ANS. As a complex intervention, such a view of acupuncture mechanism is conceptually aligned with systems and complexity theory and is more compatible with traditional East Asian medical theory.

P303

P04.33. A review of existing methods to specify condition specific prevalence and experience of CAM use in US children: toward a strategic data plan

C Bethell^{1*}, S Stumbo¹, N Gombojav¹, C Wilhelm¹, P Newacheck²

¹The Child and Adolescent Health Measurement Initiative (CAHMI), OHSU, Portland, USA; ²UCSF Institute for Health Policy Studies, San Francisco, USA

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Purpose: To review existing methods to specify condition specific prevalence of and experience of the use of CAM in children in the US

and begin to specify a strategic data plan to support evaluation of pediatric integrative medicine.

Methods: Qualitative (structured interviews; focus groups; concept and best practice methods mapping) and quantitative methods were used to evaluate the National Health Interview Survey's Children's CAM Supplement (2007), the Medical Expenditures Panel Survey (2008) and the National Survey of Children with Special Health Care Needs (2009/10), and to compare findings and specify strengths and weaknesses of each.

Results: Using the NHIS Child CAM Supplement method for asking about reasons for the use of CAM in children, we would conclude that fewer than 15% of all children using CAM do so for specific health conditions. However, over 91.7% of all child CAM users had parents who indicated in the larger NHIS that their child had one or more of 59 health problems or conditions assessed and over half of these had 3 or more health conditions. Nearly 40% of all child CAM users met criteria for having a special health care need. Linkage of NHIS and MEPS datasets result in 2411 cases of data - insufficient to validly explore the many condition specific patterns and associations critical to better understanding the need for and impact of integrative medicine for children. NS-CSHCN findings reveal similar overall prevalence and patterns of use and offers alternative methods for consideration.

Conclusion: NHIS Child CAM Supplement methods are not valid for assessing CAM use among children with specific health conditions. Alignment with methods used in conventional medical care will enable comparisons between and relationships among CAM and conventional medicine use in the care of children's health conditions. A strategic approach to ensuring sufficient and valid data are collected across all national surveys is indicated.

P304

P04.34. Should Medicare expand allowable chiropractic services?

J Whedon

Dartmouth College, Lebanon, USA

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Purpose: Chiropractic care is covered under Medicare, but the scope of services is restricted. The Demonstration of Expanded Coverage of Chiropractic Services under Medicare projected that expanded services would cost Medicare up to \$1.15 billion annually. The potential expansion of chiropractic services under Medicare remains controversial. Advocates for expansion cite clinical effectiveness and high patient satisfaction, while critics point to compliance issues and projected cost increases.

Methods: Seven reports from the US Department of Health and Human Services and the results of two focused Medline queries were reviewed for evidence related to the provision of chiropractic care under Medicare. The literature review summarized the findings of government reports and peer-reviewed publications, and explored the pros and cons of expanded services.

Results: Three problem areas pose barriers to expansion of chiropractic services under Medicare: (1) putative provision of maintenance (wellness) care in apparent violation of Medicare practice guidelines; (2) inadequate clinical documentation; and (3) projected increased costs associated with expanded services. However, maintenance care is poorly defined, and evidence for its clinical effectiveness is not without promise, although its cost-effectiveness is unknown. Inadequate clinical documentation, although not justifiable, may be connected to disparities in Medicare documentation requirements and reimbursement. The analysis of budget neutrality of the demonstration project may have been subject to bias due to selection of unrepresentative demonstration sites. No causal relationship was established between expanded services under the demonstration and the observed differences in total Medicare costs.

Conclusion: Research on costs and clinical outcomes associated with maintenance care is needed. Any unjustifiable disparities in coverage and payments under Medicare should be corrected. Chiropractic physicians must assume responsibility for correcting deficiencies in compliance and documentation. A policy decision on the expansion of chiropractic services under Medicare should consider the results of a re-evaluation of the demonstration, which is currently underway.

P305

P04.35. Sustained effects of a mindfulness-based classroom intervention on behavior in urban, underserved children

M Klatt, E Browne, K Harpster, J Case-Smith

The Ohio State University College of Medicine, Columbus, USA

BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P305

Purpose: To investigate the initial and sustained effects of Move-Into-Learning (MIL), an 8-week Mindfulness-Based Intervention (MBI), delivered in the classroom, that utilized yoga movement, music, written and visual arts, designed to reduce stress and improve behavior in at-risk elementary students.

Methods: MIL was implemented in a low income, urban neighborhood with 3rd grade students (n=41) in a school under academic emergency with many behavior problems. A pre to post test single group design with a 2 month follow up measure was used to investigate the behavioral changes in the children. The MIL program utilized a standardized protocol consisting of mindfulness meditation, yoga movement/breathing in harmony with music, and appreciative inquiry (AI) exercises that required students to express themselves in the written and visual arts. Students were evaluated by their classroom teacher pre/post MIL intervention using the Connors Behavior Rating Scale, identifying problem behaviors that had occurred in the month prior to the assessments.

Results: Children in the intervention group showed significant improvement in hyperactivity (F [1,40]=10.18; p= .002), and highly significant differences in the ADHD index (F[1,40]= 27.0; p<.001), and cognitive/inattentiveness (F [1,40]=35.50; p<.001) subscales with medium to large effect sizes. In the two month post-intervention measure (n=20), the ADHD index, and hyperactivity continued to improve between the post intervention and the two month follow up, while cognitive/inattentive behaviors (F(1,19)=8.56; p=.01) significantly improved.

Conclusion: Teachers, administrators, and parents may all recognize a child whose behavior is negatively impacted by stress, but they may not be familiar with programs that can effectively provide strategies for stress reduction. MIL is one such program, providing research to practice evidence of effective stress reduction, feasible for classroom delivery, with outcome data supporting improved behavior for at-risk children, with effects sustained beyond the intervention.

P306

P04.36. ABSTRACT WITHDRAWN FROM PUBLICATION

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P307

P04.37. The impact of integrative medicine on inpatient patient satisfaction at Abbott Northwestern Hospital

J Dusek, L Knutson

Penny George Inst. for Health & Healing, Abbott Northwestern Hospital,

Allina Health, Minneapolis, USA

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Purpose: To evaluate the impact of inpatient integrative medicine on patient satisfaction scores.

Methods: Patient satisfaction is routinely assessed in hospitals across the US through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. The HCAHPS compares generic patient satisfaction across hospitals for concerns such as communication with hospital and nurses. However, the survey does not assess the impact of integrative medicine on patient satisfaction for issues such as pain management. To address this limitation, we developed a brief 3 question pilot survey to be completed by patients, who received inpatient integrative medicine, after completing their HCAHPS survey. The questions were: (1) My pain was improved as a result of the therapies I received (such as acupuncture, massage, guided imagery, aromatherapy or relaxation

techniques); (2) I was taught helpful practices to self-manage my pain (such as relaxation, imagery or acupressure); (3) I used the helpful practices I was taught to self manage my pain (relaxation, imagery or acupressure). The questions were answered on a 5 point Likert scale.

Results: The survey was completed by 567 patients from March to August 2011. The percentage of patients reporting Strongly Agree/Slightly Agree for Question 1, 2 and 3 was 76.2%, 72.5% and 72.2%, respectively. When splitting Question 1 (Pain improvement) by clinical community, there were differential responses: Rehabilitation and Women's health reported the highest satisfaction at 88%, Oncology was 85%, Cardiovascular was 71%, Orthopedics was 67% and Neuroscience and Spine reported 65% satisfaction of Strongly Agree/Slightly Agree. There was no gender difference with both genders reporting about 75% satisfaction for pain improvement from integrative therapies.

Conclusion: We developed a brief survey to assess patient satisfaction of integrative medicine interventions. While the tool successfully detected pain improvement for integrative medicine, differential responses across clinical community provide opportunities for improving patient satisfaction.

P308

P04.38. The efficacy of an English-to-Danish translation of a low-dose mindfulness workplace intervention for Scandinavian bank employees on stress

M Klatt^{1*}, C Norre², S White¹

¹The Ohio State University College of Medicine, Columbus, USA;

²Copenhagen University, Copenhagen, Denmark

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Purpose: To determine the impact of a low-dose mindfulness based intervention, translated from English to Danish, delivered at the worksite on stress, sleep, and work engagement, for a group of Scandinavian bank employees.

Methods: In a randomized, wait-list control longitudinal design, employees from a large Scandinavian bank (n=57) were recruited for a standardized worksite low-dose Mindfulness-Based Intervention (MBI). Participants, randomized and stratified to group by gender, were 39% middle-upper management employees, 41% support staff or consultant status. Mean age was 43 years with 31% males and 69% females. Changes in stress were evaluated pre/post intervention and 8 weeks post intervention via the Perceived Stress Scale (PSS), sleep quality via the Pittsburgh Sleep Quality Index (PSQI), and work engagement, using Utrecht Work Engagement Scale-9 (UWES-9).

Results: A significant group x time effect was observed for PSS scores (p<0.001) as the treatment group decreased from 19.00 (sd = 5.46) to 14.07 (sd=4.92) after treatment while the control group showed virtually no change during that time period. There was also a significant decrease (increase in sleep quality) in the PSQI (p=0.005) for the intervention group only, as scores decreased from 5.93 (sd=1.80) to 3.89 (sd=1.60) after treatment. In sleep quality sub scales, significant shifts in the treatment group were noted in the subjective sleep quality component (p=0.007) and daytime dysfunction (p=0.004). At 2 months after the intervention ended, no additional significant changes in the PSS, PSQI or the PSQI components were observed, but nor did scores return to pre treatment values for the intervention group.

Conclusion: A low-dose standardized MBI translated into Danish was effective in helping Scandinavian bank employees manage stress, have better quality of sleep, and be more awake and functional during work hours. This standardized MBI was effective beyond its cultural/language origin in addressing workplace stress.

P309

P04.39. Leadership and education program for students in integrative medicine: LEAPS into IM

M Guerrera^{1*}, W Kohatsu², H Roca³, J Polli⁴, N Kaveh⁵, B Berman-Brady⁶

¹University of Connecticut School of Medicine, Hartford, USA; ²Santa Rosa Family Medicine Residency, Santa Rosa, USA; ³Yale School of Medicine, New Haven, USA; ⁴Consortium of Academic Health Centers for Integrative

Medicine, Minneapolis, USA; ⁵American Medical Student Association, Reston, USA; ⁶A.T. Still University School of Osteopathic Medicine, Mesa, USA

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Purpose: To present preliminary data from LEAPS into IM, the Leadership and Education Program for Students in Integrative Medicine, an innovative program designed to foster the development of the next generation of medical student leaders in Integrative Medicine (IM). Medical students selected from across North America engaged in hands-on and didactic IM education, leadership skills, self-care, and community building curricula with leading experts serving as teachers/mentors. Our goal was to evaluate LEAPS impact on several IM related behaviors in participants immediately following and several months after the program.

Methods: Allopathic and osteopathic medical students who completed the LEAPS into IM program in 2010 (N=20) and 2011 (N=30) were surveyed at the conclusion of the week-long program and quarterly thereafter via an anonymous IRB approved survey. Questions explored participants' utilization of Integrative Medicine resources in self-care and IM referral for family, friends, and patients. Satisfaction with medicine was also measured. Additional questions included other exposure to integrative medicine educational material over time.

Results: Students exhibited increased utilization of yoga, group activities, exercise, and healthy nutrition a year after conclusion of the program. A significant drop in group support activity at 6 months correlated with a drop off in return of follow-up surveys and an apparent reduction in satisfaction with standard medical education. Comparison across years showed similar results.

Conclusion: The LEAPS into IM Program appears to be effective in enhancing student utilization of select Integrative Medicine resources and referrals. A significant correlation exists between continued engagement with Integrative Medicine and the support given by groups of like-minded individuals.

P310

P04.40. Lifestyle therapy use in pediatric cancer survivors

J Karlik^{1*}, Y Bao², B Cheng², S Lees¹, D Ndao¹, E Ladas¹, K Kelly¹

¹Columbia University Medical Center, Dept of Pediatric Oncology, New York City, USA; ²Columbia University Medical Center, New York City, USA

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Purpose: Pediatric cancer survivors often experience late effects secondary to cancer therapy, but their choices for symptom management is largely unknown. Many of these late effects can be treated by lifestyle changes such as diet, exercise, and conventional supplements. Although the use of lifestyle therapies appears common in children and adolescents, including pediatric cancer survivors, the reasons for use and perceptions of efficacy have not been investigated.

Methods: We report the results of a cross sectional survey investigating the prevalence of lifestyle therapy use, types and reasons for lifestyle therapy use, and determinants of lifestyle therapy use among survivors of childhood cancer.

Results: One hundred fifty-five (95%) patients approached in person and 45 (34%) patients approached by mail consented to participate in the study. Twenty-four participants participated in an original survey and were longitudinally followed with a repeat survey approximately 10 years later. Average age of participants was 14.5 ± 6.2 years. The average time from completion of cancer treatment to survey administration was 4.5 ± 4.0 years. One hundred thirty-four (68%) made lifestyle modifications overall; 46% took multivitamin or conventional supplements, 45% used dietary changes, and 21% used exercise. Reasons for use included general health (87%) and specific symptoms/side effects (13%). Of specific reasons, general health and healing (31%) and fitness/weight control (25%) were common. Sixty-one percent of participants thought their lifestyle change was very effective and 25% thought it was somewhat effective. Forty-three percent obtained lifestyle information from a family member/friend and 29% obtained information from their physician. Eighty-five percent of survivors disclosed the use of lifestyle modifications to their physician.

Conclusion: Many pediatric cancer survivors use lifestyle therapies and believe that these changes are effective. Given the widespread use of lifestyle therapies in pediatric cancer survivors, research is needed on the efficacy of lifestyle modifications in treating symptoms/side effects and improving general health of pediatric cancer survivors.

P311

P04.41. Prevalence of complementary and alternative medicine use in a community-based population in Korea: a systematic review

S Baek^{1*}, H Seo², S Kim¹, S Choi¹

¹Korea Institute of Oriental Medicine, Daejeon, Republic of Korea;

²Department of Nursing, College of Medicine, Chosun University, Gwangju, Republic of Korea

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Purpose: The use of complementary and alternative medicine (CAM) is increasing in East Asian countries as well as in Western nations. However, information regarding the prevalence of the use of CAM in community-based populations is inconsistent and has not been systematically reviewed. This review examines the prevalence of CAM use in the Republic of Korea, focusing on (1) factors that possibly cause considerable variations in the reported prevalence, (2) the relationship between CAM use and the methodological qualities of surveys, and (3) socio-demographic factors associated with the use of CAM.

Methods: A systematic search of electronic databases (e.g., Medline, CINAHL, Kmbase, KoreaMed, KISS, KISTi, NDSL and OASIS) was conducted based on a predefined search strategy and selection criteria. We included cross-sectional studies that examined the Korean population in community settings and presented the percentage of CAM use as the main outcome. Data collection and assessment of the methodological quality of the selected studies were conducted by three independent reviewers.

Results: A total of 11 studies that met our selection criteria were identified. CAM use in Korea varied from 29% to 83%. Other important findings were as follows: (1) the scope of CAM use and the taxonomies used to describe CAM modalities were inconsistent across studies, (2) recall bias, lack of representative sampling strategies, and pilot testing comprised vulnerable areas of methodological risk, and (3) demographic factors most affected by CAM use in the Republic of Korea were female gender, higher education and age.

Conclusion: Researchers should conduct methodologically well-designed surveys of CAM use by utilizing critical quality components. The development of a specific definition of CAM and a classification of CAM modalities that reflect regional specificities are needed to conduct better comparative studies among multiple other countries.

P312

P04.42. Use of complementary and alternative medicine among adults with neuro-psychiatric symptoms common to mild traumatic brain injury

M Purohit^{1*}, R Wells², S Bertisch¹, R Zafonte³, R Davis¹, R Phillips¹

¹Beth Israel Deaconess Medical Center/Harvard Medical School, Boston, USA;

²Brigham and Women's Hospital/Faulkner Hospital/Harvard Medical School, Boston, USA; ³Spaulding Rehabilitation Hospital/Harvard Medical School, Boston, USA

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Purpose: One in three adults uses complementary and alternative medicine (CAM) annually in the United States. However, the pattern of CAM use among adults with neuropsychiatric symptoms commonly reported by patients with mild traumatic brain injury (mTBI), a serious public health concern, is not well studied.

Methods: We analyzed data from the 2007 National Health Interview Survey (n=23,393) to compare CAM use between adults with and without neuropsychiatric symptoms common to mTBI. Symptoms included self-reported anxiety, depression, insomnia, headaches, memory deficits, attentional deficits, and excessive sleepiness. CAM use was defined as use of mind-body (e.g., meditation), biological (e.g., herbs), manipulation (e.g., massage) therapies, and alternative medical systems (e.g., Ayurveda), within the past 12 months. We estimated prevalence and reasons for CAM use in patients with and without neuropsychiatric symptoms. We also explored variations in CAM use by the number of symptoms. Multivariable logistic regression was performed to examine the association between neuropsychiatric symptoms and CAM use after adjustment for sociodemographic characteristics, illness burden (e.g., fibromyalgia, low back pain), access to care, and health habits.

Table 1(abstract P312)

Number of Symptoms	aOR	95% CI	
0	1.00		
1	1.43	1.32	1.56
2	1.70	1.51	1.91
≥3	1.77	1.56	2.01

Results: Adults with neuropsychiatric symptoms had higher CAM use compared to adults without neuropsychiatric symptoms (44% vs. 30%, p<0.001); prevalence increased with increasing number of symptoms (p-value for trend <0.001, table below). Differences persisted after adjustment (table below). Twenty percent used CAM because standard treatments were either too expensive or ineffective; 25% used CAM because it was recommended by a provider.

Conclusion: More than 40% of adults with neuropsychiatric symptoms observed in mTBI used CAM. An increasing number of symptoms was associated with increased use. Future research is needed to understand the use, efficacy, and safety of CAM in mTBI patients.

P313

P04.43. Children with common neurological conditions use complementary and alternative medicine twice as frequently as those without

L Jansons^{*}, K James, J Ziegenfuss, J Tilburt

Mayo Medical School, Rochester, USA

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Purpose: Recent literature suggests that one in nine children in the US uses some type of complementary and alternative medicine (CAM). Children with challenging neurological conditions such as headaches, migraines, and seizures may seek CAM in their attempts at self-care. Our objective was to describe CAM use in children with these conditions.

Methods: We compared use of CAM in 9,417 children with and without common neurological conditions (headaches, migraines, seizures), using the 2007 National Health Interview Survey (NHIS) data, where CAM might plausibly play a role in their self management.

Results: Children with common neurological conditions reported significantly more CAM use compared to the children without these symptoms (22.2% vs 11.0%, p<0.0001). Compared to other pediatric CAM users, children with neurological conditions report significantly higher use of mind-body techniques than those without (36.6% vs 20.5%, p<0.007). Of the mind-body techniques, deep breathing (33.7%), meditation (13.3%), and progressive relaxation (9.4%) were used most frequently.

Conclusion: CAM use is twice as common in children with common neurological conditions compared to those without. More work is needed to further characterize the nature of CAM use in this population as well as its benefits on neurological disease. Whether and how to harness the self-management benefits of some CAM modalities in the care of pediatric patients with neurological conditions is an important area of investigation.

P314

P04.44. The association between the use of complementary and alternative medicine in children with demographic indicators and vaccinations

N Feiler-Mircus

Bar-Ilan University, Herzliya, Israel

BMC Complementary and Alternative Medicine 2012, **12**(Suppl 1):P314

Purpose: The aims of the study were to examine: (1) the relationship between parental income and schooling and using Complementary and Alternative Medicine (CAM) for their children; (2) the relationship between giving the recommended vaccines and usage of CAM for children; and (3) the frequency and characteristics of CAM usage in children from different socio-economic layers.

Methods: The study was done via a self-reporting anonymous questionnaire by parents of 535 children, in 5 primary care pediatric clinics located in different areas in Israel, representing a population from different socio-economic classes.

Results: Twenty-seven percent of the respondents reported that they used CAM for at least one child in their family. Parents with higher education and income used CAM more than less educated parents and those with lower incomes. Parents who have tried CAM for themselves used it also for their children. Parents who have not vaccinated or partially vaccinated their children used CAM more than parents who gave their children all of the recommended vaccines. Parents tend to attach importance to the pediatrician notification for using CAM.

Conclusion: A significant portion of the population use CAM for children. CAM use in children was more frequent among families in a high socio-economic level. Most of the parents who used CAM for themselves did the same for their children, due to their positive experience and their desire to improve the health of their children using other methods outside of conventional medicine. Parents who tend not to vaccinate or partially vaccinate their children were more likely to use CAM, because this treatment is perceived as more "natural". The common use of CAM in children requires raising the awareness and knowledge of pediatricians to this phenomena and improving the communication between parents and pediatricians regarding CAM usage, for the benefit of the children.

P315

P04.45. A systematic review of randomized clinical trials on herbal medicines for treatment of fatty liver diseases

Z Liu^{1*}, Y Fei¹, G Li², S Grant³, B Roufogalis², J Liu¹

¹Beijing University of Chinese Medicine, Center for Evidence-based Medicine, Beijing, China; ²Faculty of Pharmacy, The University of Sydney, Sydney, Australia; ³University of Western Sydney, Sydney, Australia

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Purpose: Assess the beneficial and harmful effects of herbal medicines on Fatty Liver Disease (FLD).

Methods: We searched for randomised clinical trials comparing herbal medicine with placebo, no treatment, lifestyle therapy or western interventions in participants with FLD in The Cochrane Hepato-Biliary Group Controlled Trials Register, The Cochrane Library, MEDLINE, EMBASE, Science Citation Index Expanded till May 2011, Chinese BioMedical Database, Traditional Chinese Medical Literature Analysis and Retrieval System, China National Knowledge Infrastructure, Chinese VIP Information, Chinese Academic Conference Papers Database, Chinese Dissertation Database, and Allied and Complementary Medicine Database till June 2011. We used risk of bias to assess trial methodological quality. The effects estimates were presented as relative risks (RR) with 95% confidence intervals (CI) or as mean differences (MD) with 95% CI depending on variables of the outcome measures.

Results: We included 25 randomised trials which involving 2257 FLD participants. The mean sample size was 90.3 participants (ranging from 40 to 146 participants per trial). Risk of bias of the included trials was high or unclear. Twenty-three different herbal medicines were tested in the RCTs. None of the trials reported death, hepatic-related morbidity, quality of life or cost. Surrogate outcomes such as serum AST, ALT, GGT, ALP, B ultrasound findings, CT scan findings and adverse effects were reported. Qinyin tea and Danning tablet did not show beneficial effects on outcomes of ALT, AST, B ultrasound and ALP. Qinyin capsule did not show beneficial significant effect on ALT (MD 17.80, 95% CI 6.35 to 29.25). Other herbal medicines showed beneficial effect on at least one of the reported biochemical outcomes. No serious adverse events were reported.

Conclusion: Some herbal medicines may have potential effects on FLD and they appear safe to use. The findings are not confirmatory due to high or unclear risk of bias of the included trials and limited number of trials on individual herbal medicines.

P316

P04.46. Cupping therapy for facial paralysis: a systematic review of randomized controlled trials

H Cao^{*}, J Liu

Beijing University of Chinese Medicine, Beijing, China

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Purpose: Cupping therapy as part of the traditional Chinese medicine (TCM) is widely used in treating facial paralysis in China. This review focuses on randomized controlled trials (RCTs) to evaluate the therapeutic effect and safety of cupping therapy for facial paralysis.

Methods: We included all RCTs on cupping therapy for facial paralysis, combination of cupping therapy and other TCM treatments versus other non-TCM therapies were excluded. We searched four databases. All searches ended in December 2010. Methodological qualities of the included trials were evaluated according to criteria of Cochrane Reviewer's Handbook. Outcome data were summarized using risk ratios (RR) with 95% confidence intervals (CI) for binary outcomes or mean difference (MD) with 95% CI for continuous outcomes. RevMan 5.0.20 software was used for data analyses. Meta-analysis was used if the trials had a good homogeneity, which were assessed by examining I^2 .

Results: There were 1574 participants in 17 RCTs with generally low methodological quality identified. Two trials were excluded from the meta-analysis due to the special method of intervention. Among the remaining 15 trials, 8 trials used wet cupping, 6 trials used flash cupping, and 1 trial employed medicinal cupping. Meta-analysis showed that the combination of acupuncture and flashing cupping (RR 1.51, 95% CI 1.29 to 1.76, $p < 0.00001$, 5 trials, fixed model) or wet cupping (RR 1.60, 95% CI 1.33 to 1.93, $p < 0.0001$, 6 trials, fixed model) was significantly better than acupuncture alone for a number of cured patients. A combination of cupping therapy and medications was superior to medications alone on reducing average cured time (MD -6.05, 95% CI -9.83 to -2.27, $p = 0.002$, 2 trials, random model). No serious adverse effect was reported in the trials.

Conclusion: Overall, this review showed the potential effect of cupping therapy in the treatment of facial paralysis. However, further rigorously designed trials on its potential use in other conditions are warranted in the future.

P317

P04.47. Parents' satisfaction in a department of integrative pediatric oncology: a ten year experience

A Laengler^{1*}, R Seiler², A Buessing², T Ostermann², G Kameda¹, P Heusser²

¹Centre for Integrative Pediatric Oncology Gemeinschaftskrankenhaus, Herdecke, Germany; ²Witten Herdecke University, Witten, Germany

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Purpose: In the Gemeinschaftskrankenhaus Herdecke (GKH) children and adolescents with cancer are routinely treated with integrative medicine approaches. In addition to guideline-based conventional treatment a multimodal therapy concept is applied which includes anthroposophic pharmacotherapy (particularly mistletoe extracts) and non-pharmacologic therapies (e.g. art-therapies, external embrocations, eurythmy therapy). We analysed the recalled satisfaction of parents of children treated for cancer in the centre for integrative pediatric oncology at GKH from 1999 to 2008.

Methods: The parents were anonymously asked to report their satisfaction with treatment and outcome as well as additional items addressing aspects of integrative treatment, using the modified CSQ-8 questionnaire, a validated screening tool for detecting patient satisfaction. Descriptive statistics were gathered.

Results: Of the 98 mailed questionnaires 68 were returned (69%). Mistletoe extracts were used in 57 children (84%); they were tolerated well by 51 children (90%), while 23% of the parents reported side effects. In February 2010, 54 of the 68 responders (79%) stated a good health status, while 13 children (19%) had died of their tumour; 1 child (1.5%) was still in therapy. Treatment benefit was stated as very high by 58 of the parents (85%). Sixty-seven percent described the quality of care as excellent; 65% said that their needs were met in most areas. Seventy-two percent were very satisfied with the extent of help; 88% would come back if their child needed further help; 85% were very satisfied with the treatment on the whole; and 82.5% stated that their child had received the kind of treatment they wanted. The mean of the overall impression on a scale of 1-10 was very high (9.3).

Conclusion: There was a high level of parent satisfaction, indicating that the integrative concept was accepted well by the responding parents.

P318

P04.48. Fatty acids and dementia: systematic review and meta-analyses

M Loef¹, H Walach

European University Viadrina, Frankfurt, Germany

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Purpose: Fatty acids are essential for neuronal functioning. Their impact on the risk of developing dementia is, however, not restricted to the intake of omega-3 polyunsaturated fatty acids (PUFAs). There is increased evidence that a diet of fats is associated with neurodegenerative diseases in a multifaceted way.

Methods: We performed a systematic review on the association between fatty acids and dementia, Alzheimer's disease (AD), mild cognitive impairment and cognitive decline. Studies were selected if they were systematic reviews, observational studies, or randomized controlled trials which covered the thematic overlap not detailed in earlier systematic reviews. RCT and prospective studies needed to last for at least 6 and 12 months, respectively. A meta-analysis was conducted if it was possible to pool the effect sizes of three or more studies.

Results: Out of 5497 publications, 38 studies met the inclusion criteria and dealt with the association between dementia or cognitive decline and the total intake of fatty acids, the diet of saturated fatty acids (SFA), the diet or supplementation of ω -3 PUFAs or ω -6 PUFAs, the ratio of ω -6 to ω -3 PUFAs, and the intake of fish. Regular consumption of fish ($\geq 2x/week$) reduced the risk of dementia and AD by 37% and 43%, respectively. There is evidence that the increased diet or plasma levels of ω -3 and higher ω -3/ ω -6 ratios are associated with a lower risk of dementia and AD, whereas there is no consistent evidence for an effect of SFA, ω -6 PUFAs and total fatty acids on the risk of dementia.

Conclusion: The association of dietary lipids and dementia is complex enough to hypothesize that a change of dietary patterns is more likely to lower the risk of the disease than the supplementation of a single nutrient.

P319

P04.49. Herb use among low income women at an urban tertiary care center and their communications with prenatal care providers

K Jarrett^{1*}, C Pecci², A Filippelli², M Manchu², B Jack², P Gardiner²

¹Boston University School of Medicine, Boston, USA; ²Boston Medical Center, Boston, USA

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Purpose: Little is known about the use of herbs in low income underserved mothers and patterns of communication about herb use to prenatal providers. We sought to examine these issues among women delivering at Boston Medical Center (BMC), an urban medical center serving many of the low income and underserved populations of Boston, Massachusetts.

Methods: We interviewed women from the inpatient post-natal unit at BMC about what herbs they used during pregnancy, socioeconomic factors, changes to diet, and use of prenatal vitamins. A chart review documented diagnosed medical conditions. We asked women if they discussed the use of herbs with their prenatal care provider, and how satisfied they were with these discussions; we asked the same questions about prenatal vitamin use for comparison.

Results: Of the 160 women surveyed, 39% reported using herbs and 61% did not. The most commonly used herbs were ginger and peppermint. Herb users were more likely to be high school graduates, identify as black, and have an obstetrical condition. Herb users were more likely to make a dietary change during pregnancy. Only 38% of herb users discussed it with their provider and 82% were satisfied with the conversation. We did not find any medical record documentation of a discussion about herb use. Of the 104 women reporting prenatal vitamin use, 82% discussed it and 91% were satisfied with the conversation.

Conclusion: In this study 39% of women reported using herbs during pregnancy, a higher frequency than reported in other studies. Few herb users discussed use with their providers, and there was no documentation in the medical record. It is important that providers be given the tools to empower them to discuss herbal medicine use with patients, and are encouraged to do so.

P320

P04.50. Acupuncture for lumbar spinal stenosis: a systematic review

K Kim, S Noh, B Lee, J Kim, G Yang^{*}

School of Korean Medicine, Pusan National University, Yangsan, Republic of Korea

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Purpose: This study aims to evaluate evidence indicating the effectiveness and safety of acupuncture for lumbar spinal stenosis (LSS).

Methods: We researched five English databases (EMBASE, MEDLINE, CENTRAL, CINAHL and AMED) and one Chinese database (CAJ) in November 2011, without language restriction. Randomized controlled trials (RCTs) of needle acupuncture for LSS were eligible.

Results: Of 237 initially located articles, three RCTs conducted in China on 336 patients in total were included. Because of high or uncertain risk of bias (particularly in domains including allocation concealment, patient or assessor blinding and selective outcome reporting) data could not be combined in a meta-analysis. All three RCTs measured how many patients had improved. One compared deep needling at Jiaji (Ex-B2) to conventional acupuncture, showing greater benefit from deep needling after treatment (RR 1.09; 95% CI 1.01 to 1.17; $p=0.023$) and at three-month follow-up (RR 1.14; 95% CI 1.02 to 1.27; $p=0.016$), respectively. The second, comparing electro-acupuncture in combination with bloodletting therapy to electro-acupuncture alone, presented more benefit from combined therapy at post-treatment (RR 1.27; 95% CI 1.01 to 1.61; $p=0.045$). The third compared manual acupuncture plus Chinese herbal medicine to acupuncture alone, demonstrating more favorable results for manual acupuncture plus herbal medicine (RR 1.19; 95% CI 1.02 to 1.39; $p=0.025$), along with better scores on overall clinical improvements (WMD 3.20; 95% CI 1.32 to 5.08, $p=0.001$) after treatment. None of these studies measured the patient's quality of life or reported on adverse events.

Conclusion: There is insufficient evidence for, or against, using acupuncture for LSS. The benefits reported here should be interpreted with caution because of high or uncertain risk of bias in each study. The safety of acupuncture for LSS remains unclear because of the lack of reporting on adverse events. Future trials should be conducted, using rigorous methodology, appropriate comparison and clinically relevant outcomes.

P321

P04.51. Study of natural health product adverse reactions (SONAR): active surveillance in community pharmacies

K Necyk¹, H Boon², B Foster³, W Jaeger⁴, D LeGatt⁵, G Cembrowski⁵, M Murty⁶, D Vu⁶, R Leitch⁶, R Tsuyuki⁷, J Barnes⁸, T Charrois⁹, J Arnason¹⁰, M Ware¹¹, R Rosychuk¹², S Vohra¹

¹University of Alberta, Edmonton, Canada; ²Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Canada; ³Faculty of Medicine, University of Ottawa, Ottawa, Canada; ⁴Department of Medicine, University of Alberta, Edmonton, Canada; ⁵Department of Laboratory Medicine and Pathology, University of Alberta, Edmonton, Canada; ⁶Health Canada, Ottawa, Canada; ⁷Department of Medicine, University of Alberta, Edmonton, Canada; ⁸School of Pharmacy, University of Auckland, Auckland, New Zealand; ⁹School of Pharmacy, Curtin University of Technology, Perth, Australia; ¹⁰Department of Biology, University of Ottawa, Ottawa, Canada; ¹¹Research Institute, McGill University Health Centre, Montreal, Canada; ¹²Department of Pediatrics, University of Alberta, Edmonton, Canada

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Purpose: To investigate the adverse event (AE) rates associated with natural health product (NHP) use, prescription drug use and concurrent NHPs-drug use through active surveillance in community pharmacies in Alberta and British Columbia, Canada.

Methods: Participating pharmacists and pharmacy technicians screened consecutive individuals picking up prescription medications about their (1) NHP use, (2) prescription medication use, (3) concurrent NHP/prescription medication use in the previous one month, and (4) the occurrence of potential AEs. If a potential AE was identified and the patient provided written consent, a research pharmacist conducted a guided telephone interview to gather additional detailed information on the AE and medical history of the patient.

Results: Over a total of 105 pharmacy weeks, 1119 patients were screened. Of these patients, 409 reported taking prescription drugs only (36%; 95% CI: 33.7-39.4), 41 reported taking NHPs only (3.7%; 95% CI: 2.6-4.8) and 656 reported taking NHPs and prescription medication concurrently (58.6%; 95% CI: 55.7 to 61.5). A total of 58 patients reported a possible AE, which represents 0.98% (95% CI: 0.03 to 1.93) of those taking prescription medications only, 9.8% of those taking NHPs only (95% CI: 0.7% to 18.9) and 7.5% of those taking NHPs and prescription medications concurrently (95% CI: 5.48 to 9.52).

Conclusion: Compared to passive surveillance, this study found active surveillance to markedly improve NHP adverse event reporting rates. Active surveillance offers improved quantity and quality of adverse event data, allowing for meaningful adjudication to assess potential harms.

P322

P04.52. Alternative and complementary health practices among college students: implications for health promotion in higher education

A Burke

San Francisco State University, San Francisco, USA

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Purpose: Alternative and Complementary Health Practices (ACHP) may provide new opportunities for encouraging positive health behaviors among college students, such as reducing excessive alcohol use, a persistent campus challenge. To explore this issue a survey was conducted to examine the relationship between ACHP use and health behaviors.

Methods: The CORE, a national college drug and alcohol survey, was completed by a convenience sample of 2,312 respondents at a state university. The 39-item survey was augmented with 18 questions, including items on ACHP use and identification with postmodern social values.

Results: For comparison respondents were dichotomized into ACHP users and non-users – based on their response to a frequency of use survey item. This produced a group of 531 (31.3%) ACHP-users and 1,164 non-users. ACHP students were significantly more likely to be female (71.4% users versus 63.0% non-users, $p=0.01$) and older (24.4 versus 23.3, $p=0.01$). There were no statistically significant differences between the two groups in terms of past 30 day use of alcohol, tobacco, or marijuana, binge drinking, or perceived risks from binge drinking. ACHP students were significantly more likely to report engaging in conventional health practices ($p=0.001$), and having a higher self-reported health status ($p=0.007$). They also reported experiencing more mental health symptoms during the school year ($p=0.012$). Finally, ACHP students were significantly more likely to report identification with postmodern social values including interest in the environment ($p=0.001$) and social justice ($p=0.001$), and to having a somewhat more liberal political orientation.

Conclusion: Despite a lack of significant differences in alcohol use and other risk behaviors, there is a foreseeable long-term value in promoting ACHP on college campuses due to its current use by many students (31.3% reporting use in the past 30 days), its relationships with other conventional preventive health practices, and its association with positive social values.

P323

P04.53. Factors related to use of both western medicine and complementary and alternative medicine among patients with chronic diseases in South Korea

B Choi^{1*}, B Lim¹, D Han²

¹Pusan National University School of Korean Medicine, Yangsan, Gyeongnam, Republic of Korea; ²Hanyang University College of Medicine, Seoul, Republic of Korea

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Purpose: This study aims to examine the behavior of patients with chronic diseases using both western medicine (WM) and complementary and alternative medicine (CAM), and the factors affecting CAM utilization.

Methods: A cross-sectional study was carried out in three long-term care hospitals in Korea using a random sample of 620 adult patients with chronic diseases. The measures were CAM use and recognition of CAM. The factors affecting the use of CAM were analyzed statistically.

Results: Of 423 respondents, 79.0% used CAM adjunctively during the hospitalization period. The most frequent type of CAM modality used was

a package of herbal medicine and acupuncture (91.3%). Of the patients using CAM, 34.4% had musculoskeletal disorders and 16.1% had hypertension. Those aged 40-59 used CAM more than those aged 20-39 (OR = 4.58, 95% CI: 1.92-10.92). Males (OR = 0.33, 95% CI: 0.18-0.60) and people who had a spouse (OR = 0.26, 95% CI: 0.13-0.52) used CAM less.

Conclusion: In Korea, most hospitalized patients with chronic diseases used CAM modalities adjunctively. Age, disease and sex were important factors affecting CAM use. The guidelines for proper CAM use should be provided to hospitalized patients.

P324

P04.54. Natural health service: enhancing wellbeing with group walks in green spaces

M Marselle^{1*}, S Warber², K Irvine¹

¹De Montfort University/Institute of Energy and Sustainable Development,

Leicester, England; ²University of Michigan Integrative Medicine, Ann Arbor, USA

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Purpose: Mental health and wellbeing are increasingly recognized as fundamental to quality of life; at the same time, mental disorders are increasing. In the UK, a quarter of General Practitioner (GP) consultations are about mental health. Alternative programs to address mental health are necessary for patient-centered care. Research suggests that interaction with nature contributes to mental wellbeing. This paper investigates whether participating in a green space walking group – Walking for Health (WfH) – makes a difference to mental health and wellbeing in the general population. An English GP developed WfH as an intervention to promote physical activity by providing free, organised and led group walks in local natural environments across England.

Methods: A quasi-experimental research design investigated the mental health and wellbeing among adults living in England who had participated in WfH during 2011 ($n=1,968$) and those who had not ($n=1,412$). An online questionnaire assessed participants' mental wellbeing, depression, affect, perceived stress, psychological resiliency, and social support at baseline and 13-weeks follow-up. Independent sample t-tests were used to compare mean scores at baseline. Participants with missing responses on a scale were excluded from that particular analysis.

Results: Adults who attended WfH walks had significantly greater mental wellbeing ($p<0.01$; effect size $d=0.19$), greater positive affect ($p<0.01$; $d=0.11$), fewer depressive symptoms ($p<0.01$; $d=0.30$), less negative affect ($p<0.01$; $d=0.34$), and less perceived stress ($p<0.01$, $d=0.31$) than adults who did not participate in WfH walks. The two groups did not differ in protective measures of social support ($p=0.525$) and resiliency ($p=0.811$), which could contribute to differential mental health and wellbeing.

Conclusion: This research demonstrates the value of using organized group walks in the natural environment for positive mental health and wellbeing. Green space group walks are possibly a cost-effective way to improve mental health. They may also be an alternative treatment for common mental health disorders.

P325

P04.55. Examination of a staff massage break at a safety net hospital

P Gardiner

Boston Medical Center, Boston, USA

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Purpose: Workplace stress has been linked with health consequences and poor work performance. "Burnout" or mental exhaustion can lead to health conditions including impaired sleep and depression. Health care providers are especially prone to workplace stress. Therapeutic programs, like massage, in the workplace can be influential in supporting workers exposed to high levels of physical and mental stress.

Methods: From 2010 to 2011, massage sessions were advertised through the nurse managers at Boston Medical Center (BMC), word of mouth, and signs for "Massage Break" posted every week there was a session. Participants were asked to fill out an evaluation form about the effect their massage had on them before and after their session. We used descriptive statistics and Student's t tests.

Results: BMC staff completed 313 massage evaluation forms. Forty-five percent ($n=140$) of participants were nurses. Other job types included, but

were not limited to, physicians (10%, n=30) and social workers (6%, n=20). Number of times receiving a massage ranged from one to sixteen times. Responses about how the session helped ranged extensively. Eighteen percent of respondents (n=55) had comments related to improved work performance. Ten percent (n=30) of staff members liked that they felt cared for during the sessions and felt by taking the time to attend the session that they were practicing self care. There was a significant difference between before and after scores with regard to anxiety ($t = -3.56, p = 0.0004$), stress ($t = -3.36, p = 0.0009$), and pain ($t = -3.58, t = 0.0004$).

Conclusion: It is important for workplaces to support staff members and include opportunities for wellness during the workday. The benefits of massage can improve both the health and morale of the staff in this hospital community, especially for those delivering care to patients. More research is needed on incorporation of massage breaks into the workday for employees.

P326

P04.56. Acupoint versus non-acupoint injection of antiviral treatment for chronic hepatitis B: a systematic review of randomized controlled trials

J Liu¹, L Ma¹, M Han¹, C Liu¹, X Pan²

¹Beijing University of Chinese Medicine, Beijing, China; ²Tianjin University of Traditional Chinese Medicine, Tianjin, China

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Purpose: Antiviral drugs are standard treatment for chronic hepatitis B. In traditional Chinese medicine practice, administration of drugs through acupuncture point (acupoint) is considered better than intramuscular injection or intravenous infusion. In this review, we evaluated comparative effects and safety of antiviral drugs through acupoint injection versus other administration for treatment of chronic hepatitis B.

Methods: We systematically searched PubMed, the Cochrane Library, the Cochrane Hepato-Biliary Group Trial Register, and four Chinese electronic databases through March 2011 to identify randomized controlled trials (RCTs) comparing acupoint injection with intramuscular, subcutaneous injection or intravenous infusion for at least three months for treatment of chronic hepatitis B. The quality of the RCTs was assessed using the Cochrane risk of bias tool and data were synthesized using RevMan 5.

Results: Ten RCTs involving 1618 people with chronic hepatitis B were included. Three of 10 RCTs were rated as having low risk of bias and the remaining trials as high or uncertain risk of bias. Acupoint injection of interferon-alpha showed significantly better effect on the loss of serum HBeAg than intramuscular injection (RR 1.37, 95% confidence interval (CI) 1.10 to 1.70; 3 trials). Similarly, acupoint injection of interferon-alpha was better than intravenous infusion for loss of serum HBeAg (RR 2.38, 95% CI 1.17 to 4.83; 3 trials). However, there was no significant difference between acupoint and intramuscular injection of interferon-alpha in terms of the loss of serum HBsAg or HBV DNA. Acupoint injection of poly I-C, or matrine showed beneficial effects on loss of serum HBeAg compared with intramuscular injection. Acupoint injection of antiviral drugs did not report extra adverse effects from the included trials.

Conclusion: Acupoint injection of antiviral drugs for three months treatment for chronic hepatitis B may have more beneficial effects than intramuscular or intravenous injection. However, the findings need to be confirmed in large, rigorous randomized trials.

P327

P04.57. Music therapy in the treatment of cancer patients: a systematic review

T Ostermann¹, C Boyde², U Linden²

¹University of Witten/Herdecke, Herdecke, Germany; ²Department of Music Therapy, Community Hospital Herdecke, Herdecke, Germany

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Purpose: Creative therapies like painting, speech therapy, healing eurythmic dance therapy and music therapy are frequently used in the treatment of cancer patients. Particularly in the last decade, several studies have concentrated on the investigation of effects of music therapy in cancer patients.

Methods: The following databases were used to find studies of music therapy in oncology: AMED, CAIRSS, EMBASE, MEDLINE, PsychINFO, and

PSYINDEX. The search terms were ["Study OR Trial" AND "Music Therapy" AND "Cancer or Oncology"]. Included studies were analysed with respect to their study design and quality, setting and interventions including date of publication, indications, patients and main outcomes.

Results: We found a total of 12 clinical studies conducted between 2001 and 2011 including a total of 922 patients. Eight studies had a randomized controlled design and four studies were conducted in the field of pediatric oncology. Both type and grading of cancer were heterogeneous throughout all studies. Active music making (n=7) as well as listening programs (n=5) were mostly enrolled after surgery or chemotherapy to improve the patient's situation. Studies reported on short term improvements in patient's mood, relaxation, lowering exhaustion and anxiety as well as in coping with the disease and cancer related pain.

Conclusion: The use of music therapy in the integrative treatment of cancer patients is a therapeutic option, whose salutogenetic potential is shown in many case studies. Study results however did not draw a conclusive picture on the overall effect of music therapy. Research therefore should investigate the underlying mechanisms to come to a more conclusive hypothesis.

P328

P04.58. Inner congruence, mindfulness and positive mood in experienced yoga practitioners

A Hedtstück, T Ostermann*, A Büssing

University of Witten/Herdecke, Herdecke, Germany

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Purpose: Besides physical movements, yoga involves mental techniques which are considered to be essential for its effectiveness. However, active participation of the practitioners seems to be essential. This attitude can be operationalized and measured with the "Inner Congruence and Peaceful Harmony" (ICPH) questionnaire. In a previous study, we have shown that ICPH can be predicted solely by the acceptance component of mindfulness. Now we investigated whether and how variables of mental stability change with respect to ICPH.

Methods: Prospective analysis of data from 160 individuals participating in a two-year yoga teacher training (Yoga Vidya: 91% women; mean age 41±8 years; mean duration of yoga practice 39±53 months). Standardized questionnaires were administered at the start (t1), 3 months (t2), and 6 months (t3) later which comprised of Inner Congruence and Peaceful Harmony (ICPH), Mindfulness (FMI), Life Satisfaction (BMLSS), Positive Mood States (POMS/ASTS), health related Quality of Life (SF-12), Light-Heartedness / Easiness (LHE), and Aspects of Spirituality (ASP).

Results: During the course of intensified yoga practice, particularly LHE (Cohen's $d = .73$) and mindfulness ($d = .58$) increased significantly ($p < .0001$; Friedman), while positive mood ($d = .29$), mental health ($d = .27$) and ICPH ($d = .22$) increased only slightly. With respect to ASP, conscious interactions (ASP; $d = .34$) and religious orientation (ASP, $d = .34$) increased significantly ($p < .01$). Individuals with primarily low ICPH scores (28%) showed a significant development in mindfulness ($d = .78$) and LHE ($d = .77$), while those with moderate ICPH (53%) had a small increase of mindfulness ($d = .47$), but a strong increase in LHE ($d = .93$). Those with primarily high ICPH (19%) showed only small increases in mindfulness ($d = .35$) and LHE ($d = .42$).

Conclusion: Even in already experienced yoga practitioners, positive mood and mindfulness increased significantly. One could suggest that ICPH represents a trait which may be developed to facilitate the beneficial effects of mindfulness on mental stability. Further investigations enrolling patients with chronic diseases are required.

P329

P04.59. National surveys show lower well-being among yogis yet efficacy trials show favorable results: does dose-response resolve the contradiction?

C Park¹, K Riley¹, M Stewart¹, E Bedesin¹, T Braun²

¹University of Connecticut, Storrs, USA; ²Kripalu Center for Yoga & Health, Stockbridge, USA

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Purpose: General population studies indicate yoga practitioners have poorer mental and physical health than non-practitioners. However, yoga

interventions have demonstrated improved mental and physical wellbeing. To date, researchers have not addressed this contradiction. We tested a dose-response relationship, hypothesizing that those who do more yoga would be better off than those who do less.

Methods: Yoga practitioners across the US (82 men, 456 women, mean age 44 years) completed standardized questionnaires on the Internet, including full time teachers (N=44) and part time teachers (N=118). Demographics were similar to those of nationally representative samples of yoga practitioners. Dose was calculated as minutes/week of studio, home, and studio + home practice along with studio + home minutes/week x years of practice.

Results: Consistent with previous research, our sample was in poorer emotional and physical health than the general population (moderate Depression and severe anxiety and stress scores on the DASS-21, and slightly poorer physical health scores on the SF-12 physical health subscale (PCS; 47.33 vs. 50). However, yoga dose and wellbeing were positively correlated. For the whole sample, PCS was positively related to studio and studio+home doses and DASS-21 stress scores were negatively correlated with studio+home dose and studio+home dose x years practiced. Spiritual well-being and relaxation skills were positively correlated with dose, as well. Similar but somewhat different patterns were found in sample subsets (e.g., those who were also yoga teachers, practitioners of different types of yoga).

Conclusion: Similar to previous research, we found that yoga users had lower well-being than the general population. Individuals with more distress and ill health may turn to yoga for relief (Birdee et al, 2008). However, among those who do practice yoga, more practice is associated with better well-being, supporting our dose-response hypothesis. Longitudinal research is necessary to examine causal links between yoga dose and wellbeing.

P330

P04.60. The dutch complementary and alternative medicine (CAM) protocol: to ensure the safe and effective use of CAM within Dutch mental health care

R Hoenders^{1*}, M Appelo², E van den Brink¹, B Hartogs¹, J de Jong³
¹Center for Integrative Psychiatry, Lentis, Groningen, Netherlands; ²Het Behouden Huys, Groningen, Netherlands; ³University of Amsterdam, Amsterdam, Netherlands
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Purpose: Complementary and alternative medicine (CAM) is subject to heated debates and prejudices. Studies show that CAM is widely used by psychiatric patients, usually without the guidance of a therapist and without the use of a solid working method, leading to potential health risks. How can we use CAM alongside conventional psychiatry in an outpatient psychiatric clinic in a judicious and professional way?

Methods: By searching through scientific and legal articles and discussion in focus groups a scientific model was formulated based on (1) patients' needs and wishes; (2) respect for their freedom of choice; (3) a mix of western medicine and CAM that are safe and effective; (4) protection against quackery and abuse; (5) Dutch law, the jurisprudence of the Medical Disciplinary Tribunal and the rules of the Dutch Association of Medical Practitioners (KNMG) and (6) scientific evidence.

Results: In the Centre for Integrative Psychiatry (CIP) of Lentis in the Netherlands some carefully selected CAM are offered under strict conditions, alongside conventional treatments. Because of the controversy and the potential health risks, Lentis designed a protocol which is presented. A clinical vignette is used to illustrate how this applies to daily practise.

Conclusion: The Dutch CAM protocol provides a working method for the judicious use of CAM alongside conventional psychiatry in an outpatient psychiatric clinic.

P331

P04.61. Do infectious disease (ID) physicians use cranberry for prevention of urinary tract infections (UTI)?

K Shere-Wolfe^{1*}, J Tilburt², C D'Adamo¹, B Berman¹, M Chesney³
¹University of Maryland, Baltimore, USA; ²Mayo Clinic, Rochester, USA; ³University of California, San Francisco, San Francisco, USA
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Purpose: The purpose of this study was to survey how ID physicians view cranberry for UTI prevention.

Methods: In a 2010 survey of 1000 ID physicians, we presented a case vignette about prevention of uncomplicated UTIs. "Ms. Smith is a 23 y.o. female who presents with a history of recurrent bacterial UTIs. In the past, she has self-treated with antibiotics at the first sign of infection; however she is now interested in preventing future occurrences. Previous work up has revealed no predisposing factors." We also presented a research summary of an article demonstrating evidence of efficacy of cranberry extract for UTI prevention.

Results: The overall response rate for the survey was 31%. There were 292 responses for the question "Which ONE option best reflects your usual choice of initial management of UTIs in Ms Smith?". Fifty-four percent of respondents chose antimicrobial prophylaxis, 29% chose cranberry, and 17% chose "other". There were 298 responses for the question "Based on the research summary, how would you rate the comparative effectiveness of cranberry product versus trimethoprim for Ms Smith?". The majority of respondents found cranberry equally (82%) or more (4%) beneficial. Five percent felt that cranberry was less beneficial and 9% felt that it was not at all beneficial. Finally, 301 participants responded to the question "Based on the information given, which ONE statement best characterizes your impressions about integrating cranberry products into the treatment plan for Ms. Smith?". Almost half (49%) of respondents would consider using cranberry if the patient expressed an interest but only 22% would prescribe cranberry routinely. Twenty-five percent were not sure if they would use cranberry and 4% would not use cranberry.

Conclusion: Despite acknowledgement of the comparative efficacy of cranberry versus antimicrobial prophylaxis, the majority of ID physicians are not willing to prescribe cranberry routinely.

P332

P04.62. Systematic review of clinical studies of whole practice naturopathic medicine

C Calabrese^{1*}, E Oberg², R Bradley², D Seely³, K Cooley³, J Goldenberg²
¹Naturopathic Physicians Research Institute, Portland, USA; ²Bastyr University, Kenmore, USA; ³Canadian College of Naturopathic Medicine, Toronto, Canada
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Purpose: Individualized combinations of therapeutic modalities and remedies are generally the rule in naturopathic practice with selection determined by the system's principles and guidelines. With the wide variation in real-world use, evaluating the whole practice best assesses overall benefits and risks. Naturopathic doctors in Canada and the US in licensed jurisdictions receive accredited training to a common standard resulting in practice that may be distinct from that in unregulated jurisdictions or in other countries. We seek to represent the landscape of clinical studies in licensed North American naturopathic medicine to identify gaps in knowledge and generate hypotheses for future study.

Methods: Through a systematic review, we accessed clinical studies in acute and chronic diseases in which licensed naturopathic clinicians were allowed access to therapeutic and diagnostic tools within their scope of practice or to well-described models of current whole practice. Databases searched include AMED, EMBASE, MEDLINE, PREMEDLINE and the Cochrane Library. In addition, content experts were consulted and the lay literature hand-searched to identify additional relevant studies. The review was performed and reported according to PRISMA guidelines for systematic reviews and describes for each study participants, interventions, comparisons, outcomes, and study design.

Results: We have so far identified 12 studies fitting inclusion criteria with a variety of designs in anxiety, tendinitis, temporomandibular joint disorder, low back pain, general pain, hypertension, multiple sclerosis, menopausal symptoms, cardiovascular risk and type 2 diabetes. Six were randomized trials including 2 with cost components, one a comparative prospective observational study, one a prospective single group observation, and four were retrospective. All showed some evidence of effectiveness though most had methodological weaknesses. No studies in acute disease meeting criteria were found.

Conclusion: The review provides evidence of effectiveness and cost savings that merit further investigation of naturopathic care for chronic disease.

P333

P04.63. The consciousness of medical doctors about collaborative practice of Western medicine and traditional Korean medicine

J Ryu*, Y Yun, B Lim

Pusan National University School of Korean Medicine, Yangsan, Gyeongnam, Republic of Korea

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Purpose: This study was designed to compare consciousness about collaborative practice between Western medicine (WM) and traditional Korean medicine (TKM) of conventional medical doctors who work in conventional hospitals and those who work in collaborative institutions of WM and TKM (collaborative institution) and to provide policy implication for the development of collaborative practice.

Methods: Structured questionnaires were mailed to 132 doctors working in non-collaborative practicing university hospitals and 77 doctors working in a collaborative institution in Busan metropolitan city. The response rate was 40.2% and 40.3% respectively. This survey was performed from 10 Oct. 2008 to 31 Oct. 2008.

Results: Doctors working in conventional hospitals had comparatively negative consciousness regarding the basic concept, remedial value and necessity for collaborative practice and TKM. In regards with disease treatment's effectiveness of collaborative practice, both groups evaluated musculoskeletal and immune disease were more effective than others. There were positive relationships between perception for cost-effectiveness and consciousness about intention to participate collaborative practice ($p < 0.05$). Also, doctors who experienced TKM treatment had positive consciousness about collaborative practice ($p = 0.05$).

Conclusion: To activate the collaborative practice of WM and TKM, some efforts should be carried out. These include promoting cooperative education programs in medical schools and traditional Korean medical schools, doing research on cost-effectiveness of collaborative practice, and trying to minimize legal and systemic restrictions for collaborative practice.

P334

P04.64. Chinese medicine in Australia: the nature of practice and perspectives of practitioners

A Moore*, P Komesaroff, K O'Brien

Monash University, Melbourne, Australia

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Purpose: With the advent of a national regulatory framework in Australia for major health care professions, the inclusion of Chinese medicine (CM) in 2012 is a significant event. Based in mandatory legislation, this is the first comprehensive national regulation of acupuncture and Chinese herbal medicine practice to occur across all states and territories in a country outside China. This report is the largest survey on primary Chinese medicine practitioners to be carried out in Australia since 1997, and the first national qualitative study to investigate the developing cultural and clinical practice dynamics within CM. This research intends not only to describe and represent the nature and perspectives of the CM professional community, in line with the CM principles of inclusion and holism, but also to contribute to mutually beneficial dialogue and collaboration with other streams of healthcare.

Methods: Methodology includes an online and paper-distributed nationwide survey (current $n = 450$) in English and Chinese languages, with both quantitative and qualitative items, and in-depth qualitative interviews ($n = 100$) with practitioners and key stakeholders.

Results: Eight key areas will be reported on: demographics; clinical practice; education; evidence in CM; regulation; professional associations; professional development; and the future of CM in Australia. Preliminary data show that the introduction of national regulation is likely to have significant impacts on the self-definition and clinical practice of individual practitioners – in particular, raising concerns regarding clinical autonomy,

professional identity, western professional expectations (i.e. English language requirements and herb labelling), business and professional development, and the management of professional relationships. Significant issues surrounding education, professional entry and the definitions of CM practice are also emerging.

Conclusion: The results present a rigorous description and systematic conceptualisation of the Australian Chinese medical workforce. The scope and size of these findings can contribute significantly towards informing the developing policy and practice of CM.

P335

P04.65. Development and validation of an instrument for measuring decision making about complementary and alternative medicine (CAM) use among cancer patients

J Mao*, K Desai, D Watkins-Brunner, E Frankel, S Palmer, S Xie, F Barg,

K Armstrong

Perelman School of Medicine at University of Pennsylvania, Philadelphia, USA

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Purpose: Despite cancer patients' extensive use of complementary and alternative medicine (CAM), validated instruments to measure decision making factors related to CAM use are lacking. We sought to develop and validate an instrument, Decision Making in CAM (DMCAM), to measure individual cancer patients' perceived benefit, barriers, and social norms related to CAM use.

Methods: The 17-item instrument was developed using the Theory of Planned Behavior (TPB) as a theoretical framework. Literature review, qualitative interviews, expert content review, and cognitive interviews were used to develop the instrument which was then administered to 317 outpatient oncology patients. Reliability and validity of DMCAM scores were examined including factor structure, internal consistency, content, and construct validity.

Results: The DMCAM had a 3-factor structure: expected benefits, perceived barriers, and subjective norms related to decision making about CAM use by cancer patients. These three domains had Eigen values of 4.79, 2.37, and 1.43, and together explained over 57.2% of the variance. The 4-item expected benefits, 7-item perceived barriers, and 4-item subjective norms domain scores each had an acceptable internal consistency (Cronbach's alpha coefficient) of 0.91, 0.76, and 0.75 respectively. As expected, CAM users had higher expected benefits (65.2 vs. 52.1, $p < 0.001$), lower perceived barriers (43.9 vs. 50.7, $p < 0.001$), and more positive subjective norms (52.3 vs. 45.2, $p < 0.001$) than those who did not use CAM.

Conclusion: The DMCAM instrument produced reliable and valid scores that measured decision factors related to CAM use for cancer patients. Incorporation of the DMCAM in prospective research will help to determine how these factors may affect CAM use during cancer treatment and survivorship. Further, the use of this instrument in racially/ethnically diverse groups may help explain the variations in CAM use by cancer patients in specific populations.

P336

P04.66 Comparing attitudes preceding and succeeding complementary and alternative medicine and integrative medicine undergraduate courses

A Reeves*, N Hunyh, M Liu

University of California, Irvine, Irvine, USA

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Purpose: The objective of this study was to determine the changes of attitudes, motivations, and perceptions of Complementary and Alternative Medicine (CAM) and Integrative Medicine (IM) before and after taking CAM/IM related courses at University of California, Irvine. It was hypothesized that with more exposure and education in CAM/IM throughout the course student's perceptions, attitudes and willingness to learn more about CAM/IM would increase.

Methods: This was a longitudinal, cross sectional questionnaire-based study conducted on the undergraduates enrolled in CAM/IM related classes offered at UCI. This portion of the study was conducted on the courses "The Biology of Integrative Medicine" in the School of Biological

Sciences, and "Global Health and Nutrition" in the College of Health Sciences. An IRB approved survey, additionally supported by the Undergraduate Research Opportunities Program (UROP) was administered to students before and after they had taken the course. Descriptive and comparative analysis was done using SPSS 16.

Results: Sixty-one percent of 326 respondents in the classes had used CAM/IM. The most commonly used forms of CAM were vitamins/minerals (30%), chiropractic (28%), and body movement (22%). Before the class, most students indicated interest in taking more CAM/IM classes (83%) in the following ways: fulfilling the requirement for graduation (32%), fulfilling a general education requirement (27%), or as a CAM/IM minor (13%). After the classes, 74% would have liked to take more classes on CAM/IM in the following forms: a graduation requirement (27%), for units only (9%), or as a major (9%). Students rating of CAM/IM effectiveness did not change throughout the course.

Conclusion: In general, it was found that the two classes had a positive effect on students' use, perception, and desire for further education in CAM/IM. Additionally, the classes seemingly had little effect on the student's already strong willingness to proceed in taking more classes on CAM/IM.

P337

P04.67. Survey on hand gestures relevance in patient practitioner communication: a homeopathic example

M Escher², A Büssing², F Escher¹, T Ostermann^{2*}

¹University of Witten/Herdecke, Academic Practice, Hagen, Germany;

²University of Witten/Herdecke, Center for Integrative Medicine, Herdecke, Germany

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Purpose: A systematic review showed that patients convey important informations in spontaneous co-speech hand gestures (HG) when presenting their complaints and describing their pain experiences. Only a minority of practitioners and therapists were reported to have actively analyzed patients' hand gestures during case taking. Sensation method (SM) homeopaths were one of the reported exceptions. This survey was designed to gain a better understanding of the perspective, usage, appraisal and general relevance of manual co-speech gestures by SM homeopaths.

Methods: Ninety-four out of 306 seminar attendants (mean age 49.6 y, 80.9% female, 57.4 % physicians and 42.6% healing practitioners) at two seminars on SM homeopathy with varying degrees of expertise, answered a standardized 54-item questionnaire. For 20 items on "perspective, utilization and relevance of gestures in patients' symptom description" a factor analysis was performed, by means of principal components analysis and varimax rotation to arrive at a solution that demonstrates both the best simple structure and the most coherence. Nine items were excluded after reliability analysis due to low item total correlations.

Results: Eleven remaining items formed a set of three factors explaining 66.6 % of variance. The first factor with five items describes "Hand gestures in relation to verbal expressions" ($\alpha = 0.81$). The second factor includes four items regarding "Hand Gestures describing the experience of bodily and mental symptoms" ($\alpha = 0.74$). The third factor is regarding the "practitioners' behaviour and active attitude in observing hand gestures" ($\alpha = 0.86$).

Conclusion: This survey shows how SM homeopaths actively observe HG and judge them to help patients in expressing their symptoms qualities and illness experience. Whether this view is shared by other physicians or medical professions should be investigated in the future.

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P04.68. Costs associated with integrative medicine interventions on chronic pain

M Dinan^{1*}, R Roberts¹, S Reed¹, R Wolever², D Abrams³, R Dolor²

¹Duke Clinical Research Institute, Durham, USA; ²Duke University Medical Center, Durham, USA; ³UCSF Osher Center for Integrative Medicine, San Francisco, USA

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Purpose: In this study we evaluate the feasibility of using a newly formed practice-based research network of nine U.S. leading integrative medicine centers, called BraveNet, to assess the utilization and costs of integrative medicine interventions used to treat patients who suffer from chronic pain.

Methods: Adult patients seeking their initial treatment for chronic pain at a BraveNet center were asked to participate in a prospective, observational survey. Patient-level data collection included longitudinal measures of pain, quality of life, and integrative medicine treatment utilization. Study sites provided estimates of typical charges and insurance reimbursement amounts (when appropriate) for treatments available at each center. We computed the median charge for each service as a proxy for cost and multiplied these estimates by the quantities of specific services provided to each patient.

Results: A total of 409 patients initially enrolled in the study, with a mean duration of pain of 8 years at enrollment. A total of 322/409 (79%) patients completed a baseline visit and at least one follow-up visit at 6, 12, or 24 weeks. Over the 24 week study period these patients utilized a mean of 21.5 treatments and incurred mean costs of \$2511, resulting in an average of \$117 per treatment. The most frequently used therapies were acupuncture (40%) followed by massage therapy (20%), which were used an average of 11.5 and 12 times among patients receiving at least one session. Total costs varied widely by therapy, facility, and patient. Only acupuncture and integrative medicine consults were routinely reimbursed by private insurance. Mean out-of-pocket costs for acupuncture, integrative medicine consults, and massage therapy were \$483, \$173, and \$184, respectively.

Conclusion: Integrative medicine centers provide multiple treatment options for chronic pain. Wide variability in the cost and utilization of integrative medicine techniques poses a challenge to developing precise and generalizable estimates of cost-effectiveness.

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P04.69. Investing in integrative medicine for mental health and wellbeing: making the economic case

D McDaid^{*}, A Park

London School of Economics and Political Science, London, United Kingdom

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Purpose: One in four individuals can expect to experience a mental health problem during their lifetimes. This has a significant impact on the health system and wider economy. Annual costs of depression in the EU were more than €136.3 billion in 2007. These costs are likely to increase, with depression predicted to become the leading cause of morbidity in high income countries by 2030. Policy makers thus want increasing information on the costs and benefits of investing in mental health promotion.

Methods: A rapid review of literature was undertaken to identify estimates of costs/effects of selected integrative approaches: mindfulness, meditation, Tai Chi, Qi-Gong and yoga. Decision-analytic modelling techniques were used to synthesise data on the costs/effectiveness of these integrative medicine approaches for the prevention and treatment of stress, anxiety and depressive disorders, as well as any benefits of improved mental wellbeing. Cost effectiveness data and net returns on investment over short (1 year); mid (5 year); and long (10 year) timeframes for improved mental health were estimated. This data were then compared with that calculated by the authors in a previous study undertaken for the Department of Health in England on a range of conventional interventions and other actions to promote mental health and wellbeing.

Results: If integrative medicine can achieve modest improvements in depressive symptoms, economic modelling indicates positive returns on investment greater than 2:1 in the long run. This is comparable to some psychological therapies now rolled out. Much benefit is realised outside the healthcare sector, and is due to greater participation in work and other everyday activities.

Conclusion: There is an economic case for greater consideration of the potential of mindfulness, meditation, Tai Chi, Qi-Gong and yoga as alternative or adjunct options both for the prevention and early intervention to treat mild and moderate stress, depression and anxiety disorders.

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P04.70. Determinants of botanical/specialty dietary supplement use among Hispanics participating in the 2007 National Health Interview Survey

K Faurot^{1*}, L Young², P Gardiner³, D Zamora⁴, S Gaylord⁴

¹UNC Epidemiology & Department of Physical Medicine & Rehabilitation, Chapel Hill, USA; ²Department of Medicine, UNC School of Medicine, Chapel Hill, USA; ³Department of Family Medicine, Boston Medical Center, Boston, USA; ⁴UNC Program on Integrative Medicine, Department of Physical Medicine & Rehabilitation, Chapel Hill, USA

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Purpose: National surveys may underestimate prevalence of botanical/specialty dietary supplements (BDS) among Hispanics in the United States (US). We sought to examine prevalence and determinants of BDS use among Hispanics and variation by Latino background in the National Health Interview Survey (NHIS).

Methods: We assessed the prevalence of BDS use in the past 12 months among respondents to the 2007 NHIS, a national probability sample of non-institutionalized US residents. Participants chose BDS from a list of products common in the general population. We examined prevalence by demographics and access to care (insurance) across racial and ethnic groups and Latino background groups: Mexican, Cuban, Puerto Rican/Dominican and Central/South American. We calculated prevalence odds ratios (POR) for BDS use with weighted logistic regression.

Results: Controlling for age, sex, education, insurance status, years in the US, and US birthplace, Hispanics were less than half as likely to use BDS as non-Hispanic whites (9.8 vs. 21.3%; POR 0.37, 95% CI: 0.32, 0.43). Individuals reporting a Central/South American or mixed Latino background were more likely to use BDS than those reporting a Mexican background (POR 1.48 CI: 1.03, 2.14 and 1.87 CI: 1.41, 2.49, respectively). Among Hispanics, individuals 65-74 years old had more than three times the odds of BDS use as those 18-24 years old (POR 3.33 CI: 1.84, 6.05). Insurance status, education, US birthplace, and years in the US were not predictive of BDS use and had little effect on estimates by Latino background.

Conclusion: Although BDS use appeared much less prevalent among Hispanics as compared with non-Hispanic whites, it likely represents a substantial underestimate: the NHIS BDS list excluded most herbal remedies used by Hispanics. National studies examining BDS common among Hispanics are needed to understand use patterns in this rapidly growing segment of the US population.

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P04.71. Acupuncture, self-care homeopathy, and practitioner-based homeopathy: comparing users in the 2007 NHIS

J Frye

Center for Integrative Medicine, Univ. of Maryland School of Medicine, Baltimore, USA

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Purpose: To compare non-users and users of acupuncture, homeopathy as self-care, and homeopathy with a practitioner. The 2002 and 2007 NHIS CAM Supplements indicate more users of homeopathy than of acupuncture; however, there were more visits to acupuncture practitioners suggesting that a large component of homeopathic use is for self-care.

Methods: Data from the 2007 NHIS, including 23,393 adults, were used to compare recent users of acupuncture, homeopathy as self-care, homeopathy with a practitioner, and non-users regarding demographics, health behaviours, reasons for use, and perceived health.

Results: All users were significantly more likely than the general population to be female, to have a Bachelor's or higher education and to describe their health as good to excellent. However, acupuncture users were significantly more likely to score in the range of Serious Mental Illness on the K6 depression scale. Self-care homeopathy was most used by individuals of multiple race (4.4%), followed by Native Americans (3.8%); practitioner guided homeopathy by Asian Indians (2.1%); and acupuncture by Chinese (6.8%). Whites seemed more likely

to use homeopathy (1.9%) than acupuncture (1.6%), but the difference was not significant ($p=0.10$). Of the conditions listed, homeopathy was most used for respiratory infections and acupuncture for back pain. All users were significantly more likely than the general population to have delayed or not obtained medical care because of cost. In contrast, they were also more likely to have income from interest and investments. Realistic estimates of actual expenditures are difficult due to the bimodal nature of the question asked with a threshold of \$500.

Conclusion: The relationship between acupuncture use and depression deserves further investigation. Given high levels of concern about overuse of antibiotics in respiratory infections, further research into the efficacy and cost-effectiveness of homeopathy for these conditions is warranted. Hopefully, future versions of NHIS-CAM will provide more realistic estimates of expenditures.

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P04.72. Towards a model for integrative medicine in the primary care of patients with chronic joint diseases and allergy

M Jong^{1*}, M Busch², L van de Vijver¹, E Baars¹

¹Louis Bolk Institute, Nutrition & Health, Driebergen, Netherlands; ²van Praag Institute, Utrecht, Netherlands

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Purpose: In the Netherlands, Complementary and Alternative Medicine (CAM) is offered outside the world of mainstream medicine. Patients would benefit from an integrated model in which CAM is part of mainstream medicine so that disclosure of risks, benefits of CAM and credentials of CAM practitioners are sufficiently dealt with. The aim of this 4-year research project is to develop, implement and evaluate a shared-care model of Integrative Medicine in a primary care setting for patients with chronic joint diseases and allergy.

Methods: This is the first project in the Netherlands where patient organizations, health care providers and health care insurers collaborate to achieve an integrative health-care model. The project consists of four stages; in stage 1 needs and preferences of patients were investigated. Based on this outcome, evidence in literature and clinical experiences, an integrated primary care model will be developed (stage 2). The integrated model will be piloted in two primary care centers in the Netherlands (stage 3) and evaluated with respect to outcome (stage 4).

Results: Stage 1: A national survey demonstrated CAM use in 41% of children with allergy (eczema, asthma) and 71% of adults with chronic joint diseases (arthrosis, rheumatoid arthritis). CAM therapies mostly used were homeopathy, manual therapies, acupuncture and naturopathy. The majority (74% allergy, 51% joint diseases group) did not actively communicate CAM use with their family physician. However, 79% (allergy) and 70% (joint diseases) of patients preferred a physician that informs, refers to and collaborates with CAM.

Conclusion: CAM use among chronically ill patients is high. Although most patients do not communicate CAM with their family physician, they have a high preference for a shared-care model in primary care. Based on these outcomes, such a model will be developed and presented at the conference.

P343

P04.73. Reflexology, cardiac patients and inconsistencies in the location of the heart reflex point: an online survey

J Jones^{1*}, P Thomson¹, S Leslie²

¹University of Stirling, Inverness, United Kingdom; ²Highland Heartbeat Centre, Cardiology Unit, Raigmore Hospital, Inverness, United Kingdom

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Purpose: This survey aimed to generate preliminary data, in the face of inconsistent reflexology teaching literature, about two reflexology safety and quality control issues. First, whether reflexologists consider it safe to treat people with heart disease and if so, whether the presence of cardiac disease influences the therapist's treatment decisions. Reflexology teaching literature is contradictory on this subject, with 'heart' disease listed as both an indication, which can benefit from treatment, and as a

significant contraindication where treatment should be avoided. The second concern is one of product quality, namely the issue of inconsistency of reflex points in reflexology maps.

Methods: An online survey invitation email was sent to all therapists in the membership database of the Association of Reflexologists. Survey questions included "do you treat clients with diagnosed heart problems", "if you became aware of imbalances in the heart reflex area, what would you do", "would you limit the treatment" and "would you expect the treatment to improve their heart condition? The email also contained a graphical attachment, an illustration of a blank outline of the feet with transparent bone structure. We asked respondents to mark where they placed the heart reflex point on the template.

Results: The survey has shown that reflexologists beliefs and practises mirror the inconsistencies in the reflexology teaching literature, with almost a third of the respondents expressing concerns about treating cardiac patients and over half stating that they would limit or modify the treatment as a result. Furthermore, a significant number of respondents demonstrated a marked level of inconsistency in heart reflex point placement on the foot template.

Conclusion: The survey findings demonstrate a lack of professional consistency and clarity regarding the suitability of reflexology for cardiac patients, marked inconsistencies in the heart reflex point placement and inconsistency in reflexologists treatment decisions for perceived heart imbalances.

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P04.74. Use of mind-body therapies among adults with neuropsychiatric symptoms common to mild traumatic brain injury

M Purohit¹, S Bertisch¹, R Wells², R Zafonte³, R Phillips¹

¹Beth Israel Deaconess Medical Center/Harvard Medical School, Boston, USA;

²Brigham and Women's Hospital/Faulkner Hospital/Harvard Medical School, Boston, USA; ³Spaulding Rehabilitation Hospital/Harvard Medical School, Boston, USA

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Purpose: Neuropsychiatric symptoms caused by mild Traumatic Brain Injury (mTBI) are difficult to treat with standard interventions. Given such limitations, patients may choose to treat themselves with mind-body therapies. However, little is known about the use of mind-body therapies by adults with neuropsychiatric symptoms associated with mTBI.

Methods: We compared mind-body therapy use between adults with and without neuropsychiatric symptoms associated with mTBI (self reported anxiety, depression, insomnia, headaches, memory deficits, attention deficits, and excessive daytime sleepiness) using the 2007 National Health Interview Survey (n=23,393). Mind-body therapy use was defined as use of ≥1 therapy of meditation, yoga, acupuncture, deep-breathing exercises, hypnosis, progressive relaxation therapy, qi gong, and tai chi within the past year. We examined prevalence and reasons for mind-body therapy use in adults with neuropsychiatric symptoms and explored variations in use by number of symptoms. We performed logistic regression to examine the association between neuropsychiatric symptoms and mind-body therapy use, after adjusting for sociodemographic characteristics, illness burden, access to care, and health habits.

Results: Adults with ≥1 neuropsychiatric symptoms used mind-body therapy more than adults without symptoms (25.8% vs. 15.3%, p<0.001). Prevalence increased with increasing number of symptoms (22.1% for 1 symptom, 31.8% for ≥3 symptoms, p<0.001); differences persisted after adjustment (aOR 1.38 [1.25, 1.52] and 2.10 [1.83, 2.41], respectively, compared to adults without symptoms). Reasons for mind-body therapy use among adults with ≥1 symptom include general wellness (64.4%), conventional medicine was ineffective or too expensive (30.2%), and conventional provider recommendation (27.8%). Seventy percent of adults with ≥1 symptom did not discuss their mind-body therapy use with a conventional provider.

Conclusion: More than one in four adults with ≥1 neuropsychiatric symptom used mind-body therapies, with more symptoms associated with increased use. Future research is needed to understand the efficacy and cost of mind-body therapies for patients with neuropsychiatric symptoms common to mTBI.

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P04.75. Post-treatment hot flash severity and integrative medicine (IM) use among women with a history of breast cancer

K Chandwani^{1*}, K Mustian¹, J Roscoe¹, C Heckler¹, S Mohile¹, J Wade III², J Kirshner³, G Morrow¹

¹University of Rochester Medical Center, Rochester, USA; ²Medical Oncology/Hematology, Cancer Care Center of Decatur, Decatur, USA; ³Hematology Oncology Associates of Central New York, Syracuse, USA

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Purpose: Hot flashes (HF) are common in women with breast cancer (BC) and reduce their quality of life. Currently, moderately effective pharmacologic agents are associated with bothersome side effects; the efficacy of non-pharmacologic treatments including IM, which are commonly used by cancer patients, is not exactly known. This study examined the association between HF severity in women with breast cancer at six months following the end of cancer treatment (FU) and their IM use.

Methods: In a longitudinal study of a nationwide sample of cancer outpatients who underwent standard treatment, women with BC who completed their treatment were included for analysis (N=373). Women rated their HF severity responding to a question about HF "at its worst" on a scale of 0 (not present) to 10 (as bad as you can imagine) and they also reported on their use of 13 IM techniques (yes/no) at FU.

Results: HF was reported by 73% women at follow-up. Ninety-six percent were Caucasian and 4% African-American. The range of IM use (exercise, prayer, relaxation, chiropractor, massage, imagery, spirituality, diet, herbs, vitamins, group therapy, hypnosis, and acupuncture) was 2-65%. A multiple linear regression showed that HF severity was significantly associated with exercise (p=0.01) and vitamin use (p<0.0001) adjusted for significant demographic variables (age and race); more severe HF was observed in vitamin-users and those who did not do exercise. There was a significant effect of age (≤55 years vs. >55 years, p<0.007), and race (p=0.001), with younger women and African-American women reporting more severe HF.

Conclusion: The majority of participants used integrative medicine. More severe hot flashes were significantly associated with no exercise and use of vitamins. HF was more severe in younger women and African-American women; future studies are needed to corroborate the results and to ensure safe and favorable outcomes while managing HF.

P346

P04.76. Characteristics of yoga practice in an undergraduate student sample

K Riley^{1*}, C Park¹, M Marks¹, T Braun²

¹University of Connecticut, Storrs, USA; ²Kripalu Center for Yoga and Health, Stockbridge, USA

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Purpose: Young adults are increasingly practicing yoga (Barnes et al., 2008) and yoga interventions have been shown to decrease stress and anxiety. However, little is known about the characteristics of young adults who engage in yoga or the correlates of yoga practice outside of clinical contexts. Our objective was to characterize students who practice yoga and to examine correlates of recent yoga practice.

Methods: As part of participant pool screening, an online survey assessed a group of undergraduate students.

Results: Three hundred forty-two students (53.6%) reported ever having done yoga and 296 students (46.4%) reported never having done yoga. Our sample of yoga users was similar to national samples: 61% Christian, 75.2% White, 8.1% Hispanic, and 77.7% female. Students who had practiced yoga reported more spirituality (p<.02) and rated their health as more important (p<.003) than those who had never used yoga. Additionally, those who had used yoga were more likely female (p<.001) and less likely Hispanic (13.5% vs. 8.1%). Groups did not differ in age, economic status, SAT scores, being born in the US, English as first language, or race. Among those who had ever used yoga, 110 (32.3%) had attended a class recently (in the past three months). Similar to previous studies, gender (p<.05), other exercise (p<.05), and motivation to be healthy (p<.001) correlated with having practiced yoga recently, but

these variables were unrelated to the number of classes recently attended. Being born outside of the US ($p < .01$) and not having English as one's first language ($p < .05$) were correlated with more yoga classes attended recently.

Conclusion: University students who practice yoga are similar to nationally representative adult samples, but in much higher proportion. Yoga appears to be part of a healthy lifestyle for undergraduates. Future research is needed to understand causal relations and extent to which students' yoga practice changes throughout the college years.

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P04.77. ABSTRACT WITHDRAWN FROM PUBLICATION

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P04.78. Development of an integrative service model for dysthymia patients with body-mind-spirit approach in Chinese medicine clinics in Hong Kong

M Li¹, C Chan², C Chan², H Chan², L Hui¹, E Ziea¹

¹Chinese Medicine Department, Hospital Authority, Hong Kong, Hong Kong;

²The Centre on Behavioral Health, the University of Hong Kong, Hong Kong, Hong Kong

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Purpose: The prevalence of anxiety and mood disorders in Hong Kong was found to be 4.1% and 8.4% respectively. This study aimed at exploring a sustainable and practical model for incorporation of patient empowerment element, through an integrative Body-Mind-Spirit (I-BMS) approach, for treatment of dysthymia patients in Chinese Medicine (CM) out-patient clinics in Hong Kong.

Methods: In the first pilot, in addition to routine CM treatment (herbal and acupuncture), CM Practitioners also provided general psychological counseling, advice on dietary regime and self-administered acupressure based on syndrome differentiation for dysthymia. The Centre on Behavioral Health at the University of Hong Kong was commissioned in the second phase to develop a tailor-made I-BMS intervention program with CM concepts. The Centre provided six 3-hours sessions of I-BMS intervention for dysthymia patients recruited. Evaluation included validated questionnaires like the Hospital Anxiety and Depression Scale (HADS) and the Brief Symptom Inventory 18 (BSI-18) for pre-post comparison of clinical outcomes.

Results: Sixty-six patients participated in the initial pilot and the major CM diagnosis was Bu Mi (insomnia). Fifty-eight patients attended the group intervention sessions in phase II with average attendance rate of 91.8%. Among those who completed the HADS and BSI-18 questionnaires ($n=45$), there was a significant drop ($p < 0.01$) in domains of anxiety and depression in HADS and BSI scores, which indicated clinical improvement.

Conclusion: Given resource and manpower considerations in CM clinics, the patient empowerment model in phase II was clinically practical and effective, fostering a synergic effect with CM treatment. The way forward is to integrate I-BMS patient empowerment element into CM service for dysthymia treatment in a "train the trainer" approach. Content of the I-BMS intervention will be consolidated to produce a trainer's manual for CMPs and a set of patient empowerment material. The resulting service model will be led by CMPs equipped with I-BMS knowledge and skills.

P349

P04.79. Navigating breast and cervical cancer screening services for Tongan women in Southern California

R Peters¹, L Beck¹, L Fifita², B Hui², V Tui'one², C Page¹, R Sur¹, S Tanjasiri¹

¹California State University Fullerton, Fullerton, USA; ²Tongan Community Service Center/Special Service for Groups, Hawthorne, USA

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Purpose: Patient Navigation (PN) has the potential to increase timely utilization of cancer prevention, early detection and treatment services among underserved populations. Few such navigators exist in community-based settings. Tongans in Southern California experience some of the largest cancer health disparities in the state. In addressing breast and cervical cancer, a pilot project was launched with the aim to increase cancer screening, treatment and support for Tongan American women ages 40 and above through cancer-related PN services.

Methods: The project consisted of assessment of patient-level barriers to screening, identifying and recruiting women for screening, and providing screening support and PN services to patients and their families. A mixed methods approach was used to analyze secondary data collected from Patient Intake and Tracking Forms. These forms collected data on demographics, health history, current cancer screenings and navigation services provided.

Results: A culturally and linguistically tailored breast and cervical cancer education and navigation project was established. Data showed major barriers to screening; 39.4% were uninsured, 35.1% had a high school diploma or less, 29.8% were non-English speaking, and 27.7% were undocumented. Results found that (1) Pap tests increased from 26.2% to 53.2% at the end of the project; (2) mammogram screenings increased from 29.1% to 62.0%; (3) scheduling and coordination of screening appointments was the most frequent service (34%), followed by reminders of upcoming screening appointments (18.1%); and (4) the average number of contacts per patient was 2.36 suggesting multiple contacts are needed to overcome barriers to screening.

Conclusion: The pilot demonstrates screening needs of this underserved population, confirms lack of access as a primary barrier to screening, highlights the importance of PN in supporting women's screening, and underscores the importance of policies that support patient navigation in conjunction with the Patient Protection and Affordable Care Act, which expands health access to the medically underserved.

P350

P04.80. Navigating the divide: women's engagement with conventional and complementary medicine in pregnancy

A Steel¹, D Sibbritt², J Adams¹, J Daley²

¹University of Technology, Sydney, Brisbane, Australia; ²University of Newcastle, Newcastle, Australia

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Purpose: Whilst it is reported that a significant percentage of women use complementary and alternative medicine (CAM) in pregnancy, little is known about the level at which they consult with CAM practitioners as part of their CAM use. Even less is known about the effect that the practice of consulting with CAM practitioners has on women's patterns of use for conventional maternity care.

Methods: This research was conducted as part of a sub-study of the Australian Longitudinal Study of Women's Health (ALSWH) which investigated women's use of health care during pregnancy and birthing, targeting women who had recently given birth ($n=2445$).

Results: Of the women who responded ($n=1835$), almost all had consulted with a conventional care practitioner (99.8%), and just under half (49.4%) consulted with a CAM practitioner of some kind, most common being a massage therapist (34.1%), chiropractor (16.3%) and a meditation/yoga class (13.6%). The women consulted with these different CAM practitioners for a variety of reasons, such as a chiropractor for back pain (11.3%). There was also a high rate of self-prescription, particularly for vitamins (43.7%) and herbal teas (23.5%). Women were more likely to consult with CAM practitioners during pregnancy if they had private health insurance. In contrast, those consulting with CAM practitioners tended to consult less frequently with conventional practitioners.

Conclusion: Most women wishing to access CAM during pregnancy create their own system of integrative health care to ensure they receive the type of care they feel they need by navigating between CAM and conventional care practitioners. Practitioners and policy makers need to further explore this under-researched area to enable the provision of adequate patient-centered care to women during pregnancy and birth.

P351

P04.81. Mapping the natural health landscape: New Zealand-based CAM professionals survey

R Vempati^{1*}, J Dunn², P Cottingham¹, D Sibbritt³, J Adams⁴

¹Wellpark College of Natural Therapies, Auckland, New Zealand; ²New Zealand College of Massage, Auckland, New Zealand; ³University of Newcastle, Newcastle, Australia; ⁴University of Technology, Sydney, Australia
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Purpose: Complementary and Alternative Medicine (CAM) is increasing in New Zealand (NZ). As public interest in the use of CAM grows, political recognition has become increasingly topical. However, no NZ-based, empirical study of CAM professionals has been performed. The survey reported here provides a direct response to this important research gap. It examines key aspects of practice, demographics, attitudes and beliefs held about integrative medicine, CAM regulation and research attempting to quantify CAM contribution towards public health in NZ.

Methods: An online survey examined key aspects of practice, demographics, attitudes and beliefs held about integrative medicine, CAM regulation and CAM research and quantified CAM contribution towards public health in NZ. CAM practitioners were contacted via their professional bodies and individual associations. Participation response rates for individual CAM professions and CAM as a whole were calculated.

Results: 200 practitioners have responded. The majority of CAM professionals are self-employed females, aged 45-54 years. Main modalities practiced are: herbal medicine, homeopathy, naturopathy, nutrition and massage with many CAM practitioners (40%) practicing multiple modalities. The majority believe they should be integrated into main stream health care with most referring to GPs at least 1-5 times/year (49%) and vice versa (39%). Statutory regulation was seen as essential by 68% of CAM practitioners with 90% supporting registration either statutory or voluntary.

Conclusion: There is a high level of integration, in the form of referrals between primary health care physicians and CAM practitioners. Statutory CAM regulation is a pressing need to integrate with the mainstream health sector. Qualified CAM practitioners have a better understanding of research findings although they have limited ability to conduct research. The development of research capacity including CAM research funding is essential in NZ, hence local and national health care authorities need to recognize and support CAM contributions to NZ health care.

P352

P04.82. Yoga for breast cancer: a systematic review of randomized controlled trials

H Cramer^{*}, S Lange, P Klose, A Paul, G Dobos

University of Duisburg, Complementary and Integrative Medicine, Essen, Germany

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Purpose: To systematically review the effectiveness of yoga in patients with breast cancer.

Methods: MEDLINE, PsychInfo, EMBASE, CAMBASE, and the Cochrane Library were screened through September 2011. Randomized controlled trials (RCTs) comparing yoga to controls were analyzed. Risk of bias was assessed using the Cochrane risk of bias tool. For each outcome, standardized mean differences (SMD) and 95% confidence intervals (CI) were calculated, if it at least 2 studies assessing this outcome were available. As a measure of heterogeneity, I^2 was calculated.

Results: 11 RCTs and 655 subjects were included. 7 RCTs compared yoga to wait-list control groups, 3 RCTs compared yoga to supportive therapy and 1 RCT compared a combination of physiotherapy and yoga to physiotherapy alone.

Yoga compared to control showed significantly greater improvements in global health-related quality of life (HRQoL) (SMD=0.62, [95% CI 0.04, 1.21] $p=0.04$, $I^2=79%$), as well as in functional (SMD=0.30 [95% CI 0.03, 0.57], $p=0.03$, $I^2=0%$), social (SMD=0.29 [95% CI 0.08, 0.50], $p=0.006$, $I^2=0%$), and spiritual HRQoL (SMD=0.41 [95% CI 0.08, 0.74], $p=0.01$, $I^2=0%$). Greater improvements were also found in anxiety (SMD=-1.51 [95% CI -2.47, -0.55], $p=0.002$, $I^2=94%$), depression (SMD=-1.83 [95% CI -3.13, -0.53], $p=0.006$, $I^2=95%$), perceived stress (SMD=-2.13 [95% CI -3.48, -0.78], $p=0.002$, $I^2=91%$), psychological distress (SMD= -1.10 [95% CI -1.77, -0.43], $p=0.001$, $I^2=85%$), and fatigue (SMD=-0.33 [95% CI -0.65 to -0.01], $p=0.04$, $I^2=49%$). No significant group differences were found in physical, emotional and mental HRQoL, breast cancer specific concerns and sleep disturbances.

Conclusion: There is encouraging evidence that yoga has beneficial effects on HRQoL, psychological health and fatigue in breast cancer patients. Due to methodological and statistical heterogeneity, larger studies with rigorous trial design and reporting are necessary to underpin these results.

P353

P04.83. What factors influence the use of integrative medicine (IM) modalities by infectious disease (ID) physicians?

K Shere-Wolfe^{1*}, J Tilburt², C D'Adamo¹, B Berman¹, M Chesney³

¹University of Maryland, Baltimore, USA; ²Mayo Clinic, Rochester, USA;

³University of California, San Francisco, USA

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Purpose: The purpose was to assess factors that may influence the use of IM modalities by ID physicians in their practice.

Methods: In a 2010 national survey of 1000 practicing ID physicians, participants were asked to report the extent (major, minor or not at all) to which the following considerations played a role in their recommendation/referral of IM modalities: (1) Knowledge of how and when to use them; (2) Amount of clinical research showing clear benefit; (3) Insurance; (4) Cost; (5) Reliable referral base; (6) Concern for professional reputation; (7) Fear of judgment from colleagues; (8) Insufficient regulatory oversight of supplements; and (9) Potential drug interactions with botanicals/supplements.

Results: A total of 311 (31%) ID physicians responded to the survey. The mean age was 49 and 64% of respondents were male. Their responses to the questions are listed below.

Table 1(abstract P353)

Factor	Number of respondents	Major role (%)	Minor or Not at all (%)
Drug Interactions	293	82	18
Research	294	80	20
Knowledge	294	72	28
Insurance	292	24	76
Cost	293	39	61
Referral base	288	39	61
Professional reputation	293	14	86
Fear of judgement	293	4	96
Regulation oversight	294	69	31

Conclusion: For ID physicians, factors that were considered a major influence on the use of IM modalities included: potential drug interactions, clinical research, knowledge of IM modalities, and regulatory oversight. Factors that played a minor/no role in the use of IM modalities included fear of judgment and concern for professional reputation.

P354

P04.84. A comparative survey study on integrative medicine in China and South Korea

J Wang^{1*}, H Lee²

¹San Francisco State University, Department of Health Education, San Francisco, USA; ²College of Liberal Education, University of Keimyung, Keimyung, Korea, Democratic People's Republic of Korea
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Purpose: The modernization and professionalization of Traditional medicine has been achieved in both China and South Korea under different state and institutional policies and contexts. The objective of this survey study is to compare both Traditional (TM) and Western (WM) medicine doctors' perspectives on the integration of Western and Traditional medicine in China and South Korea.

Methods: The survey questionnaire was conducted during 2004-2006, once in South Korea and three times in China. The total survey subjects are 175 in China and 70 in South Korea. The survey focused on the following three aspects: (1) doctors' experiences of integrative medicine; (2) perceived effects of integrative medicine from doctors' perspectives; and (3) models of integrative medicine.

Results: Integrative medicine practices are increasingly popular in both China and Korea. 81.6% of Chinese medicine doctors and 32% of Western medicine doctors report experience with integrative medicine in China. In contrast, while 74% of Traditional doctors report experience with integrative medicine in South Korea, WM doctors in South Korea reported none. Doctors in China gave a slightly higher evaluation on the effectiveness of integrative medicine. Finally, there is considerable disparity in opinions on the "model of integrative medicine." WM doctors in Korea and China generally proposed a "Western medicine dominant and Traditional medicine complementary model." In contrast, most Korean doctors proposed a "Korean medicine and Western medicine 1+1 model", and most Chinese doctors believed in Integrative Medicine as a "third medical system" model.

Conclusion: Despite the fact that most traditional doctors believe that there are theoretical and clinical conflicts between Traditional medicine and Western medicine, a large percentage of them think it's possible to integrate. The variety of integrative medicine models in both countries reflect the intertwined power struggles of multiple medical systems that are continuously influenced by historical legacies and national health policies.

P355

P04.85. Addressing nature deficit disorder: a quantitative survey study of multidimensional aspects of well-being among young adults at a wilderness camp

S Warber^{1*}, M Bialko¹, A Dehudy¹, K Irvine²

¹University of Michigan, Ann Arbor, USA; ²De Montfort University, Leicester, United Kingdom
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Purpose: The health and well-being of America's youth is increasingly in jeopardy due to a 'screen-based' culture that decreases exposure to the natural world. We hypothesized that interactions with nature would promote physical, psychological, emotional, and spiritual well-being. To investigate this claim, we surveyed young adults at a three-week science and wilderness camp in rural West Virginia.

Methods: Online surveys were administered pre-camp to both campers and staff (n=46; 65% female, 35% staff, 18-31 years old, 51% from suburban/urban areas). Scales measuring nature experience were modified from previous research in camp settings. Validated, reliable instruments measured physical, psychological, emotional, and spiritual components of well-being, as well as nature connection. Completed post-

camp surveys (n=36) were matched with pre-camp data and differences investigated using paired samples t-tests.

Results: Statistically significant differences between pre- and post-camp experiences of the participants were identified on all nature-related measures: exposure (p<0.001), knowledge (p=0.018), skills (p<0.001), leadership willingness in a natural setting (p<0.001), sense of connection to nature (p<0.001), and sense of connection to place (p=0.001). All scores showed an increase post-camp. Several holistic well-being outcome measures also significantly improved: sense of wholeness (p=0.012), positive emotions (p<0.001), and experiences of transcendence (p=0.002) increased, while perceived stress (p=0.020) and negative emotions (p=0.003) decreased. However, physical activity level (p=0.084) and several psychological measures, including resilience (p=0.083), psychological well-being (p=0.943), self-esteem (p=0.950), self-awareness (p=0.200), and reflection (p=0.129), did not change.

Conclusion: Findings demonstrate the profound change in relationship to nature that an emersion experience in wilderness can provide while also delineating elements of well-being (i.e., decreased stress, increased wholeness, more positive emotions, and more frequent spiritual experiences) that are affected by time spent in nature. Results can guide future research agendas and suggest that emersion experiences in nature could be prioritized in plans for improving and sustaining the health of America's youth.

P356

P04.86. Socio-demographic variations in barriers to participation in an acupuncture clinical trial

T Tan^{*}, S Xie, S Li, R Lam, J Farrar, J Mao

University of Pennsylvania Health System, Philadelphia, USA

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Purpose: As breast cancer survivors (BCS) increasingly use complementary and alternative medicine, randomized controlled trials (RCT) are needed to assess the safety and efficacy of these therapies to guide appropriate clinical use. However, many RCTs face poor patient accrual, especially among populations at risk for health disparities. The purpose of this study is to quantify the barriers to participation in an acupuncture clinical trial among BCS, and to identify the socio-demographic factors associated with these barriers.

Methods: We conducted a cross-sectional survey study at an outpatient oncology clinic in an urban academic hospital among post-menopausal women on adjuvant aromatase inhibitors for stage I to III breast cancer.

Results: Of the 300 participants, 148 (49.8%) were willing to participate in an acupuncture clinical trial. Despite high interest, perceived barriers towards participation were common and included presence of placebo (45.9%), travel difficulty (45.6%), home responsibilities (45%), demanding job (35.6%), lack of interest in acupuncture (27.2%), and discomfort with experimentation (25.2%). Socio-demographic factors were significantly associated with these barriers. While white participants were more likely to consider travel difficulty a barrier, non-white participants were more likely to consider discomfort with experimentation a barrier (both p<0.05). Older participants were more likely to cite discomfort with experimentation and lack of interest in acupuncture as barriers, while younger participants were more likely to cite demanding job and home responsibilities as barriers (all p<0.05). In addition, women with lower education were more likely to report discomfort with experimentation, presence of placebo, and lack of interest in acupuncture as barriers (all p<0.05).

Conclusion: Although nearly half of respondents reported willingness to participate in an acupuncture clinical trial, significant barriers towards participation exist and differ among populations. Future studies must address these barriers to ensure effective accrual and improve the representation of individuals from diverse backgrounds.

P357

P04.87. Are people with known coronary risk factors more likely to use dietary supplements?

D Zamora^{*}, K Faurot, L Young, S Gaylord

UNC School of Medicine, Chapel Hill, USA

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Purpose: Use of dietary supplements by individuals are thought to be associated with health-seeking behaviors. The aim of this study was to examine the patterns of dietary supplement (DS) use among individuals with coronary risk factors (CRF): prediabetes/diabetes (Type 2), hypertension, elevated cholesterol, smoking, overweight/obesity, and physical inactivity. We hypothesized that people with known risk factors would be more likely to use DS.

Methods: We assessed the prevalence of DS use among respondents to the alternative health supplement of the 2007 National Health Interview Survey (NHIS), a national multistage probability sample of non-institutionalized U.S. residents (n=23,388). All measures were self-reported. DS include herbal/specialty products as well as vitamin and mineral supplements taken during the last 30 days. We calculated prevalence odds ratios (POR) for DS use using weighted logistic regression models adjusted for age, gender, education, race/ethnicity, and access to care (insurance), as well as smoking and physical inactivity where appropriate.

Results: About 13% of the population reported taking any DS during the last month and 95% reported at least one CRF. Individuals with 4-6 CRFs had 1.15 times the odds of DS use compared with those with 0-1 CRF (POR: 1.15, p=0.01). However, the association between individual CRFs and DS use varied widely. Individuals with prediabetes, elevated cholesterol, and smoking were significantly more likely to use DS (POR=1.38, 1.30, and 1.16, respectively). In contrast, those with diabetes, overweight/obesity, and inactivity were significantly less likely to use DS (POR= 0.87, 0.90, and 0.50, respectively). DS use was not associated with hypertension.

Conclusion: We found that some risk factors were associated with higher use of DS, while others were associated with lower use. It may be that being overweight and inactive are not recognized as important risk factors, while smoking and elevated cholesterol are. Our findings of divergent associations for diabetes and prediabetes are intriguing, possibly reflecting health-seeking behavior among prediabetics while less present amongst diabetic individuals.

P358

P04.88. Education plus exercise vs. education, exercise and chiropractic care for veterans with chronic low back pain: a pilot randomized trial

H Fink¹, C Schulz^{2*}, A Bangert¹, S Frizelle¹, A Baines-Simon¹, S Noorbaloochi¹, G Bronfort²

¹Veterans Affairs Medical Center, Minneapolis, USA; ²Northwestern Health Sciences University, Bloomington, USA

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Purpose: Little is known regarding the effectiveness and safety of chiropractic therapy for chronic low back pain (LBP) in veterans. This collaborative project integrated conventional and complementary alternative medicine (CAM) researchers to conduct a pilot study investigating feasibility of a full-scale trial of chiropractic therapy in this population.

Methods: Veterans were recruited within the Minneapolis VA Medical Center, through flyers given to LBP patients, recruitment posters, and direct mailings to patients diagnosed with LBP. All participants were screened at the VA Medical Center and interventions were delivered at Northwestern Health Sciences University. After screening, eligible participants were randomized to education plus exercise (EE) vs. education, exercise and chiropractic treatment (EEC). EE participants also were scheduled for assessment visits to balance contact time. Outcomes were ascertained by mailed questionnaires.

Results: Recruitment Feasibility: The pool of local enrolled veterans eligible for screening from these sources was estimated at >40,000. 1075 veterans were offered initial phone screening, 71 completed in-clinic screening, and 30 were randomized.

Participant Protocol Adherence: 93% of participants completed ≥ 3 of 4 scheduled education plus exercise sessions. 90% of EEC participants completed ≥ 12 chiropractic visits. 60% of EE participants completed ≥ 6 of 8 scheduled assessment visits. Mailed questionnaire completion was 70%.

Conclusion: The integration of conventional and CAM researchers successfully demonstrated feasibility of a full-scale trial. Recruitment yield was generally high, with the patient pool potentially eligible for screening far exceeding that needed to enroll an adequately powered trial.

Adherence with intervention visits was high. Protocol refinement will address lower than desired adherence to assessment visits and mailed questionnaires.

P359

P04.89. Utilization, interest and beliefs about complementary, alternative and integrative medicine: a survey of pediatric caregivers and healthcare providers

N Vincent^{*}, M Boerner-Ott, J Moghal

CHOC Children's, Orange, USA

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Purpose: There is limited information available about factors that influence interest, beliefs and utilization of CAIM (Complementary, Alternative, and Integrative Medicine) in a pediatric population. Thus, the current study examined these factors through questionnaires to both (1) caregivers of pediatric patients and (2) pediatric healthcare providers. This two-part study was conducted at CHOC Children's, a 238-bed pediatric hospital in Orange, California.

Methods: Similar but not identical surveys were administered to each of the two groups. Surveys were administered to pediatric patients' caregivers (in both inpatient and outpatient settings) to assess CAIM interest, utilization and associated beliefs. This survey included demographic information and a questionnaire assessing use/interest in 31 different types of CAIM interventions. It also included the 11-item Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ), assessing beliefs about the scientific validity of complementary and alternative medicine (CAM) and beliefs about holistic health. A slightly altered survey was administered to healthcare providers, to assess CAIM interest, utilization, and associated beliefs. This survey included questions about healthcare specialty and years of practice. It also included a similar questionnaire assessing referral to 31 different types of CAIM interventions. It also included the CHBQ - a 10-item Complementary and Alternative Medicine Health Belief Questionnaire, measuring attitudes and beliefs toward CAM.

Results: Surveys were fully completed by 228 patients' caregivers and 195 healthcare providers from the Orange County area. The ages of the children whose caregivers responded ranged from infancy to 21, with a diverse range of ethnic backgrounds represented. Among the 195 surveys completed by healthcare providers, 26 percent were completed by physicians, 14 percent by medical residents, 20 percent nurses, and the remainder from other ancillary fields (including psychologists, occupational and physical therapists and dietitians).

Conclusion: Details of the study will be discussed in detail during the poster presentation, including utilization rates of various CAIM treatments, and factors associated with interest, use and beliefs about CAIM.

P360

P04.90. Review of pharmacoeconomic evaluations on Kampo medicine in Japan

W Tang^{*}, A Igarashi, K Tsutani

University of Tokyo, Tokyo, Japan

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Purpose: Kampo (Japanese traditional herbal medicine) plays a certain role in the current health practices in Japan. Similar to other medical interventions, health-economic aspects of Kampo medicines should be assessed for the rational use of scarce healthcare resources. The purpose of this study is to review the published pharmacoeconomic evaluations on Kampo medicines in Japan, delineating the current situation in this area.

Methods: We searched the database "Ichushi (Japania Centra Revuo Medicina) Web (Ver.5)" which is the largest database of medical literature in Japan, using search terms of "Kampo" and "keizai" (economics). Literature published between 1983 and 2011 were eligible for searching. After primary screening, we selected articles regarded as full economic evaluations or cost studies. Structured abstracts designed especially for health-economic analyses of Kampo medicines were composed for them.

Results: Although we found 110 articles via initial electric search, only 11 articles on Kampo medicines (10 full economic evaluations and 1 cost

analysis) were eligible for next phase, i.e., composing a structured abstract. The most common design of full economic evaluations is cost-consequence analysis (CCA) (n=8), which did not aggregate costs and consequences in the conclusions. However, considering the measurement of consequences adopted in those CCAs, 6 evaluations were similar to cost-effectiveness analysis (CEA) and the other 2 were similar to cost-minimization analysis (CMA). No cost-utility analyses (CUA) were found in our review.

Conclusion: The published pharmacoeconomic evaluations on Kampo medicines in Japan are few and the quality of them needs to be improved. The spread of essential pharmacoeconomic knowledge among researchers is considered to be important for the future economic evaluations on Kampo medicines and its use in health policy and practices in Japan.

P361

P05.01. Operationalization and assessment of mindfulness: the perspective of Buddhist clergy and laypersons

M Christopher¹, V Christopher², S Charoensuk³

¹Pacific University, Hillsboro, USA; ²Portland State University, Portland, USA;

³Boromarajonani College of Nursing, Chon Buri, Thailand

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Purpose: Preliminary evidence attests to the effectiveness of mindfulness-based interventions in reducing symptoms associated with a variety of medical and psychological conditions. However, there are discrepancies in how mindfulness has been operationalized, assessed, and practiced. Contemporary mindfulness assessments were developed by Western scientists and have questionable validity, particularly among diverse cultural groups. Therefore, in this research we examined mindfulness from the perspective of experts – Theravāda, Tibetan, and Zen Buddhist clergy and lay practitioners.

Methods: A sequential exploratory mixed methods design was used, the first phase of which involved conducting open-ended interviews with Buddhist clergy and lay practitioners. These qualitative results are reported here (the quantitative phase will begin in summer 2012). We developed a coding schema through a series of steps to identify core categories endorsed across groups. Participants were 36 Buddhist clergy and laypersons (14 Zen, 21 Theravāda, and 1 Tibetan) who completed a qualitative interview and several existing mindfulness measures (we are currently interviewing more Tibetan Monks).

Results: Although data analysis is ongoing, we identified several categories that were most salient among our participants. These are: returning to the present moment, nonjudgmental awareness, sensory awareness, and impermanence. Although these categories overlap with Western conceptualizations of mindfulness, several areas of divergence also emerged, including, an emphasis on other elements of the Noble Eightfold Path and the distinction between “basic” and “advanced” mindfulness.

Conclusion: Valid assessment of mindfulness in Western psychology is essential to enhancing our understanding of the many benefits associated with this Buddhist-derived practice and its associated phenomena. Although there are important areas of convergence between contemporary Western and traditional Buddhist conceptualizations of mindfulness, questions regarding the validity of these measures remain. Our progress toward developing a measure of mindfulness in which we integrate elements of existing measures and information gleaned from these interviews will also be discussed.

P362

P05.02. Constructing an integrative medicine care service in a Brazilian University hospital

P Siegel¹, N Filice de Barros, J Carvalho

State University of Campinas, Campinas, Brazil

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Purpose: The purpose of this paper is to highlight the partial results of the first project on Integrative Oncology in Brazil, which is being put into practice at the Clinics Hospital of the University of Campinas (HC/Unicamp). The majority of the Brazilian population uses the public National Health System (SUS) and one of its units, the National Institute

for Cancer (INCA), administers cancer treatments. Although in 2006 the National Policy for Complementary and Integrative Practices (PNPIC) was established allowing for homeopathy, acupuncture, medicinal herbs, Thermalism and Anthroposophical Medicine to be incorporated into the SUS, there is no mention yet of Integrative Oncology at the INCA.

Methods: The project is designed with qualitative methodology and thirty-two members of the cancer unit staff were interviewed on what they think about applying integrative and complementary practices (ICP) to cancer patients and which ICPs they recommend.

Results: The totality, except one, of the staff members was in favor of applying ICPs to cancer patients, yet the reasons they offered were grouped together into four different categories. In the first one, staff members explained that patients need wanted types of care other than chemo and radiotherapy; the second category referred to the specific use of ICPs to treat oncological pain; the third category emphasized well-being and feeling cared for, and the last category dealt with the possibility of applying ICPs outside the hospital, meaning patients would be referred to some other service. Acupuncture, reiki, medicinal herbs and yoga were the most frequently suggested ICP with the aim of alleviating pain and enhancing well-being.

Conclusion: The project intends to launch the discussion on Integrative Oncology in the Brazilian National Health System.

P363

P05.03. How acupuncturists and physicians view the presence of in-patient acupuncture care at Beth Israel Medical Center – a phenomenological study

B Kielczynska^{*}, B Kligler

Beth Israel Medical Center, Dept of Integrative Medicine, New York City, USA

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Purpose: To better understand the “living experience” of acupuncturists while they provide acupuncture in-patient care and interact with medical staff in a hospital-based Acupuncture Fellowship Program (AFP). Little is known about how acupuncturists and medical staff negotiate cooperation and how the limits of a hospital setting affect efficacy of acupuncture care. Despite the mounting evidence of acupuncture’s effectiveness, its integration into the in-patient setting is limited; we hope that describing challenges that acupuncture integration faces may help move this process forward.

Methods: We conducted 30-120 minute interviews with five acupuncturists, two physicians and a nurse at Beth Israel Medical Center in NYC, all actively involved in AFP. Our research focused on the question: “How is it for you as an acupuncturist to work in a hospital setting?” We asked participants to describe their experiences, thoughts, and feelings while treating hospital patients and interacting with clinical staff and we analyzed emerging themes with Colaizzi’s phenomenological method. Phenomenology allows researchers to access the meaning of participants’ experience (interpretive paradigm), rather than trying to predict their behavior (empirico-analytical paradigm).

Results: The following major themes were identified: acupuncture can provide efficacious in-patient care valued by patients; physicians’ support of acupuncture depends more on clinical results than on their understanding of the philosophy behind acupuncture; physicians who receive acupuncture are more likely to advocate for it; different departments of the hospital represent distinct “cultures,” some of which are much more receptive to acupuncture than others.

Conclusion: The phenomenon of acupuncturists’ experience as they negotiate integration of the traditional East-Asian medicine with modern biomedicine at the BIMC may (1) enrich the roadmap to how acupuncture and other non-biomedical healing traditions can be incorporated into our healthcare system; and (2) provide an example of how current acupuncture and integrative medicine research may be enriched by qualitative methodologies.

P364

P05.04. Developing a dialogue between refugee patients and healthcare providers about traditional medicine use

K Fenn^{*}, S Crosby, A Filippelli, M Grodin, P Gardiner

Boston University School of Medicine, Boston, USA

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Purpose: Traditional medicine use is common and diverse among patients in the United States. Many do not tell healthcare providers about their traditional medicine use or remedies nor do healthcare providers typically have the time to ask. This creates a barrier to the care received because the patient and healthcare provider do not communicate fully about treatment options. Our goal with this study was to increase communication about traditional and integrative medicine by putting together a survey following the analysis of these ethnographic interviews.

Methods: Working within the Boston Center for Refugee Health and Human Rights at Boston Medical Center, we interviewed refugee and asylum seeking patients and their healthcare providers about traditional medicine use. This included a demographic survey and qualitative, open-ended interviews.

Results: We formally interviewed 27 refugee and asylum-seeking patients and spoke with several healthcare providers throughout the study. The majority of interviewees were female (n=22) and from Africa (n=19), reflecting the demographic of patients throughout the clinic. Eighteen patients we interviewed reported using herbal remedies at some point in their lives, more than half (n=13) in the United States. Participants were much more open to discussing herbal medicine and religious healing than other types (e.g. ancestor worship).

Conclusion: Through this survey, we hope to increase health care practitioners' awareness of these issues and help them effectively navigate this conversation topic. Demonstrated understanding of their patients' views of disease and medicine will potentially help the patients feel more comfortable in the clinic. In addition, it will enable both sides to be as open as possible with one another about treatment pathways.

P365

P05.05. The effects of mindfulness training on caregivers of children with special needs: a qualitative analysis

T Akiva, A Arel, R Benn

University of Michigan, Ann Arbor, USA

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Purpose: Parents who raise children with special needs and special educators involved in teaching this vulnerable population experience high levels of stress. While evidence suggests that mindfulness training (MT) can help reduce stress levels, little is known about the paths through which mindfulness may influence caregivers' well-being and interactions. This study investigated how caregivers who have children with developmental challenges perceive the experience of MT on their well-being, family and work relations, and caregiving practices.

Methods: Participants for the qualitative study were drawn from a sample of a larger RCT of special educators and parents of children with special needs. Study data included reliably coded responses to open-ended questions on daily session evaluations and pre-post program evaluations, and in-depth interviews conducted prior to and during the MT program. Select classroom observations occurred. Content analysis was guided by grounded theory and conducted using Dedoose mixed-methods software.

Results: Teachers and parents provided numerous examples of improved emotional self-regulation that resulted from in-the-moment applications of mindfulness practice to highly charged situations with children. They also describe enhanced capacities to react with empathy and self-reflection to children's developmental learning difficulties. Parents reported less reactivity in relations with family members and observed improvements in family life. Teachers reported greater success in reaching difficult students as well as working with their colleagues. These changes contributed to caregiver psychological well-being, and reductions in internalization of daily stress. Several short case studies illustrate the impact of MT on the lived experiences of parents and teachers.

Conclusion: Findings suggest that increased mindfulness in caregiving by parents and teachers working with special needs children results in greater self-awareness and psychological well-being, and improved self-regulation and strategies for interaction with children and other significant adults. MT appears to be a potent intervention for families and school personnel whose children have developmental and behavioral difficulties.

P366

P05.06. "Empathy – a hands-on training": format and evaluation of an experienced-based learning approach

M Neumann¹, O Karnieli-Miller², H Goldblatt², D Tauschel¹, F Edelhäuser¹, G Lutz¹, C Scheffer¹

¹University of Witten/Herdecke, School of Medicine, ICURAM, Herdecke, Germany;

²University of Haifa, Department of Nursing, Haifa, Israel

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Purpose: Empathy-trainings, which are (a) theory-based, (b) for all healthcare professionals (HCPs), (c) for all stages of education/training and, (d) focused on experienced-based learning, are still rare. This German-Israeli study describes the format of an innovative empathy-training, incorporating these elements. Evaluations of eight trainings with integrative care students, nursing students, psychiatric rehabilitation practitioners and pharmacists are presented as well.

Methods: A multidisciplinary group of integrative care teachers developed the training based on premises (a)-(d). After trainings, qualitative evaluations were conducted using an anonymous questionnaire containing five open-ended questions and questions on students' personal data. Teachers wrote memos and some students wrote reflective essays about their training experiences.

Results: The training consisted of six hands-on sessions: (1) What is clinical empathy? Participants' empathic and non-empathic encounters in private life/ patients; (2) "Walking a mile in the patient's shoes": Finding one's own path toward empathic understanding of patients; (3) "The art of empathy": Reflective art practices on empathy; (4) Non-verbal empathic communication: A photo safari; (5) Learning from patients about empathic communication; (6) Translating training experiences into practice. A theory handout on empathy was provided to participants, and discussed when needed. Each session included participants' reflections on experiences.

Participants' evaluations and essays and teachers' memos revealed that students (N≈60) considerably appreciated the experienced-based learning approach, benefited from each exercise and stressed the importance of reflections. Teachers were impressed with students' competence of developing their individual concept of empathy (Session 6). Evaluations suggest that this empathy-training is student-oriented, can easily be applied by teachers, used with all HCPs, in different cultural contexts, and is suitable for inter-professional education.

Conclusion: Training evaluations indicate that (1) experienced-based learning techniques can become catalysts to increase empathy and that (2) empathy is idiosyncratic and therefore can be best enhanced in finding one's own empathic path, rather than only through abstract theory and communication-checklists.

P367

P05.07. Evaluation of large scale resilience training program using complementary and alternative medicine: results from qualitative data interviews

L Xenakis, L Hilton, R Delgado, S Libretto, J Walter

Samueli Institute, Alexandria, USA

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Purpose: Military personnel are among the most at-risk populations for exposure to traumatic events and the subsequent development of psychiatric and physical illness. It has been shown that providing education and skills training in mind-body techniques may be an effective strategy for mitigation of stress-related issues. Samueli Institute has conducted a systematic program evaluation of a self-regulating skills resilience training program that rigorously appraises the program's structure, process, and outcomes in order to determine its feasibility, acceptability, and impact on health outcomes.

Methods: A training program designed to provide a basic education on neurological and biophysical responses to stress, and practical skills training to minimize the negative effects of stress and improve performance was given to a brigade combat team in Ft. Carson, CO at two-time points: pre- and post-deployment. Program participants were taught five core skills sets; breathing, attention, visualization, energy management, and recovery and then asked questions about their

thoughts, opinions, and experiences with the training providing rich descriptions. To test the hypothesis that the resilience training program is feasible, acceptable, and effective we utilized a mixed-methods program evaluation approach.

Results: We conducted 129 focus groups and 60 individual interviews with a total of 625 participants. Participants anticipated that breathing and recovery skills would be the most useful during deployment and with stress at home or in the work place. We will present qualitative data analysis results based on a grounded theory inquiry of a skills-based approach for stress management and resilience.

Conclusion: The training was found to be feasible and acceptable for a military population and the majority of participants had a positive impression towards the overall training experience. Most participants expected to use what they learned and would recommend it to others. It was also suggested that the training become Army-wide or expanded to include other branches.

P368

P05.08. A study of complementary therapies and counselling: an integrative model for refugee health care

J Singer¹, J Adams²

¹University Centre for Rural Health, Sydney University, Lismore, NSW, Australia; ²Victorian Foundation for Survivors of Torture, Melbourne, Australia
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Purpose: Two qualitative research studies were conducted to examine the experiences of refugee women involved in a complementary therapies (CT) program and to investigate counsellors' reasons for referral to CT. Combined, the two studies aim to provide a comprehensive overview of this innovative model of integrative health care. The Victorian Foundation for Survivors of Torture, known as 'Foundation House', is a mental health service for refugees and asylum seekers in Melbourne, Australia. The organisation was established in 1987 and within two years incorporated a CT program with the aim to provide a holistic and culturally relevant health care approach. The inclusion of CT (naturopathy, Western herbal medicine, massage, yoga, nutritional and dietary advice) as a core component of the service delivery positioned the organisation as one of the first Western-based torture trauma services to fully integrate psychological care and non-biomedical health care practices.

Methods: In-depth interviews with 12 current clients engaged in the CT program examined their experiences of the CT program. A focus group with 10 counsellors who had experience in referring clients to the CT program was also conducted to investigate their reasons for referral and understanding of CT.

Results: Study findings are framed under three 'modes of action': relationship, cultural familiarity and somatic presentations. In the integrative model at Foundation House, counsellors' understandings of how CT work and their reasons for referral correlate with the clients' experiences of CT. Of significance, are the ways in which these parallel experiences and beliefs intersect and inform understandings about the role of CTs at Foundation House, and in turn, the broader refugee health care context.

Conclusion: Our combined findings extend current notions of holistic refugee health care, and indeed integrative health care, to include a model in which psychological and complementary therapies are practiced within a collaborative model of care.

P369

P05.09. "Without it, it would have been much worse": a mixed-method evaluation of clinical reflective practice in integrative care education

G Lutz, F Edelhäuser, C Scheffer, D Tauschel, M Neumann

University of Witten-Herdecke, Witten, Germany

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Purpose: Reflective abilities are seen as helpful in improving patient-centered care and personal professional development and are therefore advocated especially in integrative care education, since integrative medicine involves personalized care. The aim of our study is twofold: To present (1) a qualitative evaluation of clinical students on a newly developed clinical reflective practice (CRP) format; and (2) a quantitative

study with self-assessed pre- and post measurements of distress and personal reflexivity.

Methods: The CRP took place on a clinical integrative education ward, where under close clinical supervision groups of 3-5 students took care of patients. Every two weeks they reflected on their experiences with a supervisor. Sixteen individual and focus group interviews were conducted and analyzed according to thematic content analysis. Pre- and post stress-measurements were assessed in every CRP using a 10-point scale using the Distress-Thermometer. Students' reflexivity was assessed with the GRAS-measure and was also measured before the first and after the last CRP.

Results: Major results observed were that 100% of students found the reflective experience helpful to survive the vortex of events when immersing into the responsible care for patients. They reported subjectively significant effects on themselves, on team work and on the patient, e.g. stress-reduction, positive change in perception of pitfalls, comprehensibility of self and other, experience of meaning, options to act, capacity to provide feedback, tolerance for ambiguity and complexity, openness, improved ability for conflict management, willingness to help and feedback culture. Students' distress-levels seem to diminish in a significant way through CRP.

Conclusion: This CRP approach could be a tool to develop more patient-centered, individualized care and thus lead to more satisfying outcomes for students and patients in integrative care.

P370

P05.10. Comparison of paper surveys and computer-assisted telephone interviews in a randomized controlled trial of yoga for low back pain

C Cerrada¹, J Weinberg², D Dresner¹, A Boah¹, K Sherman³, R Saper¹

¹Boston Medical Center, Boston, USA; ²Boston University School of Public Health, Boston, USA; ³Group Health Research Institute, Seattle, USA

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Purpose: Little is known about the reliability of different forms of survey administration in CAM trials of low back pain. This analysis was designed to determine the reliability of responses to self-administered paper surveys and computer-assisted telephone administered interviews for pain intensity and the Roland Morris Disability Questionnaire among participants enrolled in a study of yoga for chronic low back pain.

Methods: Forty-five of 95 participants enrolled in a 12 week dosing trial of yoga for chronic low back pain were randomly chosen to complete a telephone survey within 48 hours of completing a paper questionnaire. Both formats contained identical questions and data were collected at baseline, 6, and 12 weeks. Responses to an 11-point numerical rating scale for average low back pain intensity in the previous week and the modified Roland Morris Disability Questionnaire from both paper and telephone surveys were compared at baseline using the intra-class correlation coefficient (ICC). In addition, means and standard deviations were computed.

Results: Preliminary analyses of paper survey and telephone interview responses for pain intensity and Roland Morris were compared for 44 participants who completed both baseline survey formats; one participant completed the paper survey but not the telephone interview. The means for pain intensity were 6.8 (SD=1.9) for the paper survey and 6.7 (SD=1.8) for the telephone interview. The means for the Roland Morris score were 12.7 (SD=5.3) for the paper survey and 13.2 (SD=5.9) for the telephone interview. The ICC for pain intensity and the Roland Morris were 0.86 and 0.89, respectively.

Conclusion: Computer-assisted telephone interviews show excellent reliability as compared to traditional self-administered paper surveys in a low back pain yoga trial. Having two reliable options for data collection available may be helpful to increase response rates for principal outcomes in back pain trials.

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P05.11. Time, touch, and compassion: effects on autonomic nervous system and well-being

K Kemper, H Shaltout, J Tooze, E Rosenberger

Wake Forest University Health Sciences, Winston-Salem, USA

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Purpose: Compassion is critical for complementary and conventional care. This study tested the feasibility of delivering two doses of time (10 and 20 minutes) and two strategies (tactile and non-tactile) for a practitioner to non-verbally communicate compassion (NVCC) to subjects blind to the interventions.

Methods: Healthy volunteers were informed that the study was testing the effects of time and touch on the autonomic nervous system. Each subject underwent 5 sequential study periods in one study session: (1) Warm-up; (2) Control - with the practitioner while both read neutral material; (3) Rest; (4) Intervention - with practitioner meditating on lovingkindness toward the subject; and (5) Rest. Subjects were randomized to receive one of four interventions: a) 10 minutes tactile; b) 20 minutes tactile; c) 10 minutes non-tactile; or d) 20 minutes non-tactile. During all NVCC interventions, the practitioner meditated on lovingkindness toward the subject. For tactile interventions, the practitioner touched subjects on arms, legs, and hands; for non-tactile interventions, the practitioner pretended to read. Subjects were monitored continuously for autonomic activity. Subjects completed visual analog scales (VAS) for well-being, including relaxation and peacefulness, at warm-up; post-control; immediately post-intervention; and after the post-intervention rest.

Results: The 20 subjects' mean age was 24.3 ± 4 years; 16 were women. The practitioner maintained a meditative state during all interventions as reflected in lower RR, and subjects remained blind to the practitioner's meditative activity. Overall, interventions significantly decreased HR and BP ($p < 0.01$); although other changes did not reach statistical significance, they were in the expected direction, with generally greater effects for the tactile than non-tactile strategies and for 20 minute than 10 minute doses.

Conclusion: Two strategies are feasible for blinding subjects to non-verbal communication of compassion; even with blinding, non-verbal communication of compassion affects subjects' autonomic nervous system. Replication is desirable in larger samples.

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P05.12. The formation of scholars: doctoral education in the field of acupuncture and Asian medicine

C Wilson

American College of Traditional Chinese Medicine, San Francisco, USA
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Purpose: Practitioners of acupuncture and Asian medicine have begun to engage in doctoral education, however the impact of doctoral level education on this medicinal discipline is yet to be fully evaluated. This research examines three graduated cohorts and assesses the impact of doctoral education on clinical practice, employment, integrated health care settings and professionalism. This research surveys and interviews Asian Medicine practitioners that completed the doctoral program at the American College of Traditional Chinese Medicine (ACTCM) in San Francisco, CA. ACTCM began its first doctoral cohort in fall 2006. The 2.5 year Doctor of Acupuncture and Oriental Medicine (DAOM) program is offered 4 days a month (Friday through Monday), in an intensive format basis. It is a case-based program, focusing on practical and advanced knowledge and skills, collaboration with other health care practitioners, and scholarly activities. So far ACTCM has graduated three cohorts: 2009, 2010 and 2011 with a total of 36 alumni.

Methods: Three graduated cohorts were surveyed and interviewed to assess and evaluate the impact that doctoral education has had on clinical practice, employment, integrated health care settings and professionalism. A mixed-methods approach was used to evaluate both qualitative and quantitative information.

Results: This research project indicates that practitioners of acupuncture and Asian Medicine are entering doctoral programs for a variety of reasons associated with clinical practice and are interested in pursuing research in acupuncture and herbal medicine. Graduates that were surveyed indicated that there is value in doctoral level training and that this level of training is needed in order to move ahead in clinical practice, prepare to work in integrated healthcare settings, and to develop specialties in the field.

Conclusion: Interest in postgraduate doctoral education is increasing. There is a growing interest in inter-professional medical education, integrated health care settings, and cross-disciplinary research.

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P05.13. Development of the phlegm syndrome questionnaire: a new instruction to assess traditional Chinese medicine syndrome for angina

Y Guanlin¹, Z Huiyong^{2*}, Z Zhe², Y Li², Y Changhe¹, D Ying¹, Q Wencheng², L Maoxin², W Xiayun², D Rui², C Zhihui¹

¹Liaoning University of Traditional Chinese Medicine, Shenyang, China;

²Affiliated Hospital of Liaoning University of TCM, Shenyang, China

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Purpose: The concept of "syndrome" is not only used for diagnosis but also as an outcome to assess successful treatment in Traditional Chinese medicine (TCM). Integrated medicine assessment mode is based on the combination of disease outcome and syndrome. Seattle Angina Questionnaire (SAQ) is a kind of disease outcome, but there is no syndrome questionnaire available. The current syndrome outcome is based on the "Guidelines for clinical research on Chinese new herbal medicines", which comes from the textbooks, and its psychometric properties have not been evaluated. This study is to develop a questionnaire to assess the phlegm syndrome for angina.

Methods: Firstly, a nominal group composed of 7 TCM experts was organized to supervise the study. Secondly, phlegm symptoms were extracted from literature review (papers, textbooks and guidelines), and from in-depth interviews of 12 patients with angina and phlegm syndrome. Thirdly, items were generated from the phlegm symptoms with the following conditions: (1) not an angina symptom, e.g. chest pain; (2) not a diagnostic symptom, e.g. liking heavy greasy foods; (3) not unchangeable, e.g. obesity. (4) not about pulse and tongue. Each of the items was designated to a colloquial question through cognitive interviews with 3 patients and 3 healthy people. Finally, a draft questionnaire was evaluated in a pilot study of 20 patients.

Results: Twenty-one phlegm symptoms were extracted from literature review and patient interviews. Eight items were generated through discussions of the nominal group. According to the cognitive interviews, each item was designed into a single question, but one of the items was separated into two questions due to a double meaning. In the pilot test, two questions were modified with feedback from 11 patients. Finally, the draft questionnaire was developed now containing a total of 9 questions.

Conclusion: The questionnaire can capture the phlegm syndrome for angina, and may be used as an outcome to assess TCM after the psychometric properties analysis.

P374

P05.14. Educating medical students in clinical perception: an evaluation study

F Edelhäuser, C Scheffer, D Tauschel, M Cosentino, G Lutz, M Neumann*

The University of Witten/Herdecke, ICURAM, Witten, Germany

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Purpose: Perception is an essential tool used by physicians to develop a comprehensive picture of their patients. A patient-centered approach - in CAM and conventional medicine - puts particular emphasis on perception. Clinical perception techniques are rarely applied or studied in medical and CAM education. The propose of our study was: (1) to illustrate elements of our "Perception Exercise" curriculum and, (2) to conduct a qualitative evaluation of two courses held in 2009 and 2010. The "Perception Exercise" course is part of the patient-centered curriculum at Witten/Herdecke University, which begins in the first year with 6 consecutive practical units of 4 hours.

Methods: Different perception practices used by our Medical Department over the past 25 years were reevaluated, revised and used in several perception courses. The last two courses were qualitatively evaluated with an anonymous questionnaire composed of five open questions, and an audio-taped group-study of a particular perception exercise, with N=40 participants in total. The evaluations of N=23 participants were analyzed according to Mayring's content analysis.

Results: We trained first year medical students in general perception skills using a range of perception and self-awareness exercises and various contact situations with patients. The exercises were primarily based on different didactic approaches such as experienced based education, reflection exercises and self-awareness training. Data analysis

showed that the exercises had an emotional and reflective impact on students. This was shown through improved self-awareness that resulted in a more accurate perception and reflection of the patients and patient relationships.

Conclusion: We have developed a highly interactive seminar in perception exercises that seems to effectively help students understand the importance of perception and self-awareness as an important aspect of accurately perceiving patients' multifaceted clinical picture. Through the "Perception Exercise" course we aim to cultivate the attitudes and core faculties of the patient-centered physician.

P375

P05.15. Online indexing service for research articles published on Ayurveda

R Manohar¹, S Eranezhath, A Mahapatra, S Manohar R
The Ayurvedic Trust, Coimbatore, India
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Purpose: Literature searching for prior research work on Ayurveda can turn out to be a frustrating exercise because the majority of the journals publishing papers on Ayurveda are not indexed in international databases such as Pubmed. Absence of controlled vocabulary that can facilitate literature search in the areas of Ayurvedic research makes it even more difficult to access available data effectively. An online indexing service exclusively for research articles published on Ayurveda has been set up to fill this gap.

Methods: An online database called DHARA - Digital Helpline for Ayurveda Research Articles was launched to index articles published on Ayurveda in research journals worldwide (<http://www.dharaonline.org>). Research journals of Ayurveda, CAM, biomedicine as well as related fields like medical anthropology and medical sociology were screened to index research papers dealing with Ayurveda. Depending on each journal's policy for public access, titles, abstracts and links to full text have been provided. The database is continuously being updated.

Results: Over 6000 papers covering more than 700 research journals worldwide have been indexed in the DHARA database. Keyword searches, advanced searches with boolean operators and limiting searches with controlled vocabulary are the key features of the database. Option to search with field tags has also been provided. Author and journal indices provide additional information about authors and journals, as well as serve to assist in to retrieval of research papers related to specific authors or journals.

Conclusion: The DHARA database makes it possible for the first time to obtain a high altitude view about research in the field of Ayurveda. It also makes it possible to review prior research work, identify gaps and prioritize future research effectively. Wider publicity for DHARA database, which is a free service, will facilitate worldwide access to Ayurvedic research.

P376

P05.16. Subjects' experiences of a bi-weekly yoga and Ayurveda-based weight loss protocol in overweight and obese women

T Braun^{1*}, L Conboy²
¹Kripalu Center for Yoga and Health, Lenox, USA; ²Harvard Medical School Osher Research Center, Boston, USA
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Purpose: Yoga is one of the most common forms of complementary and alternative therapies utilized for weight loss. This mixed methods study included quantitative surveys and interviews of participants of a 10-week, bi-weekly yoga and Ayurveda-based weight loss program designed for overweight and obese women. The program involved training in yoga poses, breathing, and philosophy as well as eating mindfully, cultivating relaxation, and compassion.

Methods: This analysis focuses on the subject interviews which occurred both pre and post program and covered the topics of: (1) hopes and found benefits of the program, (2) anticipated challenges and lessons learned, (3) subjects' relationships with food pre and post program. Analysis was directed by a grounded theory approach. The interview notes were double coded independently by the two authors.

Any disagreements in coding were addressed in discussion. Coding consisted of searching for sought themes and emergent themes in each transcript as well as condensing responses to each topic across the sample.

Results: Thirty-seven overweight and obese participants were enrolled (mean BMI of 34.1; SD +/-6.1) with mean age of 48.3 years. Most were yoga naïve and had tried weight loss programs in the past. The qualitative findings support the trial's quantitative findings of statistically significant improvements baseline to post program in BMI ($p < 0.05$), and a number of psychosocial variables. Pre-program, subjects reported that they were drawn to the yoga-based program to achieve greater clarity, structure, and security in their lives in addition to losing weight. Post program, subjects reported greater sense of security, self-confidence, self-compassion, and insight into their behavioral motivations. Useful program tools mentioned are: breath work, mindful eating, focus on self-care, relaxation.

Conclusion: Our data suggests that participation in a 10-week yoga and Ayurveda-based weight loss program is associated with improvements in reported psychosocial health immediately following program completion.

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P05.17. Addressing nature deficit disorder: a mixed methods study of social well-being among young adults attending a wilderness science camp

S Warber^{1*}, M Marselle², A Dehudy¹, K Irvine²
¹University of Michigan, Ann Arbor, USA; ²De Montfort University, Leicester, United Kingdom
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Purpose: An increasingly 'screen-based' culture raises concerns for the health and well-being of America's youth. We investigated whether nature-based experiences affected the social well-being of young adults attending a three-week wilderness camp.

Methods: Online surveys (pre, post) were administered. We used paired t-tests ($N=35$) to analyze differences in social well-being as measured by Ryff's Positive Relations with Others subscale. In situ interviews ($n=20$) explored relationships between the camp experience, nature, and well-being. Interviewees were selected to produce a maximum variation sample along dimensions of gender, previous nature experiences, and nature connectedness. Analysis of interviews identified elements of social connection and the role played by nature.

Results: Quantitative assessment of social well-being showed no significant change (74.17 ± 12.39 vs. 77.40 ± 13.28 , $p=0.066$). Interview results, however, strongly emphasized social relationships describing the process of making friends, the importance of being part of a group, and how the wilderness environment facilitated connection. Making friends was enhanced by spending time together, listening to each other, and developing intimacy. Being part of a group included subthemes of a sense of community, engaging in group play, working together as a team, and the bonding effect of shared experiences. The natural environment specifically enhanced these processes through loss of ego, breaking down barriers, and limited distractions. This facilitated deeper relationships than would occur in urban surroundings, and afforded social-relatedness (i.e., acceptance and help), positive feelings (i.e., enjoyment, reward, and love), and a sense of interdependence with others (i.e. learning/teaching, having an impact, and making long-term commitments).

Conclusion: Nature experiences do enhance social well-being among young adults, but this construct is poorly measured by existing instruments. Further research into the effects of nature-based therapies on young people's well-being is important for society and requires careful selection or development of measures of the social dimension as actually experienced by participants.

P378

P05.18. Mixed methods approaches in whole systems research: a study of Ayurvedic diagnostics

A Dhruva^{*}, S Adler, J Weaver, M Acree, C Miaskowski, D Abrams, F Hecht
University of California, San Francisco, San Francisco, USA
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Purpose: To investigate the clinical rationale and agreement between raters for making Ayurvedic diagnoses, using a mixed methods approach.

Methods: Three 30 minute Ayurvedic assessments, including a history and limited physical exam, were videotaped and then viewed by Ayurvedic clinicians. The clinicians were asked to identify the primary and secondary dosha (Ayurvedic physiologic principle) involved in the patient's prakruti (mind-body constitution) and vikruti (current state of the doshas) and explain their rationale for making a diagnosis. Cross-sectional comparison and thematic analytic approaches were used to analyze qualitative data.

Results: Of 13 participants to date, 77% had at least a 6-year Bachelor of Ayurvedic Medicine and Surgery degree; participants had a mean of 15 years of clinical experience. Overall agreement on diagnoses ranged between 60-100% and was higher for vikruti (mean 86%) than prakruti (mean 75%). The mean rating of the similarity of the video format to real life was five (0-10 scale). Qualitative themes reported were: 1) Participants felt the video format limited their ability to ask about specific clinical information. 2) Participants explained that the video format was limiting because more clinical details obtained in a longer interview, an in-person physical exam, and re-evaluation of findings over time are important in making an accurate prakruti diagnosis.

Conclusion: A moderate to high degree of agreement was found in the quantitative analysis and was better for vikruti than prakruti diagnoses. The video format, though well suited to the research paradigm, was limiting for the clinicians in terms of real world practice. Even when there was disagreement in diagnoses, the clinical rationale provided by clinicians was consistent with the theoretical basis of Ayurvedic medicine. A mixed methods approach was well suited to the study of Ayurveda as a whole system of medicine, but whole systems research remains challenging due to the complexity of the whole system.

P379

P05.19. Outcomes in breast cancer treatment decision-making

E McKenzie*, A Mulkins, S Rose, M Verhoef

University of Calgary, Calgary, Canada

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Purpose: This study compares decision-making (DM) and psychosocial characteristics of women with breast cancer who decline some, or all, conventional cancer treatment, and use CAM (cases), with those who accept all conventional cancer treatments and may or may not use CAM (controls).

Methods: This case-control study involved telephone interviews at baseline, and completion of spirituality, self-efficacy, and control over treatment DM questionnaires at baseline, 6 months, and 1 year. Forty cases and 40 controls with stage 0-III breast cancer were matched by age, stage of illness, and province. Differences between pairs at each time point, adjusted for the time since diagnosis, were estimated using GEE linear regression models.

Results: Seventy-five percent were 40-59 years old, and 80% diagnosed at stage I or II. Cases declined hormone therapy (67%), radiation (65%) and chemotherapy (63%), and used CAM therapies including diet changes (98%), mind-body practices (88%), and herbs (85%). Outcome measures are grouped as follows: (1) general health and wellbeing (Distress Thermometer (DT), Profile of Mood States (POMS)); (2) impact of cancer on well-being (Functional Assessment of Cancer Therapy – Breast (FACT-B)); and (3) measures of traits, such as personality and beliefs (Multidimensional Health Locus of Control, Spiritual Involvement and Beliefs Scale-Revised (SIBS-R), Control Preferences Scale (CPS), and Generalized Self-Efficacy. No significant differences in the DT ($p>0.141$) and POMS, except for the anger ($p<0.001$) and vigor ($p=0.001$) scales, were found. Cases exhibited higher anger and vigor scores. There were no differences between groups on the FACT-B subscales at any time point. Measures of traits demonstrated differences in spirituality ($p<0.001$) and control preferences in DM ($p<0.001$), but not self-efficacy ($p=0.208$).

Conclusion: This study highlights the need for cancer specialists to assess individual needs, provide individualized care, and be open to a patient population with a wide range of beliefs.

P380

P05.20. A study on the intra-reliability of Sasang Constitutional diagnosis by experts

E Jang, Y Baek, K Park

Korean Institute of Oriental Medicine, Daejeon, Republic of Korea

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Purpose: Sasang Constitutional Medicine (SCM) is one of the tailored traditional Korean Medicines. Experts of SCM classify human beings into four different types before treatment. It is very important for experts to diagnose Sasang constitution (SC) type correctly, as the prescriptions and methods of treatment are different according to SC types. In this study, we would like to suggest the intra-reliability of experts.

Methods: First step, 6 experts of SC interviewed 102 subjects independently, then assigned SC types individually based on body shape, face, voice, temperament, physical and physiological symptoms of subjects. Second step, experts re-interviewed subjects 1 year later, and they finally diagnosed the 86 subjects' SC types (Male = 39, female = 47) through mutual agreement. We analyzed intra-reliability using Cohen kappa coefficient.

Results: Major findings were: (1) The distributions of SC types were that Taeumin group was 42 (49%), Soeumin group 13 (15%), and Soyangin group 31 (42%) after mutual agreement. (2) The intra-reliabilities of individual experts between first and second SC diagnosis ranged from 0.380 to 0.768 of Cohen kappa coefficient. (3) When two experts diagnosed equally in first step, Cohen kappa coefficient between first diagnosis result and final one became 0.874, and if three experts diagnosed equally in first step, it became 0.893.

Conclusion: The intra-reliability of an individual expert was not so high, but if more than two experts draw the same diagnosis result at the first step, then the reliability would be higher than that of individual expert's diagnosis.

P381

P05.21. Kangarooing in German neonatology departments: results of a nationwide survey

M Thiel¹*, A Längler¹, T Ostermann²

¹Univ of Witten/Herdecke, Center Integrative Med, Dept of Pediatrics, Herdecke, Germany; ²University of Witten/Herdecke, Faculty of Health, School of Medicine, Herdecke, Germany

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Purpose: Kangaroo care is a technique practiced on newborn infants wherein the infant is held, skin-to-skin, with an adult. Our purpose was to assess practical aspects of performing kangaroo-care in German neonatal units.

Methods: A semi-structured questionnaire has been sent to all pediatric departments with neonatological units in Germany as published in the German hospital list and the German Society of Neonatology (GNPI). After 6 weeks a reminder was sent by e-mail.

Results: Of the 323 eligible neonatal care units, 162 (50.1%) participated and 160 (98.8%) reported using KC. Instructions for the staff are provided in 39 (25.2%) units, 16 (10.3%) for parents and 64 (41.4%) have hygienical regulations for parents. Special chairs are provided in 143 (89.4%) units, 29 (85.3%) use music, 7 (20.6%) light and 2 (5.9%) aromatherapy as complementary methods. Fifty-one (31.5%) provide security precautions, 22 (26.8%) of them a transcutaneous O₂/CO₂ probe, 15 (18.3%) a limited number of infants at the same time, and 20 (24.4%) require a physician in close distance. A certain gestational age in 146 units (91.25%) and 142 (88.7%) a certain bodyweight are considered as limits. One hundred thirty-eight (86.25%) have a limitation of days of life before KC. In 63 (38.9%) the gestational age and 69 (42.6%) the birth weight had no influence on first KC. Fifty-two (32.1%) use KC no matter of the infants' age. Thirty-five (21.6%) departments have other preconditions, where cranial ultrasound is the most common (n=27, 45%).

Conclusion: This is the first survey on practical aspects of kangaroo-care in Germany. Most neonatal units provide hygienical regulations for staff and parents. Special equipment such as KC-chairs is quite common as well as adding music as a complementary feature. Limitations regarding birth weight and gestational age are more common than other precautions. In conclusion the results could be helpful for clinical studies, especially to describe and compare the used setting or to design a joint concept if multicentre studies need comparable conditions.

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P05.22. Health beliefs and experiences of patients with chronic Lyme disease: a qualitative study

A Ali^{1*}, J Millet¹, L Vitulano¹, R Lee², E Colson¹

¹Yale University School of Medicine, New Haven, USA; ²National College of Natural Medicine, Portland, USA

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Purpose: Chronic Lyme disease is a term that describes a constellation of persistent symptoms in patients who may or may not have serologic evidence of *Borrelia burgdorferi* infection. Little has been published in the medical literature about patients with chronic Lyme disease or their relationships with healthcare providers. The objective of this study was to gain insights into the health beliefs and experiences of patients with chronic Lyme disease.

Methods: This was a qualitative, descriptive study in which face-to-face in-depth interviews were conducted with patients who were diagnosed with or self-identify as having chronic Lyme disease. Patients were recruited through Connecticut-based Lyme disease mailing lists and support groups. A coding structure was developed using an iterative process. Transcribed interviews were coded using Atlas.ti software and analyzed for emergent topics and themes. Interviews were conducted until thematic saturation was achieved.

Results: A total of 12 interviews were conducted. Four major themes emerged. Patients reported: (1) diminished health status associated with chronic Lyme disease; (2) concerns about persistence of symptoms (e.g., that full recovery was unlikely); (3) two divergent types of physician-patient relationships (i.e., exceptionally supportive or uncaring and dismissive); and (4) seeking and receiving unconventional care (e.g., complementary/alternative therapies and/or prolonged treatment with antibiotics).

Conclusion: Our findings show that patients report a marked decrease in health status associated with chronic Lyme disease and are often unsatisfied with care in conventional settings. Negative experiences with providers were associated with reports of dismissive, patronizing, or condescending attitudes. Positive experiences were associated with providers reported to be attentive, optimistic, and supportive. Patient-centered approaches that acknowledge suffering and focus on continuity of care and symptomatic relief may result in increased patient satisfaction.

P383

P05.23. Emotional awareness through mindful body awareness training contributes to maintained abstinence among women in substance use disorder recovery

C Price^{*}, K Smith-DiJulio

University of Washington, Seattle, USA

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Purpose: Results of a recent National Institute of Drug Abuse-funded pilot randomized controlled trial of Mindful Awareness in Body-oriented Therapy (MABT) for women in substance use disorder treatment showed improved substance use outcomes for MABT compared to treatment as usual. In addition 80% of the MABT participants maintained a daily mindful body awareness practice at nine month follow-up. The purpose of this subsequent study was to explore the perceived role of MABT and mindful body awareness practice in the recovery process.

Methods: A qualitative design utilizing a focus group method was employed. Participants from the larger RCT that had completed the MABT intervention (n =18) were recruited for the focus group, and five attended. Semi-structured questions were used to explore participants' utilization of mindful body awareness practice in substance use disorder recovery, and the usefulness of various aspects of MABT delivery. Content analysis was used. Two researchers individually coded for themes across participant responses and together verified the coded themes.

Results: The primary themes were: (1) motivation to maintain body awareness practices one year post-intervention was due to improved ability to access and process emotions when using these practices; (2) exploration of uncomfortable feelings was perceived as critical for relapse prevention, as substance use was associated with escalated emotions and an inability to attend to feelings; (3) MABT facilitated awareness of inner experience and the connection between emotions and the body; they

had not been able to achieve this awareness with prior therapeutic approaches. Also, three aspects of MABT were considered critical for learning mindful body awareness practice: (1) individual delivery to allow for safe exploration of emotional experiences, (2) manual/touch-based processes to learn interoceptive skills, and (3) homework to integrate body awareness practice into daily life.

Conclusion: These findings point to the importance of studying emotional awareness in mind-body interventions, and in women's substance use disorder prevention and treatment specifically.

P384

P05.24. An integrative approach to improving quality of life for underserved women with advanced cancer at the end of life

S Adler^{1*}, Y Coulter¹, J Whitford¹, K Stone², M Acree¹

¹University of California, San Francisco, San Francisco, USA; ²Charlotte Maxwell Complementary Clinic, Oakland, USA

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Purpose: The burden of cancer mortality is disproportionately borne by low-income women, but what is known about the experience at end of life (EOL)—including ways to improve quality of life (QOL)—may not apply to underserved women. In order to develop an integrative approach to EOL care that is sensitive to the needs of the underserved, we developed and tested a patient-centered, relationship-based intervention to reduce suffering at EOL by enhancing meaning.

Methods: This is a before-and-after, mixed method, exploratory study of underserved women with metastatic cancer at EOL. We studied women's experiences of EOL and tested the feasibility of a narrative QOL intervention known as an "ethical will"—an enduring document that expresses an individual's values, beliefs, life lessons, hopes, love, and forgiveness as a written legacy. We conducted one-hour, semistructured interviews with patients, as well as their informal caregivers, physicians, and CAM practitioners. Visual-analog-type QOL scales were administered to patients pre/post intervention. Investigators conducted thematic coding of verbatim transcripts using principles of qualitative content analysis and reconciled differences in interpretation through refined definitions and recoding.

Results: We recruited 55 participants (88% of known eligible) and conducted 111 interviews. Of the 24 visual-analog-type scales, 9 showed a change in the expected direction of 1 point or more and 6 of these were statistically significant despite the very small sample size. Patients reported feeling better physically, having more energy, and feeling more pleasure, while suffering and weariness decreased. Thematic analysis revealed that patients' concerns over financial needs were not only the most salient issue at EOL, but were also far more pressing than cancer-related health issues.

Conclusion: Principles of integrative medicine—including addressing mind, body, and spirit—can facilitate the process of decreasing suffering through enhancing meaning. This narrative intervention shows promise for enhancing quality of life at the end of life for underserved women with metastatic cancer.

P385

P05.25. Exploring the safety culture in spinal manipulative therapy: interviews with key informants and frontline practitioners

H Boon^{1*}, S Mior², L Rozmovits¹

¹Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Ontario, Canada; ²Canadian Memorial Chiropractic College, Toronto, Canada

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Purpose: Recent surveys estimate that 50% of Canadians have received spinal manipulation therapy (SMT), most commonly for back and neck pain. Despite its popularity, no formal safety reporting and learning mechanisms exist to allow Canadian regulated health professions who provide SMT to monitor and reduce related harms. This study explores what stakeholders in Alberta perceive to be the barriers to, and opportunities for, the development of a safety culture in SMT.

Methods: This comparative case study involved: (1) key informants from regulating bodies, professional associations and training facilities of the four professional groups that include SMT in their scope of practice in Canada (chiropractors, physicians, physiotherapists and osteopaths; n=12-15); and (2) practitioners from each discipline who undertake SMT in their

practices (n=30-40) and practice in Alberta, Canada. Semi-structured telephone interviews were conducted with each participant. The interviews were transcribed verbatim and subjected to content analysis. Interviews are expected to be completed by December 2011.

Results: While patient safety was a widely expressed priority, conventional safety culture concepts (such as "no blame, no shame") were largely unfamiliar to participants. There were also fears about how "safety" information might be used against practitioners who offer SMT. Structural factors such as combined professional associations and regulatory colleges and the influence of professional protective associations on the safety culture emerged, but there was limited understanding of how they may influence patient safety. Ongoing interviews will probe these themes further and explore differences between professional groups as well as between key informants and frontline practitioners.

Conclusion: The findings will be used to inform the development of a spinal manipulation safety culture intervention that will be implemented in the second phase of this project.

P386

P05.26. Systematic review of breastfeeding and herbs

K Budzynska¹, Z Gardner², J Dugua³, T Low Dog⁴, P Gardiner¹

¹Boston Medical Center, Boston, USA; ²Medicinal Plant Program, Dept. of Plant, Soil, and Insect Sciences, Amherst, USA; ³Toronto Western Hospital, Toronto, Canada; ⁴Arizona Center for Integrative Medicine, University of Arizona Health, Tucson, USA

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Purpose: Despite popular and historical use, there has been little modern research conducted to determine the safety and efficacy of herb use during breastfeeding. The purpose of this study was to systematically review the clinical literature on herbal medicine and lactation.

Methods: Databases such as Pubmed, CAB abstracts, Cochrane clinical trials, HealthStar, CINAHL, and Reprotox were systematically searched for human trials from 1970 till 2010. Reference lists from relevant articles were hand searched.

Results: Thirty-two studies met the inclusion criteria. Clinical studies were divided into three categories: survey studies (n=11), safety studies (n= 8), and efficacy studies (n= 13). Six studies were randomized controlled trials. The most common herbs studied were St. John's wort (*Hypericum perforatum* L.) (n=3), garlic (*Allium sativum* L.) extract (n=2), and senna (*Cassia senna* L.) (n=2). Studies were very heterogeneous with regards to study design, herbal intervention, and outcome measures. Overall, poor methodological quality predominated among the studies.

Conclusion: Our review concludes that further research is needed to assess the prevalence, efficacy, and safety of herbs during breastfeeding.

P387

P05.27. Older peoples' use of complementary and alternative medicine to cope and 'keep going'

N Robinson^{*}, A Lorenc

London South Bank University, London, United Kingdom

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Purpose: To explore older peoples' decision-making regarding their experiences of complementary and alternative medicine (CAM).

Methods: This paper uses data from two separate community groups. Focus groups with volunteers aged over 58 explored perceptions of health and wellbeing. They were carried out in two community centers in southwest (3 focus groups) and northeast London (1 focus group). The first three groups specifically targeted healthcare decision making, and the fourth covered the experiences of participants in a taiji class. Data was content analyzed using Framework analysis and Atlas ti.

Results: Thirty-seven people participated in the three decision-making focus groups, 8 in the taiji group. Regarding decision-making, five themes emerged; physical wellbeing, impact on activity, emotional issues, community and health services, and keeping positive. A range of CAM was used, commonly mind/body or physical therapies. The main reason was to 'keep going' and maintain wellbeing. Conventional medicine was perceived as central to wellbeing, with CAM used to address its limitations. Decision making was rarely systematic; anecdotal information

dominated, and disclosure to conventional practitioners was uncommon. Results from the taiji focus group reinforced these themes and the importance of CAM (taiji) as a 'tool' for coping with day-to-day problems, perceived as helpful for mobility, sleep and relaxation.

Conclusion: 'Keeping going' is important for older people and often promoted by CAM, including manipulative and exercise therapies such as taiji. Concurrent CAM and conventional medication use, unreliable information and insufficient discussion with conventional providers may have safety implications. Older people perceive great benefit from CAM such as taiji, and often use it as a self-management tool. Healthcare practitioners should consider exploring CAM use with older people and facilitating access to CAM information. Asking older people about CAM use may be integral to providing holistic, safe care.

P388

P05.28. Current practice amongst acupuncturists treating threatened miscarriage in Australia and New Zealand

D Betts^{*}, C Smith, H Dahlen

University of Western Sydney, Penrith South, NSW, Australia

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Purpose: To investigate current use and clinical practice considerations amongst acupuncturists treating threatened miscarriage, a common complication of pregnancy that may result in miscarriage and premature labour. Although only a "wait and see approach" is advised medically, treatment recommendations exist within acupuncture texts. However these are conflicting, potentially creating treatment uncertainty and limiting clinical practice. As women increasingly seek acupuncture for their fertility, opportunities exist to offer interested women treatment for threatened miscarriage. To explore this potential, acupuncturist' views were sought to add to the limited information currently available.

Methods: A mixed methods study involving a self-completed questionnaire and semi-structured interviews was utilized. An online survey link was sent through Australia and New Zealand acupuncture associations requesting practitioners' views on safety concerns and specific treatment modalities. Descriptive statistics were used to analyse data. Thirteen participants were purposefully selected for interviews to further explore perceptions of clinical practice. Interviews were conducted and recorded via Skype, transcribed verbatim and analysed through thematic analysis.

Results: Of the 370 respondents, 214 (58%) had treated women for threatened miscarriage within the previous year. Detailed responses about current practice were obtained from 164 practitioners. Their safety concerns focused on inexperienced practitioners causing miscarriage. Only 16% saw Western medical information as useful. While the majority avoided points traditionally used to induce labour, 13% would use LI 4, 22% SP 6 and 38% BL 31. Clinical practice reflected the diverse treatment strategies within acupuncture texts. Interviews illustrated how practitioners integrated this diversity with themes including 'rational practice,' justifying the use of contraindicated points through theory and personal experience, 'reflective learning' and 'treatment responsibilities - more than needles'.

Conclusion: Practitioners demonstrated an interest in treating threatened miscarriage and responded positively to clinical practice questions. Feedback gathered contributes to informing clinical practice for this common complication of pregnancy.

P389

P05.29. Does yoga improve smoking cessation outcomes? A systematic review of the literature

L Carim Todd^{*}, S Mitchell, B Oken

Oregon Health & Science University, Portland, USA

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Purpose: To evaluate the effectiveness of a yoga intervention for smoking cessation.

Methods: A systematic search, review and synthesis of existing literature on yoga interventions for smoking cessation was conducted. Online literature searches through MEDLINE, PsycINFO, EBM, PubMed, clinicaltrials.gov and NIH RePORTER were carried out using an array of search terms and combinations. Manual search of reference lists and specific authors was also performed. Studies were selected that had: (1) smoking-related

primary outcomes and, (2) an intervention consisting of yoga or a component of yoga (e.g. pranayama).

Results: Four studies met our inclusion criteria. The variation between studies was substantial in terms of study population, study design, sample size, control condition, type of yoga intervention, implementation of the intervention, adherence rates, length of follow-up and number of outcomes. However, despite the variability and limited number of reports available, data suggests that the practice of yoga might influence the desire and motivation to quit smoking, reduce smoking urges, reduce temptations to smoke, increase pulmonary health awareness and reduce inflammatory response in stressful situations.

Conclusion: There is some suggestion that yoga could aid in smoking cessation. All four studies found changes in smoking behavior or attitude towards smoking after the intervention. However, the variety of study designs, the non-standardized nature of the interventions, lack of follow-up, and differences in study population and sample size, limit our capacity to draw definitive conclusions. Therefore, in order to accurately assess whether yoga can be an effective component of smoking cessation treatments, there is a strong need for randomized controlled clinical trials with larger sample sizes, clearly defined yoga interventions, longer follow ups, and efficient measures of compliance and adherence.

P390

P05.30. Integrating complementary and alternative medicine into mainstream health care: an empirical study of seven health care services in Australia

J Singer^{1*}, J Adams², J Adams³

¹University Centre for Rural Health, Sydney University, Lismore, Australia; ²Faculty of Nursing, Midwifery and Health, University of Technology Syd, Sydney, Australia; ³Victorian Foundation for Survivors of Torture, Melbourne, Australia
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Purpose: To date, most studies of integrative health care (IHC) have focused on the experiences of patients and practitioners, often emphasising the tensions between CAM and biomedical cultures. Minimal research has investigated the perspectives of IHC managers. In response, this study explores the perspectives of seven IHC managers working in a diverse range of health care services in Australia, in which CAM has been incorporated as part of service delivery. The services comprised: five community-based programs including drug and alcohol rehabilitation, refugee mental health, women's health, and two hospital-based specialist services dealing with chronic conditions. The CAM practices included acupuncture, naturopathy, western herbal medicine and massage amongst others.

Methods: Using in-depth interviews, this exploratory study examined the perceptions of clinical managers about the role of CAM in their services and the models and strategies employed for integrating CAM into clinical care. Key informant interviews were also conducted with a CAM academic, a CAM practitioner and a palliative care physician.

Results: Preliminary findings indicate that the managers perceive CAM as providing greater health care choice; help deliver 'more holistic' services; filling a therapeutic gap; enhancing quality of life; and providing clients with a 'point of entry' which enables them to access biomedical and psychological treatments.

Conclusion: Preliminary findings from this qualitative study suggest a set of positive examples of integrative health care in which biomedical and CAM practitioners work collaboratively. Our findings also provide exemplars of health care contexts in which CAM and psychological therapies collaborate to provide innovative approaches for the treatment of trauma. Through the perspectives of managers in a range of different integrative clinical settings, this study is able to further our understandings about the practice of IHC.

P391

P05.31. Development of a manualized protocol of massage therapy for clinical trials in osteoarthritis

A Ali^{1*}, J Kahn², L Rosenberger³, A Perlman⁴

¹Yale University School of Medicine, Derby, USA; ²University of Vermont, Burlington, USA; ³Yale-Griffin Prevention Research Center, Derby, USA; ⁴Duke University, Durham, USA

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Purpose: Manualization is considered to be an integral methodologic component for rigorous research on complementary and alternative therapies. Clinical trial design of manual therapies may be especially challenging since techniques are often individualized and practitioner-dependent.

Methods: Here we describe our methodology in creating a standardized and reproducible massage intervention tailored to subjects with osteoarthritis of the knee while respectful of the individualized nature of massage therapy.

Results: The manualized protocol specifies the body regions to be addressed, with distinct 30 and 60-minute protocols, as well as the standard Swedish strokes to be used (effleurage, petrissage, tapotement, vibration, friction, and skin rolling).

Conclusion: The resulting massage protocol was made reproducible, using standard massage techniques, as well as being flexible for individual subject variability. Aside from being reproducible this manualized Swedish massage protocol has successfully been used in a dual-site dose-finding clinical trial.

P392

P05.32. A tool for rapid identification of potential herbal medicine-drug interactions 2011 update: a review

L Girard^{1*}, A Kutt¹, C Necyk¹, S Jasser¹, B Law¹, A Filipelli², P Gardiner³, H Boon⁴, S Vohra¹

¹CARE Program, Edmonton, Alberta, Canada; ²School Of Public Health, Boston University, Boston, USA; ³Department of Family Medicine, Boston University School of Medicine, Boston, USA; ⁴Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Canada

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Purpose: Individuals using herbal medicines concomitantly with prescription drugs are at risk of harms due to herb-drug interactions. As part of a prospective active surveillance study to identify natural health product harms, a tool to identify herb-drug interactions was created for clinician use. Such tools require regular updating to remain clinically relevant. Our objective was to review the herb-drug literature and update the herb-drug interaction grid.

Methods: Herbs and drugs reviewed were based on the prevalence of their use. Database searches for herbs were conducted in MEDLINE, EMBASE, and IPA between 2007 and 2010. Herbs were searched with the following terms: 'clinical trials', 'case studies', and 'case reports'. Abstracts of each article were read to identify herb-drug interactions. All potential interactions were reviewed by an expert (PG or HB). Reference lists of relevant review articles were analyzed for additional papers, as was the textbook *Herb, Nutrient, and Drug Interactions: clinical implications and therapeutic strategies*. Data extraction involved classifying the interactions into four groups: (1) No reported or theoretical interactions, (2) Theoretical interactions based on animal or in vitro data, (3) Theoretical interactions extrapolated from clinical data, and (4) Interactions supported by clinical evidence.

Results: Two thousand one hundred forty-eight references were identified by the searches, and 117 potential updates are being sent to reviewers.

Conclusion: The herbal medicine-drug interaction grid will allow clinicians to have a guide on potential herbal medicine-drug harms based on the most recent literature.

P393

P05.33. Becoming aware of your body: a qualitative study on yoga for chronic neck pain patients

H Cramer^{1*}, R Lauche¹, H Haller¹, J Langhorst¹, G Dobos¹, B Berger²

¹University of Duisburg, Complementary and Integrative Medicine, Essen, Germany; ²University of Witten-Herdecke, Gerhard Kienle Chair, Herdecke, Germany

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Purpose: To investigate perceived changes in body perception and psychosocial aspects in chronic neck pain patients after participating in a yoga program.

Methods: Eighteen patients with chronic non-specific neck pain participated in a 9-week Iyengar yoga-program. Before and after the

program, patients were asked to complete a drawing of their neck and shoulder region in a way that reflects their subjective body perception. Semi-standardized interviews were used to retrieve more information on body perception, emotional status, everyday life and coping, and changes in these dimensions after attendance in the program. An interdisciplinary interpretation group analyzed the interviews using the content analysis approach according to Mayring.

Results: Patients reported changes on 5 fundamental dimensions of human experience: the physical, cognitive, emotional, behavioral and social dimensions. On the physical dimension patients mainly reported a renewed body awareness and body mindfulness. This was also obvious in the body drawings that were distorted and incomplete before the yoga program and normalized after attendance of the program. Patients further described changes on the cognitive dimension, mainly increased perceived control over their health and cognitive reappraisal of physical activity, and on the emotional dimension, particularly acceptance of their pain and life's burden. On the behavioral dimension patients reported the enhanced use of active coping strategies, and on the social dimension patients particularly described a renewed participation in active life.

Conclusion: Yoga induced changes on a wide range of experiential dimensions. Patients perceived yoga as helpful in coping with their pain, gaining more control over their health and well-being and increasing pain acceptance. Body awareness seems to be a key mechanism of these changes.

P394

P05.34. Well-being and wellness behaviors among family medicine residents: an exploratory descriptive study

A Brooks^{1*}, S Dodds¹, M Guerrero², P Cook¹, R Benn³, P Lebensohn¹

¹University of Arizona, Tucson, USA; ²University of Connecticut, School of Medicine, Hartford, USA; ³University of Michigan Health System, Ann Arbor, USA

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Purpose: To present longitudinal changes on dimensions of well-being and wellness behaviors among residents in eight family medicine (FM) residencies.

Methods: FM residents in the 2011 graduating class (n=56) were assessed at four time points, the beginning of each of the three years of residency and at graduation. Measures were self-administered online and included established measures of well-being: perceived stress, burnout (emotional exhaustion and depersonalization), emotional intelligence (empathy and perspective taking), depression, positive and negative affect, satisfaction with life, mindfulness, gratitude, and a measure of wellness behaviors (sleep, nutrition, physical activity, mind-body activities, being in nurturing relationships, being outdoors in nature, and alcohol use).

Results: Perceived stress and positive affect were stable across PGY1, PGY2, and PGY3, but decreased significantly by graduation (p=.0005; p=.0011, respectively). Burnout (emotional exhaustion and depersonalization) increased significantly at the start of PGY2 and remained high through graduation (p<.0001). Emotional intelligence (empathy and perspective taking) decreased significantly from PGY2 to PGY3, but returned to PGY2 levels by graduation (p<.0001). Life satisfaction decreased in PGY2 and PGY3 but returned to PGY1 level by graduation (p=.0015). Depression, alcohol use, mindfulness, and gratitude remained stable throughout the residency. Two wellness behaviors showed significant increases across time, eating 5 servings of fruits and vegetables daily (p=.0005) and waking rested from sleep (p=.0433).

Conclusion: Findings suggest that resident stress and distress persist throughout residency, but by graduation stress is reduced and positive affect, emotional intelligence, and life satisfaction return to improved levels from the baseline. Despite the rebound on these dimensions, the emotional exhaustion and depersonalization of burnout remained high at graduation. Only two wellness behaviors improved during the IMR residency, diet and sleep. These are preliminary results of a much larger study involving family medicine residents with and without a core curriculum in integrative medicine.

P395

P05.35. What are participants in clinical trials told about placebos? A content analysis of participant information leaflets

F Bishop¹, A Adams^{2*}, T Kaptchuk³, G Lewith¹

¹University of Southampton, Aldermoor Health Centre, Southampton, England; ²Northern Arizona University, Flagstaff, USA; ³Harvard University, Cambridge, USA

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Purpose: To identify what participants in major RCTs in the UK are told about placebos and their effects.

Methods: The major registry of current clinical trials in the UK (UKCRN) was searched to identify trials conducted in clinical populations using placebo controls. Emails were sent to 182 contact personnel requesting they send their participant information leaflets (PILs) for inclusion in the study. Forty-nine PILs were received; 45 were included in the analysis (4 were ineligible). Qualitative and quantitative techniques of content analysis were used to identify characteristics of the trials, how the placebo and target treatment were explained, the presence or absence of information about possible effects of the target and placebo treatments, and options concerning un-blinding and possible treatments after the trial.

Results: Placebos and target treatments were described quite differently. In almost every comparison, the target treatments were prioritized over the placebo, from the words in the title to the description of what would happen at the end of the trial. The placebo was described as a scientific tool that would allow efficacy of the target treatment to be determined; the target treatment was described as a treatment that might generate health effects. Placebo treatments were referred to less frequently than target treatments and were significantly less likely to be described as triggering either positive or adverse health effects (p<.01). A minority of PILs mentioned un-blinding or treatment options after the trial, and the focus of the latter was primarily on the possibility of continuing with the target treatment.

Conclusion: Trial participants were poorly informed about the health changes that they might experience if they were allocated to a placebo treatment, and of options that might be available to them after the trial. Different ways of describing placebos to participants, in PILs and in person, should be developed and tested.

P396

P05.36. How do lay people conceptualise and reason about the use of placebos in healthcare?

F Bishop^{1*}, A Adams², E Aizlewood¹, G Lewith¹

¹University of Southampton, Southampton, United Kingdom; ²Northern Arizona University, Flagstaff, USA

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Purpose: Despite the prevalence and ethically contentious nature of the use of placebos in clinical practice and clinical trials, few studies have explored the perspectives of the general public. Our aim was to identify how lay people conceptualise and reason around the use of placebos in healthcare.

Methods: Eleven focus groups were held with adult volunteers. Participants were purposefully recruited from rural and urban areas in the Midlands and South of England. They came from a range of walks of life, including students, professionals, home-makers, and retired people. Inductive thematic analysis was facilitated by Atlas.ti.

Results: All participants recognised the term 'placebo' and exhibited diverse opinions as to how the placebo effect works and whether the placebo effect even exists. Honest doctor-patient communication was highly valued by participants, who typically saw placebo prescriptions as deceitful and therefore wrong. However, they also expressed the belief that that deception is necessary for the patient to experience potentially beneficial placebo effects. A pragmatic orientation was exhibited, wherein participants argued that if a placebo "works" then it is acceptable for a doctor to prescribe it. Placebos were considered more acceptable in certain circumstances, including self-limiting illness (e.g. common cold) and clinical trials (compared to clinical practice).

Conclusion: Both a pragmatic orientation and an understanding of mind-body healing mechanisms seem to facilitate greater acceptance of placebos in medical research and clinical practice. Seeing deception as necessary to elicit placebo effects seems to prompt ethical concerns about the use of placebo in clinical practice. The views of the general public should be taken into account when researchers and doctors consider using placebos; these findings could be used to inform the development of more acceptable practices related to the use of placebos.

P397

P05.37. Assessing patient perspectives on quality of care at community acupuncture clinics

K Tippens^{1*}, M Chao², E Connelly³, A Locke⁴

¹National College of Natural Medicine, Portland, USA; ²Osher Center for Integrative Medicine, San Francisco, USA; ³Multnomah County Health Department, Portland, USA; ⁴Outside In, Portland, USA

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Purpose: Community acupuncture is a recent innovation in acupuncture service delivery that provides low-cost treatments in group-based settings. Recent data suggests improved access to acupuncture through the community acupuncture model. However, there is a paucity of research on quality of care provided at community acupuncture clinics. The aim of this study was to assess patients' perspectives on the quality of care received through community acupuncture clinics.

Methods: A cross-sectional survey of 478 patients at two community acupuncture clinics in Portland, Oregon collected patient demographics, reasons for use, and satisfaction with treatment. In an open-ended survey question, respondents were invited to share additional comments about their experiences with community acupuncture. Qualitative analysis of open-ended survey responses was conducted using a grounded theory approach and Donabedian's triad framework on quality of care (structure, process, outcomes).

Results: Qualitative analysis of written comments identified two primary themes that elucidate patients' perspectives on quality of care: (1) comparing community acupuncture to other healthcare delivery models, and (2) patients engaging in their own health care. Patients perceive the care they receive through community acupuncture as high quality compared to conventional medicine and to individual acupuncture treatment. Patients identify unique aspects of receiving quality care through community acupuncture including: structures that facilitate access; processes that make treatments more comfortable and effective; and holistic outcomes including physical improvements, enhanced quality of life, and empowerment.

Conclusion: The group setting, community-based locations, and low cost of this model potentially reduce access barriers for those who might not otherwise consider acupuncture. These themes provide insight into patient values and experiences unique to community acupuncture, and are discussed here in the context of quality of care.

P398

P05.38. Experiences and wishes from cancer children and their families regarding CAM (complementary and alternative therapies)

L Eriksen

CareCam - FCB, Association of Cancer Children in DK, Vallensbaek, Denmark
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Purpose: To illuminate children with cancer and their families' experiences and wishes regarding CAM, and to develop a model for data collection, which may be internationally useful.

Methods: An exploratory approach using mixed methods was done in two phases. Phase One: Focus group consisting of families of children with cancer. Exchange of experiences based on 7 questions regarding traditional / conventional and CAM treatment. Phase Two: Completion of an anonymous questionnaire, also containing 7 questions.

Results: With a representation of 51 families of children with cancer, 26 questionnaires were returned (13 boys and 13 girls), corresponding to a 51% response. In addition, 5 forms were received, completed by adults (data analysis is currently taking place, November 2011).

Conclusion: We know very little about which CAM treatments work and how they work. Families of children with cancer have experiences with CAM and want access to sober objective user information. They also wish to see CAM being integrated within the health services as a supplement to conventional treatment (Detailed information will be available at the ICCMR Congress May 2012).

P399

P05.39. Clinical experiences of homeopaths participating in a study of the homeopathic treatment of children with attention deficit/hyperactivity disorder

D Brulé^{*}, B Landau-Halpern, V Nastase

Riverdale Homeopathic Clinic, Toronto, Ontario, Canada

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Purpose: To explore the clinical experiences of homeopaths participating in an open label pilot study of the homeopathic treatment of children with attention deficit/hyperactivity disorder (ADHD). Specific objectives include to: (1) Explore how treating patients within a clinical trial was similar or different from general practice experiences; (2) Reflect on how clinical practices changed as part of the trial; and (3) Identify issues or lessons for future homeopathic clinical researchers and clinicians.

Methods: A series of in-person interviews were conducted at month 11 of the clinical trial (2/3 completion) with the two study homeopaths. The clinicians were asked a series of open-ended probing questions to explore their experiences participating in the trial and to reflect on issues they felt significant to the study design.

Results: The clinicians described the study participants as having a greater degree of ADHD pathology, more co-morbidities, and as taking more medication than their daily practice patients. The clinical approach to the study patients deviated from the homeopaths' normal practice in the following ways: a greater reliance on "water dosing" (giving medication dissolved in water and having the participant dose more frequently) to adapt to concomitant conventional medication; and less dietary advice was given due to the need to establish rapport and the feeling that such advice would overwhelm the families. The homeopaths described challenges in explaining homeopathic treatment concepts such as remedy reaction trajectory and homeopathic remedy aggravations.

Conclusion: Homeopathic medications and dietary protocols were found to be easily adapted for use in a clinical trial. These observations provide insights for future research in the area of homeopathic treatment (for ADHD in particular and of homeopathy in general) and provide insights for the potential integration of homeopathic practice into conventional settings.

P400

P05.40. Traditional medicine and primary health care: leading examples from around the World

D Hollenberg^{1*}, M Torri²

¹Royal College of Physicians and Surgeons of Canada, Ottawa, Canada;

²University of New Brunswick, Department of Sociology, Fredericton, Canada

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Purpose: This paper will draw on recent ethnographic fieldwork to present and discuss leading examples of how traditional/indigenous medicine (TM) is used as primary healthcare (PHC) – or first point of contact – for diverse international communities. For the past 30 years, TM has been identified by policy-makers such as the WHO as essential for successful PHC, yet international development programs have yet to fully engage with TM projects "on the ground".

Methods: Data in this paper will draw on extensive ethnographic fieldwork within the identified countries under discussion.

Results: Two different and recent case studies will be presented to highlight the discussion: (1) Home Herbal Gardens (HHGs) in Bangalore, South India; and (2) TM practices in South East Asia (Indonesia). The data presented will focus on TM practices that enhance PHC along with social capital and community health. Using visual footage of TM practices, the presentation will conclude by demonstrating the vital importance of TM for PHC and community health worldwide.

Conclusion: Drawing on the presentation and the data under discussion, an argument for validating and extending the role of TM in PHC will be made.

P401

P05.41. Development and evaluation of group medical visits for medically underserved women with chronic pelvic pain

M Chao¹, P Abercrombie

Univ of California, San Francisco, Osher Center for Integrative Med, San Francisco, USA

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Purpose: Chronic pelvic pain (CPP) severely impacts quality of life and is one of the most common medical problems among women. Effective management of CPP is needed, particularly for underserved women with limited access to quality care. We developed and evaluated group medical visits for women with CPP drawing from: (1) the Centering model, an innovative approach to group-based healthcare across the lifecourse; and (2) integrative medicine emphasizing quality of life through patient-centered care.

Methods: Curriculum for ten monthly group visits of CenteringIMPACT (Centering and Integrative Medicine for chronic Pelvic PAin Comprehensive Treatment) included mind-body approaches to managing CPP. A pilot study was conducted among patients with CPP at a safety net hospital. Qualitative and quantitative data were collected at baseline and three follow-up time points to assess feasibility, acceptability, and preliminary data on efficacy.

Results: CenteringIMPACT participants (n=12) were on average 42 years of age; 58% were African American; 42% had attended some college; and 83% had household incomes of less than \$35,000; 42% reported being in fair or poor health. From baseline to 3-month follow-up, average number of days that women reported limitations of usual activities decreased from 24 to 15. Health-related quality of life improved slightly; average life interference due to CPP decreased from 2.64 to 2.43. Mental health did not improve: scores on the Patient Health Questionnaire PHQ-9 for Depression increased from 11.25 to 12.43. Based on qualitative data, participants experienced healthcare empowerment through learning to advocate for themselves and increased support and hope from the groups.

Conclusion: Preliminary data from this study indicates some improvements in functional activities and health-related quality of life among medically underserved women with CPP. Group medical visits are a viable model of comprehensive care for CPP in safety net healthcare settings. Additional data are needed to further evaluate the effects of CenteringIMPACT.

P402

P05.42. Student ranking of "evidence-informed practice guidelines" from NARCCIM workshop: "what are research literacy competencies for the CAM practitioner?"

S Gomes

Pacific College of Oriental Medicine, San Diego, USA

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Purpose: The purpose of this research was to have students rank the significance of the "Evidence-Informed Practice Guidelines" generated at the 2009 NARCCIM workshop to their actual practice.

Methods: This was a qualitative survey ranking the 10 evidence-informed guidelines. This study was conducted from May 2009 to May 2011 and included 118 students.

Results: Of the 10 evidence-informed guidelines list below, "Maintain ethical standards of practice" was rated the highest, with "Access relevant information to find evidence-informed answers to questions that arise in clinical practice" coming in second and "Integrate multiple forms of evidence into clinical practice" ranked third most significant.

1. Define EIP and describe its role
2. Describe fundamental principles of research
3. Generate searchable questions
4. Access relevant information to find evidence-informed answers to questions that arise in clinical practice.
5. Critically appraise different forms of evidence
6. Integrate multiple forms of evidence into clinical practice

7. Effectively integrates evidence into professional communications
8. Maintain ethical standards of practice
9. Engage in reflective practice
10. Participate in the culture of research

Conclusion: Students preparing to graduate and start practice believe that it is most important to "Maintain ethical standards of practice". The students frequently commented that this guideline does not fit well into what they believe is "evidence-informed practice" and it may need to be removed from the list. The need to "Access relevant information to find evidence-informed answers to questions that arise in clinical practice" was rated consistently high and should be used to inform the teaching and practice of research literacy.

P403

P05.43. Meta-ethnography: the perspective of patients choosing alternative and complementary medicine regarding individualized medicine and integrative care

B Franzel^{1*}, P Heusser¹, R Lauche², M Schwiegershausen¹, B Berger¹

¹University of Witten/Herdecke, Center for Integrative Med, Herdecke, Germany; ²Univ Duisburg-Essen Klinik für Naturheilkunde und Integrative Medizin, Essen, Germany

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Purpose: Personalized medicine in the days of genetic research is seen as molecular biologic specification in individuals, not as individualized care oriented to patients needs in the sense of person-centered medicine. Yet the question can be raised whether this focus can ameliorate health care needs in view of the invested resources. Studies suggest that patients often miss authentically patient-centred care and individual physician-patient interaction and therefore decide to choose complementary and alternative medicine (CAM). By means of a meta-ethnography this project explored patients' views about individualized medicine and described the patients' perspectives of integrative and person-centred services.

Methods: The procedure included first an electronic databases search for 'qualitative research' AND 'CAM' AND 'patient expectations' subject headings, supplemented with citation searches and hand searching. Second, studies were assessed using an inclusion/exclusion checklist and a quality score according to an adjusted checklist of Behrens and Langer. The third step was meta-ethnography according to Noblit and Hare's method to synthesize and interpret key concepts of individualized medicine using a line of argument synthesis.

Results: A set of 67 electronic databases including CAM, nursing, nutrition, psychological, social, medical databases, the Cochrane Library and DIMDI were searched. Nine thousand five hundred seventy-eight citations were screened, 63 full text publications reviewed, 38 appraised and 30 articles were included. The third-order constructs emerging through the synthesis and interpretation conducted by the multidisciplinary research team were: "Personal development", "holism", "alliance", "room for connecting different models", "self activation", "dimensions of well-being".

Conclusion: The perspective of patients choosing alternative and complementary medicine regarding individualized care clearly differs from the current idea of personalized genetic medicine. Individualized medicine has therefore concurrently to bear in mind the humanistic approach of holistic, transformative, integrative and self-activation needs of patients. The allocation of resources should consider patients needs to enhance a high-quality biomedical or scientific health care system.

P404

P05.44. Evaluation of the Phlegm Syndrome Questionnaire: a new instruction to assess traditional Chinese medicine syndrome for angina

Z Huiyong^{1*}, Y Guanlin², Y Li¹, Y Changhe², Z Zhe¹, L Maoxin², P Yupeng²

¹Affiliated Hospital of Liaoning University of TCM, Shenyang, China; ²Liaoning University of Traditional Chinese Medicine, Shenyang, China

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Purpose: We have established a draft version of a Phlegm Syndrome Questionnaire (PSQ) to assess the syndrome. The study is to assess the reliability and validity of the new questionnaire.

Methods: The draft version was tested on a sample of 430 patients with angina, 178 (41.40%) were diagnosed with phlegm syndrome (PS). The Settle Angina Questionnaire (SAQ) was tested as well as an indicator of concurrent validity. A subset of patients (n=86) completed the questionnaire again 24 hours later to confirm test-retest reliability. The items were reduced by accessing item property. Reliability was assessed via Cronbach's coefficient alpha. Exploratory factor analysis was performed to determine the number of domains. The discriminant validity was assessed by detecting differences between PS-identified patients and non-PS.

Results: Test-retest correlation coefficient (CC) of the overall scale was 0.799, and each item ranged from 0.588 to 0.783, except for the "heavy head" item (0.528). The item was removed due to the lower contribution to the Cronbach's alpha coefficient. The remained 8 items were as follow: bloating, tasteless, loss of appetite, heavy limbs, somnolence, sticky stool, sputum and sticking mouth. Three factors were extracted by exploratory factor analysis, and were stratified into 2 domains: spleen deficiency, heaviness and stickiness, which are the pathogenic characteristics of the phlegm. Cronbach's alpha coefficient was 0.733, and for each domain are 0.648, 0.619. The CC between PSQ and SAQ was 0.414, and ranging from 0.128 to 0.366 for each items. There was significant difference between PS patients and non-PS in the overall scale and in each item ($p < 0.01$), except for in "phlegm" ($p = 0.069$) and "loss of appetite" (0.153).

Conclusion: The 8-item Phlegm Syndrome Questionnaire was developed utilizing sound psychometric properties, and can be used as an outcome in combination with SAQ for determining the treatment of angina in clinical practice.

P405

P05.45. A whole systems approach to the study of Ayurveda for cancer survivorship: results from a qualitative investigation

A Dhruva^{1*}, F Hecht¹, J Weaver¹, T Kaptchuk², V Lad³, S Adler¹

¹University of California, San Francisco, San Francisco, USA; ²Harvard Medical School, Boston, USA; ³Ayurvedic Institute, Albuquerque, USA

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Purpose: To describe an approach to the development of manualized protocols for Ayurveda as a whole system of medicine; to characterize an Ayurvedic perspective on the pathophysiology, etiologies, and supportive treatments for an allopathic diagnosis of cancer.

Methods: Hour-long, digitally recorded interviews were conducted with experienced Ayurvedic clinicians from both the USA and India. Eligible clinicians had an advanced degree in Ayurveda and clinical experience with a minimum of 50 patients with a diagnosis of cancer. All interviews were transcribed verbatim and coded for major themes using principles of qualitative content analysis. At least two investigators coded each interview. Variations in interpretation were reconciled through refined definitions and recoding.

Results: Ten participants, with an average of 23 years of clinical experience, were interviewed. Several themes emerged from the data: (1) The Ayurvedic description of the pathophysiology of cancer uses traditional concepts translated into the modern context. (2) Although the allopathic treatment of cancer is considered necessary, from an Ayurvedic perspective, it results in degeneration and depletion. (3) In cases where Allopathic treatment has stopped working or is not feasible, an Ayurvedic approach focusing on strengthening digestion, burning toxins, reducing growth, and improving tissue metabolism is viewed as useful. (4) An Ayurvedic approach to cancer supportive care focuses on restoring equilibrium, building mental and physical strength, and rejuvenation. Qualitative data were used to develop a study manual focusing on an individualized, multi-modality Ayurvedic intervention for breast cancer survivorship.

Conclusion: A methodology for whole systems research that starts with a qualitative approach can be used to develop a manualized Ayurvedic intervention. Although derived from an ancient, but living tradition, Ayurvedic medicine offers a unique perspective on the modern allopathic diagnosis of cancer that emphasizes restoring wholeness and integrity to the mind and body; using natural remedies; including a focus on emotional health; and instituting prevention strategies.

P406

P05.46. Spiritual needs of veterans: healthcare implications for returning troops

B Chang¹, N Stein, M Stewart, A Hendricks, L Skarf

VA Boston Healthcare System, Boston, Massachusetts, USA

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Purpose: Spirituality plays an important role for many people. In particular, its crucial role among people at the end-of-life (EoL) has been recognized. Currently one out of 4 deaths in the US is a veteran. The study of spirituality among veterans who are at the EoL is therefore urgently needed. The objectives of this study are to understand the spiritual needs and spiritual care provided to veterans at the EoL in the Veteran Administration (VA) Healthcare System. We particularly focused on how military experience impacts spirituality and the spiritual care for veterans who, at the EoL, are still suffering from these experiences.

Methods: We conducted a qualitative study that interviewed VA chaplains, veterans who are at the EoL and their families. The interviews were recorded, transcribed, and then analyzed based on Grounded Theory.

Results: Veterans and their families expressed a range of spiritual needs including religious activities, divine intervention (e.g., God answer prayers), reconnection to their religion, time with family, compassion/love, respect, and conversations about spiritual concerns. One unique need of veterans is to process negative impacts (e.g., guilt and anger) from events that occurred during their combat experience. Chaplains reported various approaches for addressing this special need. Some veterans indicated the desires for more frequent and longer visits from chaplains. Veterans however reported that spiritual care can be provided by professionals (e.g., doctors and nurses) other than chaplains.

Conclusion: The results of our study highlight the importance of addressing spiritual needs of veterans in healthcare. The study finding that some veterans, who at the EoL, are still struggling with spiritual issues related to events that occurred during combat many decades earlier indicates early interventions for addressing these issues might prevent the long-term suffering of more recent veterans, such as the recently returned troops from Iraq.

P407

P05.47. Yoga for musculoskeletal conditions: a Delphi survey to establish international consensus of core intervention components

L Ward^{1*}, S Stebbings², K Sherman³, D Cherkov³, D Baxter¹

¹School of Physiotherapy, University of Otago, Dunedin, New Zealand;

²School of Medicine, University of Otago, Dunedin, New Zealand; ³Group

Health Research Institute, Seattle, USA

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Purpose: To develop and define a core set of key components of a yoga intervention protocol for musculoskeletal conditions, through consensus of an international panel of researchers and yoga consultants.

Methods: Recruitment will comprise two phases. In the primary phase, individuals identified through a systematic review of the literature of yoga for musculoskeletal conditions will be invited to participate. In the secondary phase, a snowball technique will allow primary phase participants to recommend other researchers to contribute to the Delphi process. Inclusion criteria are involvement in the conception, design, conduct, teaching or analysis of randomised controlled trials or pilot interventions of yoga for musculoskeletal conditions. The Delphi process is anticipated to take three rounds, conducted via electronic surveys. The round 1 survey (beginning January 2012) will consist of one open-ended question asking suggestions for the core components of a yoga intervention protocol for musculoskeletal conditions. Rounds 2 and 3 surveys will consist of close-ended questions based on the results of the previous round. Responses are anonymous.

Results: A steering committee will oversee survey development and analysis of results. Round 1 data will be analysed qualitatively using thematic analysis. Items generated will form the questionnaire for round 2. Questionnaire items from rounds 2 and 3 will be analysed quantitatively. Pre-determined consensus levels set by the steering

committee will determine whether items are included in the subsequent rounds or discarded.

Conclusion: The core set of key components generated by the Delphi panelists will address the current heterogeneity of content and delivery of complex yoga interventions, by providing a reference tool for best practice in protocol design. Promoting such standardisation will enable comparison and replication of yoga research internationally, while retaining the flexibility to adapt the protocol to different musculoskeletal conditions and styles of yoga.

P408

P05.48. Yoga for Police Academy recruits

P Jeter^{1*}, S Cronin², S Khalsa³

¹Johns Hopkins University, Baltimore, USA; ²Westfield Yoga Center, Westfield, USA; ³Harvard Medical School, Boston, USA

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Purpose: Law enforcement ranks as one of the most stressful occupations in the world. Police Academy training does not prepare recruits to handle chronic occupational stress, which is known to lead to adverse health outcomes, such as depression and maladaptive behaviors. Yoga is a mind-body practice composed of postures, breathing, and meditation techniques and is known for its beneficial effects on stress and mood disturbances. The present feasibility study evaluated the effects of a Kripalu Yoga program on perceived stress, mood, and mindfulness during police academy recruit training.

Methods: Police recruits (n=39) participated in a 6-class Kripalu yoga program during police academy training. Outcome measures included the Perceived Stress Scale (PSS), Profile of Mood States-Short Form (POMS-SF) and the Five Facet Mindfulness Questionnaire (FFMQ) and were collected pre- and post- yoga program. An exit survey to determine perceived benefits was obtained on the last day.

Results: Overall improvements were significant (Wilcoxon Signed Rank Test) for perceived stress (p=0.03) and mood (p=0.001). Mean (SD) pre- and post-scores were 14.9 (6.4) and 13.4 (5.4), respectively, for the PSS and 23.9 (18.5) and 15.1 (15.1) for the POMS-SF. The POMS-SF subscales for tension and fatigue showed a significant improvement (both p≤0.03). A qualitative assessment of the exit survey indicated perceived benefits, however, the specifics varied by individual. No significant difference was observed for the mindfulness scale; however, this might be due to the limited frequency and duration of the yoga practice.

Conclusion: This preliminary study establishes the potential for Kripalu yoga to reduce stress, tension, and fatigue among young police academy trainees and provides a tool for future use in the line of duty. Future studies with active controls are needed to evaluate its full potential as a permanent component of police academy training.

P409

P05.49. Development of a model for the conduct of randomized clinical trials of hypnotic intervention

C Kendrick^{*}, G Elkins

Baylor University, Department of Psychology and Neuroscience, Waco, USA

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Purpose: Research on the efficacy of hypnosis has been limited due to the lack of a sham hypnosis (placebo) for comparison to use as a control in randomized clinical trials. Researchers have used a variety of controls ranging from wait-lists to structured attention, resulting in a lack of blinding of participants and inconsistency. A sham hypnosis methodology would provide a means to compare study results and make aggregate statements regarding hypnosis' efficacy beyond placebo effects.

The purpose of this study involved two primary aims: 1) to evaluate whether white noise can be considered an "inert" procedure; and 2) to evaluate the feasibility of a model of sham hypnosis that uses white noise as a potential form of "hypnosis" when presented within the hypnotic context.

Methods: Seventy-five undergraduate students were randomized to one of three groups: hypnosis; sham (white noise presented in the context of hypnosis); or control (white noise in the absence of hypnotic context). Measures of interest involved participants' ratings of: (1) therapist's

professionalism; (2) the consistency of the environment with hypnosis; (3) subjects' perception that they received hypnosis; (4) subjects' evaluation of the procedure as pleasant, relaxing, and beneficial; (5) participants' perception of the procedure as acceptable, ethical, and effective; and (6) shifts in relaxation resulting from each procedure.

Results: In each of the variables of interest, subjects who received sham hypnosis and those who received a hypnotic induction demonstrated significant differences from those assigned to the white noise control, with effect sizes ranging from .165 to .852. However, there were no significant differences between participants' ratings of the sham and hypnosis procedure in any of these domains.

Conclusion: Results support the feasibility of using white noise as an inert procedure that, given the proper environmental context, can serve as a credible sham hypnosis.

P410

P05.50. CONSORT extension for N-of-1 trials (CENT) guidelines

L Shamseer¹, M Sampson², C Buktut⁵, N Barrowman², D Altman³, D Moher⁴, S Vohra^{5*}

¹University of Ottawa Evidence-based Practice Center, Ottawa, Canada;

²Children's Hospital of Eastern Ontario, Ottawa, Canada; ³Centre for Statistics in Medicine, Institute of Health Sciences, Oxford, United Kingdom;

⁴University of Ottawa Evidence-based Practice Center, Ottawa, Canada;

⁵University of Alberta, Edmonton, Canada

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Purpose: N-of-1 trials have been used in medicine to generate treatment information when evidence from randomized controlled trials (RCTs) is not available or applicable. N-of-1 study design maintains the methodological safeguards provided by RCTs (blinding, randomization and controls) yet avoids the disadvantages associated with large trials. A standardized method of reporting of N-of-1 trials, such as the Consolidated Standards of Reporting Trials (CONSORT), would greatly improve the quality and consistency of trial reports in this area. The objective of this study was to develop a CONSORT Extension for N-of-1 Trials (CENT).

Methods: Checklist items for the CENT guidelines were derived from three systematic reviews on N-of-1 conduct, analysis and meta-analysis. A structured process of obtaining information from a group of experts to refine and finalize the CENT guidelines was carried out. Two stages of questionnaires asked participants to rate the relative importance of suggested checklist items; the second questionnaire was refined based on feedback from the previous one. Participants included those known to have interests in either RCT reporting or N-of-1 methodology. Items included after the Delphi process were debated and finalized during an in-person meeting.

Results: There were 44 unique respondents between the two rounds of questionnaires. Based on questionnaire results, topics chosen for discussion at the in person meeting included: terminology (what is "N-of-1?"), randomization and blinding, research vs. clinical care, and analysis and meta-analysis. The CENT checklist was refined and adapted to the format of the most recent CONSORT 2010 statement.

Conclusion: N-of-1 trials may promote an evidence-based approach to therapy so that families, health care providers and policy-makers can make informed choices, and are relevant to both conventional and complementary and alternative medicine. The CONSORT 'extension' will facilitate critical appraisal and interpretation of N-of-1 trials by providing authors with guidance on how to improve reporting.

P411

P05.51. Eligibility assessment for clinical trials involving chronic pain at a chiropractic research center: a consensus case review process

R Vining^{*}, K Pohlman, S Salisbury, E Potocki, M Seidman, A Morgenthal, M Hondras

Palmer Center for Chiropractic Research, Davenport, USA

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Purpose: To describe a consensus-based case review development process that applies eligibility and diagnostic criteria for diverse clinical trials of chiropractic care for chronic pain conditions.

Methods: A multidisciplinary team of investigators and clinical research staff provide iterative feedback to develop case review processes for application across complex clinical trials involving biomechanical testing and/or spinal manipulation. Investigative team members design eligibility criteria and operational definitions consistent with the specific aims of the trial. These parameters are codified in study protocols and programmed into secure, web-based data collection systems that record eligibility decisions. The clinical team develops study-specific procedures, documentation templates, and flow-charts for conducting meetings. Research records are uploaded onto a web server for panel members to view during the meeting.

Results: Our case review panel consists of research clinicians, project managers, study coordinators and the senior clinician who convene twice weekly to discuss participants who remain eligible following completion of baseline visits. The research clinician who performed the eligibility examination begins case review with an oral presentation of the case and leads the case review panel through a discussion of safety and compliance issues, eligibility concerns, diagnosis determination, and clinical precautions. Panel members provide clinical recommendations and determine final eligibility status by consensus vote. The senior clinician determines eligibility only in cases where consensus (80%) is not reached. Through this process, our research clinic presented 534 cases, excluded 174 participants, and allocated 291 into two phase II clinical trials and six feasibility studies over a three year period.

Conclusion: Our case review process utilizes the combined scientific and clinical experience of panel members for consistent eligibility determination, thereby reducing selection bias and ensuring that participants are appropriate candidates for study procedures. The consensus building process creates a collegial environment that enhances clinical trial management and fosters rigorous clinical research.

P412

P05.52 . Patient-reported experiences with adjunctive naturopathic care for type 2 diabetes in CAM-naïve patients

E Oberg¹, R Bradley¹, K Sherman², C Hsu², C Calabrese³, D Cherkov²

¹Bastyr University Research Institute, Seattle, USA; ²Group Health Research Institute, Seattle, USA; ³Naturopathic Physicians Research Institute, Portland, USA

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Purpose: People with type 2 diabetes (T2D) struggle with their chronic disease, and few reach recommended targets for self-care activities and clinical risk factors. We explored the experience of using adjunctive naturopathic care (ANC) in people with T2D to better understand the role ANC may play in facilitating health behavior change and improving self-care.

Methods: A phenomenologic qualitative study was embedded within a one-year prospective observational trial of ANC for people with inadequately controlled T2D. Focus groups and key informant interviews were audio-recorded, transcribed, coded, and analyzed using an inductive content analysis approach. We explored rationale, process, and outcomes from receiving ANC.

Results: Twenty-two of the 40 trial participants were interviewed. Participants differed non-participants only in their lower rating of satisfaction with ANC ($p=0.03$). The majority (64%) perceived limitations in usual care, which influenced their participation in the trial. The most striking characteristics of the experience of receiving ANC (in contrast to usual care) were the: (1) collaborative communication style, (2) holistic perspective, and (3) pragmatic approach to addressing behavioral change. Many participants reported feeling increased hope knowing they had new options and tools to take control of their health. Participants reported improved self-care behaviors, specifically, engaging in health promoting activities (diet, exercise, stress reduction), improved self-efficacy, and better understanding the impact of psychosocial factors on their self-care. These findings were corroborated with statistically significant improvements in measures of mood and behavioral change in the parent study. A minority of participants expressed uncertainty about value of dietary supplements given the out-of-pocket costs.

Conclusion: A variety of important benefits were reported by persons with inadequately controlled T2D who tried ANC. These findings are

noteworthy because the trial participants had no previous knowledge of or experience with naturopathic care.

P413

P05.53. Variations in the implementation and characteristics of chiropractic services in VA

A Lisi^{1*}, R Khorsan², M Smith³, B Mittman⁴

¹Veterans Health Administration, West Haven, USA; ²Samueli Institute for Information Biology, Corona del Mar, USA; ³Sepulveda Research Corporation, Sepulveda, USA; ⁴VA Center for Implementation Practice and Research Support, Sepulveda, USA

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Purpose: To document and assess cross-facility differences in the planning, implementation and current characteristics of chiropractic services in VA.

Methods: Observational comparative case study approach using data collected via semi-structured key stakeholder interviews and abstracted from policy documents and other material. Six VA facilities delivering chiropractic services on-station were studied. Transcripts and documents were coded and analyzed via directed content analysis.

Results: One hundred and sixteen stakeholder interviews and 75 source documents were analyzed. The six chiropractic programs varied in terms of methods and patterns of patient access (direct referral vs. triaged referral; length of wait time), chiropractor appointment type (employee vs. contract; full-time vs. part-time), level and nature of the clinic's integration with other clinical programs and services (e.g., collaborative integration vs. parallel practice), and other features. Non-DC clinicians expressed diverse views on the appropriateness of chiropractic services, yet most were favorable. These clinicians displayed limited knowledge of the current evidence on managing non-operative spinal conditions and the components of chiropractic case management, however. VA facility staff identified professional and interpersonal attributes of the DC clinicians as important facilitators of clinic status and integration. Chiropractors varied in their professional attributes and self-perceived degree of successful integration. Other variations in planning, implementation and clinic features were identified.

Conclusion: VA facilities varied in the manner in which they planned and implemented new chiropractic care programs and in the features of the clinics as established. The findings from this study and may offer policy and practice leaders important insights into effective strategies for managing new clinical program implementation. This study provides a framework for studying the introduction of new clinical services to VA and other healthcare systems.

P414

P05.54. Thermometer of warmth in the patient-provider relationship (WARMOMETER) - a short and easy to understand measure for use in integrative medicine

M Neumann^{1*}, C Scheffer¹, D Cysarz¹, D Tauschel¹, L Taylor-Swanson², F Edelhäuser¹

¹University of Witten/Herdecke, School of Medicine, ICURAM, Herdecke, Germany; ²University of Washington, School of Nursing, Seattle, USA

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Purpose: The aims of this study are twofold: (1) the theory-based development of a patient self-report measure of physician warmth; and (2) the application of cognitive interview methodology to understand patients' perception and interpretation of this new measure.

Methods: A draft measure was developed based on an in-depth literature review of the concept of human warmth by a multidisciplinary expert group working in integrative medicine. Sixteen cognitive probing interviews were conducted to examine how patients from integrative and conventional medicine perceive and interpret this new measure and to identify potential problems. A content analysis of the interviews was used to evaluate findings.

Results: Findings indicate that the WARMOMETER is a short patient self-report assessment of physician warmth, which seems easy and intuitive to understand for every patient. In addition, most respondents were found to share a common concept of physician warmth.

Conclusion: Verification of our study hypotheses and confirmation of the theoretical assumptions of human warmth give basic indications that the WARMOMETER seems to be a valid and sensitive patient self-report instrument for assessing the socio-emotional quality of physicians in integrative and conventional medicine. These first promising results of our cognitive interviews suggest that the WARMOMETER may also be used and further validated in future studies on the patient-physician relationship in integrative medicine, also with other healthcare professionals, e.g. nurses.

P415

P05.55. Qualitative findings from piloting the LEAP Project – an online spirituality-based depression intervention for young adults

A Kania^{1*}, S Moritz², S Malhotra², R Maser², B Rickhi², J Toews²
¹University of Calgary, Calgary, Alberta, Canada; ²Canadian Institute of Natural and Integrative Medicine (CINIM), Calgary, Canada
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Purpose: To report preliminary qualitative findings from a clinical trial that piloted an 8-week, online, spirituality-based depression intervention called the LEAP Project (www.leaproject.com) for young adults with depression. A qualitative approach was used in order to gain a more in-depth understanding of the intervention impact on study participants.

Methods: Participants were recruited using a convenience sampling strategy and invited to partake in an in-depth, semi-structured interview upon completion of the intervention. The LEAP Project intervention consists of eight modules (1) Consciousness and Self Acceptance, (2) Appreciation of Beauty & Creativity, (3). Mystery and Meaning, (4) Gratitude, (5) Compassion, (6) Acceptance, (7) Forgiveness, and (8) Celebration. Each is presented using video clips, music, visualizations, true stories and life practices. All interviews were digitally recorded and transcribed verbatim. Data were analyzed using a descriptive qualitative content analysis approach. Transcripts were read and re-read, and coded to preliminary categories and emerging themes of substantive meanings through an iterative process.

Results: The impact of the intervention on participants was multi-faceted. Participants reflected that the intervention was grounding and led to changed perspectives of others, themselves, and their surroundings. Participants experienced a greater sense of control over emotions and resulting behaviors, as well as a sense of connection and realization that they are not alone. The latter was identified as a key element in their ability to cope with depression. Participants described an improvement in well-being characterized by: higher energy levels, increased motivation, reduced negative feelings such as fear, anger, frustration, and reduced feelings of depression.

Conclusion: Our findings suggest that the LEAP Project impacts young adults with depression by shifting perspectives of life situations and others, providing a sense of control and connection, improving coping abilities and enhancing well-being. Such a program may be a useful and valuable resource in the treatment of depression.

P416

P05.56. Prescribing nature: a content analysis of qualitative responses among park users by socio-demographics and patterns of use

K Irvine^{1*}, M Dallimer², S Warber³
¹De Montfort University, Leicester, United Kingdom; ²University of Copenhagen, Copenhagen, Denmark; ³University of Michigan, Ann Arbor, USA

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Purpose: Against a backdrop of increasing interest in 'prescribing nature' to promote health and well-being, this study investigated the extent to which adult users of urban greenspace endorsed health benefits and whether these effects differed between groups or frequency of use.

Methods: *In situ* questionnaires were delivered face-to-face to 1108 users (54% response rate) of urban riverscapes in Sheffield, UK. First mentioned responses to an open-ended question about how they felt after leaving the area were content analysed. Resultant codes were grouped into themes and domains and quantified. Using Chi-square tests, response-

patterns were compared across age, gender, visit frequency, number of people in the group, or whether walking a dog.

Results: Comments from participants (92% European ethnicity, 62% male, aged 16-70+ years) primarily classified into emotional (38%), physical (34%), and spiritual (22%) domains of health. Cognitive (3%) and overall health (3%) domains were rarely first mentioned; mention of social health did not occur. Emotional included feelings within the self (happy, wonderful), amplified by feelings toward the greenspace itself (appreciation, sadness about condition). Relaxation featured prominently as a derived physical effect; tranquillity was strongly present within spiritual. Across the frequently mentioned domains, differences existed for gender ($p=0.021$), age ($p<0.001$) and whether participants were alone ($p=0.001$). Women more frequently mentioned spiritual; participants in their 20s or 50s identified aspects of physical health; being alone brought out feelings of place attachment. No significant differences were found for visit frequency (daily, weekly, monthly, less than monthly; $p=0.304$) or whether walking a dog ($p=0.392$).

Conclusion: Greenspace provided multiple effects, primarily relaxation, positive emotions and tranquillity, which promote human well-being. While specific groups of users obtained different effects, there was no evidence of a differentiated effect depending on visit frequency. This fine-grained analysis suggests useful guidelines for the development of nuanced, rather than generic, 'nature prescriptions'.

P417

P05.57. Developing good practice guidelines in the treatment of polycystic ovary syndrome with Chinese herbal medicine: a Delphi study

L Lai^{1*}, A Flower, G Lewith, M Moore
University of Southampton, Southampton, United Kingdom
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Purpose: Polycystic ovary syndrome (PCOS) is the most common female endocrine disorder, affecting 6-18% of women of reproductive age. Irregular periods are a hallmark symptom of PCOS and whilst Chinese herbal medicine (CHM) has historically been used as an effective treatment for irregular periods, this requires further investigation in randomised controlled trials (RCTs). To ensure that the methods used within an RCT reflects Chinese herbal methods used in clinical practice, a study was proposed to establish good practice guidelines in the treatment of PCOS through achieving consensus amongst a group of Chinese medicine herbalists.

Methods: The Delphi method was used involving in-depth interviews with a purposive sample of 11 expert Chinese medicine herbalists. Interview data was analysed using thematic and framework analysis to formulate Delphi questionnaire items. Experts were then distributed the questionnaire online and asked to rate their agreement with each questionnaire item on a 7-point Likert scale. Consensus was defined *a priori* as a mean Likert scale score of 5 or more. Questionnaire items not reaching consensus were re-distributed to experts for re-consideration via a second and a third and final round of questionnaires where necessary.

Results: Preliminary results suggest that consensus exists amongst experts regarding common diagnostic categories, treatment strategies used, appropriate dosage and appropriate duration of treatment to observe a clinical effect.

Conclusion: The preliminary results suggest that consensus can be achieved at least within the core aspects of Chinese herbal medicine treatment for PCOS. This methodology is vital in the development of rigorous RCTs for CHM and the outcome and principles of good practice guidelines for PCOS will be presented at the conference.

P418

P05.58. Yoga is a feasible intervention for veterans with chronic stroke

M Van Puymbroeck^{1*}, A Schmid², K Miller², N Schalk³
¹Indiana University, Bloomington, USA; ²Roudebush VAMC/ Indiana University, Indianapolis, USA; ³Heartland Yoga, Indianapolis, USA
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Purpose: Due to the machismo environment that often pervades the military, and thus the patients at Veterans Affairs Medical Centers, we

wanted to explore if a yoga intervention was feasible with this population.

Methods: Focus groups were conducted after the completion of four waves of an 8-week yoga intervention. Twenty-six veterans participated in the focus groups. The focus groups ranged in length from 30 to 90 minutes, and were digitally recorded, and transcribed verbatim. Constant comparison analyses were used to determine initial and emerging themes.

Results: Four primary themes emerged from the data. Related to preconceived notions, veterans identified that they did not know what to expect, in part because stretching activities seemed too simple to help. While we called this "balance exercise," veterans had mixed feelings about calling this yoga. All were more accepting of this by the end of the study. However, several, in addition to saying they wouldn't know what to expect from yoga, said "men don't do yoga" while another compared it to voodoo. The veterans identified that benefits from participation in a group post-stroke yoga intervention included: acknowledgement of the idea that while there was no pain and the yoga was gentle, it was still effective and powerful; the yoga activities could be done at home alone; and it filled the gap after rehabilitation. Finally, we learned that when working with veterans who had seen combat, there were some important considerations when designing an intervention. These included making sure the participants were not seated with their backs to the door, and introducing all helpers at the beginning of each session, and identifying their role.

Conclusion: Yoga is a feasible intervention for veterans who have had a stroke. However, there are important considerations that need to be taken into account when planning a study for veterans.

P419

P05.59. Older adults' attitudes on collaborative care of low back pain by doctors of chiropractic and medical doctors: a focus group study

K Lyons¹, S Salsbury², M Hondras², M Jones³, A Andresen³, C Goertz²

¹Thomas Jefferson University, Philadelphia, USA; ²Palmer Center for Chiropractic Research, Davenport, USA; ³Genesis Quad Cities Family Medicine Residency Program, Davenport, USA

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Purpose: The purpose of this study was to assess the attitudes of older individuals with low back pain (LBP) toward collaboration between medical doctors (MD) and doctors of chiropractic (DC) for LBP treatment. The information obtained in these groups supported development of a collaborative care model based on an existing integrative medicine model (Hsiao et al, 2006).

Methods: Ten focus groups were conducted with 48 unpaid volunteers, ranging in age from 65 to 90 who reported LBP in the past year. Participants were recruited from a family medicine clinic and chiropractic academic health center by invitational letter and through flyers posted at senior centers. Key questions discussed included participants' treatment expectations, reasons for selecting an MD or DC as the primary LBP provider, extent to which care by alternate providers was discussed with their primary LBP provider, and attitudes toward a collaborative model of LBP care.

Results: Overall, responses were consistent across groups. Participants' treatment expectations included pain relief, the ability to remain active, to be treated as a person, and substantive treatment plan involvement. MDs were chosen for acute pain relief requiring medication, while DCs were chosen for addressing chronic pain or musculoskeletal defects. Participants reported little hesitancy to discuss treatment from alternate practitioners with their primary LBP provider and felt positively about LBP co-management by a DC-MD team. Most of these older adults were willing to participate in such a model of care if time, travel and cost concerns were addressed. Participants stressed the importance of real communication, including health record sharing, between the two providers and that each should have respect for the other.

Conclusion: The results of these focus groups provided useful information in the development of the MD-DC co-management model and suggested significant interest on the part of older adults to participate in an alternative model of LBP care.

P420

P05.60. Dragon boat racing: an evaluation of its influence on the health-related quality of life of breast cancer survivors

H Ray^{1*}, M Verhoef²

¹Mount Royal University, Calgary, Alberta, Canada; ²University of Calgary, Calgary, Canada

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Purpose: The purpose of this study was to: 1) determine whether and how breast cancer survivors' participation in a season of dragon boat racing influenced health-related quality of life (HRQOL). And if so, to what degree changes are reflected within the physical, emotional, social/family and spiritual domains of HRQOL, 2) explore the breast cancer survivor experience of dragon boating and how and why this experience is perceived to influence HRQOL.

Methods: A mixed methods sequential explanatory design was used to examine the relationship between dragon boat racing and HRQOL of breast cancer survivors. One hundred women completed on-line surveys at baseline and post-season periods. Four measures from the Functional Assessment of Chronic Illness Therapy (FACIT) measurement system were employed to measure HRQOL. From the sample, 15 women were selected for an interview at the end of the season to obtain a deeper understanding of the lived experience of dragon boat racing.

Results: Statistically significant improvements from early to late season were reported for HRQOL, physical and emotional well-being, breast cancer-specific concerns and cancer-related fatigue. A trend towards significance was reported for functional well-being, with improved social/family and spiritual well-being scores indicated post-season. Qualitative data elaborated on the quantitative findings, greatly enhancing the understanding of how and why dragon boat racing influenced HRQOL of participating breast cancer survivors.

Conclusion: Participation in a season of dragon boat racing is associated with improvements in HRQOL, physical and emotional well-being, breast cancer-specific concerns and cancer-related fatigue. Enhanced social/family, functional and spiritual well-being of participating breast cancer survivors was also indicated. These findings contribute to a growing literature supporting the benefits of dragon boat racing, bringing breast cancer survivors another step closer to having a physical activity option that may help them address their HRQOL challenges, while encouraging them to thrive during survivorship.

P421

P05.61. The multidimensional assessment of interoceptive awareness (MAIA)

WE Mehling^{1*}, C Price², J Daubenmier¹, E Bartmess¹, M Acree¹, V Gopisetty¹, A Stewart¹

¹University of California, San Francisco, San Francisco, USA; ²University of Washington, Seattle, USA

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Purpose: Body awareness and interoceptive awareness are closely related constructs proposed to mediate the health benefits of mind-body therapies, e.g. mindfulness meditation, yoga, Tai Chi, Feldenkrais and others. By integrating psychological and neuroscientific concepts with experiential phenomenology and by distinguishing multiple dimensions, contradictory construct interpretations are clarified. However, no self-report instruments are available that can be used to distinguish between beneficial and maladaptive forms of body awareness. We describe the development of the Multidimensional Assessment of Interoceptive Awareness (MAIA) scales.

Methods: The systematic process involved reviewing the current literature, specifying a multi-dimensional conceptual framework, evaluating prior instruments, developing items, and conducting focus groups with instructors and patients of body awareness-enhancing therapies. Following refinement by cognitive pre-testing, items were field-tested in 332 students and instructors of mind-body approaches: 123 meditation, 107 yoga/tai chi, 47 somatic therapies (Feldenkrais, Alexander, Breath, body-oriented psychotherapy), and 55 massage. Final item selection was achieved by analyzing field-test data in an iterative process using multiple methods, including exploratory cluster and confirmatory

factor analyses, comparison between known groups, and correlations with established measures of related constructs.

Results: The resulting 32-item multi-dimensional instrument assesses eight concepts: Noticing, Distracting, Worrying, Attention Regulation, Emotional Awareness, Self-Regulation, Body Listening and Trusting. Internal consistency of the 3-7-item sub-scales ranges from .66 to .87, inter-scale correlations from .09 to .60. The confirmatory factor analysis showed acceptable model fit (RMSEA .060; CFI .886) with good item-scale correlations (all $p < 0.001$) and negligible modification indices. Hypotheses for correlations with measures of related constructs were generally confirmed. The measure was able to distinguish between more and less experienced practitioners of mind-body approaches and between different therapeutic modalities, which vary in their focus on aspects of interoceptive awareness.

Conclusion: The psychometric properties of these final scales suggest that the MAIA may serve as starting point for research and further collaborative refinement.

P422

P05.62. Clinical identification of patient propensities to choose integrative medicine for back pain: results from the SPICER project

M Aickin¹, H Tick^{1*}, A McCaffery², C Ritenbaugh¹, G Pugh², D Himick²
¹University of Arizona, Tucson, USA; ²Marino Centers for Integrative Health, Boston, USA

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Purpose: Back pain is one of the major sources of disability in the US, but existing studies often have a restricted focus, leaving many patients unstudied. The SPICER project is designed to assess the effect of integrative medical care in a mixed integrative/conventional clinic, using only existing electronic medical records, without any patient exclusions. This report will present information on which patient characteristics are good candidates to be used for adjustment or matching to reduce treatment selection bias.

Methods: All diagnoses, visits, services, procedures, claims, and medications were extracted on 8,000 back pain patients from 2002 to 2009. Integrative medicine services were acupuncture, bodywork (including massage), and chiropractic. Event-stream data methods were used to construct analysis datasets containing potential matching factors: gender, age, year of first visit, comorbidities, combinations of 7 categories of back pain at first diagnosis, and use of integrative medicine prior to diagnosis of back pain.

Results: The volume of results is considerable, because no patients were excluded for having a complex medical record. In general, selection of integrative medicine for back pain was positively related to being female, being older, having used it before back pain diagnosis (thus prior acupuncture use is strongly related to its later use, and similarly for the other treatments), strongly related to the complexity of the initial back pain diagnosis, and tending to decrease over calendar time.

Conclusion: Identification of clinical variables that contribute to the propensity to use integrative medicine is vitally important for non-intervention research from medical records. All techniques for reducing treatment selection bias depend on them. The results reported here show that there is an adequate battery of matching factors that are in concert strongly related to choice of therapy.

P423

P05.63. Perspectives of breast cancer survivors about participating in an acupuncture clinical trial for hot flashes: a qualitative study

C Seluzicki^{1*}, E Mackenzie¹, F Barg¹, R Leed², M Bowman¹, J Mao¹
¹University of Pennsylvania Health System, Philadelphia, USA; ²Oregon Health Sciences University, Portland, USA

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Purpose: Evidence-based decisions about acupuncture use rests on outcomes of randomized clinical trials, but little is known about cancer patients' attitudes and beliefs about participating in clinical trials involving acupuncture. We conducted this study to understand how breast cancer survivors make decisions regarding participation in an acupuncture clinical trial for hot flashes.

Methods: Twenty-five breast cancer survivors (12 African-Americans/13 Caucasian) were interviewed and verbatim transcripts were made. These transcripts were analyzed with NVivo software, and major recurring

themes were identified. Multiple readers independently verified the results.

Results: Five major themes emerged: (1) symptom appraisal (e.g. determining if/when symptoms become bothersome enough to necessitate intervention), (2) practical barriers (e.g. distance, travel), (3) beliefs about the interventions (e.g. fear of needles, dislike of medications), (4) comfort with clinical trials (e.g. randomization, blinding, placebo), (5) trust and altruism. Breast cancer survivors weighed benefits and costs associated with the decision to participate in a clinical trial involving acupuncture. Symptom appraisal was weighed against practical barriers to determine whether the potential benefits outweighed the costs (in time and effort) involved. Women also reflected on the nature of the interventions. Some favored acupuncture due to concerns about taking additional medications; others favored medication due to their fear of needles and/or skepticism about acupuncture's effectiveness. Finally, women were more likely to express willingness to participate in a clinical trial if they had some understanding of the purpose of trial design (e.g. randomization, placebo, blinding); suspicions about placebo, blinding and randomization were barriers to participation. However, the presence of trust and altruism mitigated these concerns.

Conclusion: Breast cancer survivors expressed specific attitudes about perceived barriers and facilitators to participating in acupuncture research. Incorporating patients' perspectives in study design and recruitment strategies may facilitate conducting rigorous clinical trials of acupuncture to guide evidence-based care.

P424

P05.64. The role of self-discovery in women's integration of CAM into their model of health care: qualitative data from a cohort study of 3,731 women

V Murthy^{1*}, D Sibbritt¹, J Adams², A Broom³

¹University of Newcastle, Newcastle, Australia; ²University of Technology Sydney, Sydney, Australia; ³University of Queensland, Brisbane, Australia
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Purpose: Research has established substantial levels of Complementary and Alternative Medicine (CAM) use alongside and concurrent to conventional health care use amongst mid-aged women. Yet, an examination of women's CAM use in relation to notions of personal responsibility and self-discovery remains under-researched via large, nationally representative samples. The aim of this study is to examine the perceptions and experiences of mid-age women in relation to their CAM use.

Methods: This study employs an inductive, thematic analysis of qualitative data obtained from an open text question completed by 3,731 women from a nationally representative sample ($n=10,638$) who participated in a survey as part of the Australian Longitudinal Study on Women's Health. The focus of this study is the mid-aged group (between 56 and 61 years of age).

Results: The analysis reveals that the women's exploration of non-medical approaches to health and well being are driven by their commitment to personal inquiry, self-discovery and self-reflection. The women explain how their CAM exploration is fueled in part by their experiences of illness and those of others around them, which are interpreted as helping provide insights regarding empowerment and a holistic approach to health and healthcare.

Conclusion: Australian women's self-integrated models of health care emerging as a result of their health and illness experiences is compelling and cannot be ignored by General Practitioners, specialists and health policy makers. It is essential that the drivers of personal responsibility for health through non-medical approaches be subject to in-depth examination in order to aid and inform effective, responsive health policies around women's CAM use.

P425

P05.65. BHIP - be healthy in pregnancy: strategies nutritional and physical activity interventions to improve gestational weight gain management

R Walji^{1*}, S Atkinson, O Wahoush
McMaster University, Hamilton, Ontario, Canada

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Purpose: Excess gestational weight gain (GWG) in pregnancy is a major clinical challenge affecting 55-75% of Canadian women who enter pregnancy overweight and about 40% women of normal weight. The adverse sequelae of excess GWG for both mother and child are well documented and include a number of adverse health outcomes (such as gestational diabetes, hypertension and preeclampsia), which impose substantive burden of our health system. The larger research program aims to conduct a randomized trial with a diet and exercise intervention for optimizing GWG. The project presented here is a preliminary phase in order to determine feasibility and patient preferences to the proposed intervention.

Methods: This project uses a qualitative approach employing focus groups and interviews of participant women (pregnant or recently pregnant) and health care providers that aims to identify the preferred evidence-based strategies for women to effectively manage their GWG during and after pregnancy and how best to implement the selected intervention. Primary research question: What are the preferences of pregnant and post-partum women and their health providers for engaging in healthy eating and increased physical activity? Secondary questions include: What do pregnant or recently pregnant women and health providers identify as enablers or barriers that support or limit successful management of GWG? What are women's and health providers' perceptions of GWG in relation to their health and the health of the child? What approaches have women and health providers tried to manage excess GWG?

Results: Outcomes include an identified preferred diet and exercise intervention for the planned clinical trial and information, which enables refinement of a locally acceptable implementation plan for the intervention.

Conclusion: Collectively information from women and service providers enabled a comprehensive understanding of barriers, enablers and opportunities for the successful implementation of an intervention for GWG management.

P426

P05.66 . "It's a regular part of my schedule, just like brushing my teeth": the perceived fit of complementary and alternative medicine among young adults

F Sirois

Bishop's University, Sherbrooke, Quebec, Canada

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Purpose: As CAM use continues to grow a new generation of CAM consumers are including CAM as part of their repertoire of activities to promote their health and well-being. Yet little is known about how CAM is perceived to fit in with other health-related activities in this population. Understanding how young adult CAM consumers integrate CAM into their lifestyle can help guide policy and practice regarding the needs of this group of CAM consumers. The aim of this mixed methods study was to explore the perceived role of CAM in maintaining and promoting health and well-being among a sample of young and healthy adults.

Methods: Undergraduate students (N = 359, mean age = 21.2, 86 % female) completed a survey about their use of CAM, self-perceptions of being health-minded, and how CAM fit into their health routine. Forty-four percent were currently using one or more CAM.

Results: CAM consumers (N=159) were significantly more health-minded than non-consumers, $t(357) = 3.89$. The CAM consumer responses to the open-ended question "Where does CAM use fit in with the things that you do to take care of your health issues, and/or things that you do to maximize your health and wellness?" were inductively tagged using qualitative content analysis and placed into categories reflecting common themes. Several key themes emerged from the responses. CAM was viewed as a means to deal with athletic injuries, to supplement other health promotion activities, to take care of body and mind, to prevent illness, and as a natural and holistic method for promoting health and well-being.

Conclusion: These findings echo those of previous research indicating a growing role for CAM in promoting health and well-being and further suggest the ways in which this next generation of CAM consumers integrate CAM use into their lifestyle.

P427

P05.67. A narrative review of research on Ayurveda

R Manohar¹, S Eranezhath, A Mahapatra, S Manohar R

The Ayurvedic Trust, Coimbatore, India

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Purpose: There is limited access to published research in the field of Ayurveda. Researchers find themselves groping in the dark to make an assessment of prior research work. A narrative review of prior research by screening published research papers will lay the foundation for identifying strengths and gaps in the evidence base that is available to vouchsafe the safety and efficacy of Ayurvedic interventions. It will also facilitate systematic reviews and meta analyses in the future.

Methods: More than 700 research journals on Ayurveda were accessed through electronic databases like Pubmed and DHARA and many journals were also hand search to compile nearly 8000 citations on Ayurvedic research. The research papers were screened and classified on the basis of the nature of submission, the research approach, quality of research, study design, disease conditions, formulations, interventions and species used.

Results: A summarized and classified overview of prior research on Ayurveda could be sketched on the basis of the comprehensive analysis. Issues in quality of research and research design could be identified as well as the good and bad practices in research publication. The key diseases for which evidence is available for recipes and clinical interventions in Ayurveda could also be identified with an understanding of the level of evidence and the research gaps.

Conclusion: Nearly half of the published research papers on Ayurveda are review papers. The majority of original research work is in the area of preclinical studies and drug standardization. Clinical research work is comparatively less and there is scarcity of research designs and studies that address Ayurveda as a whole system. However, clinical trials outnumber case studies and case reports. An analysis of the preclinical and clinical work done in the field of Ayurveda gives important leads to identify priorities for future research on Ayurveda.

P428

P05.68. Teaching an interprofessional approach to the management of musculoskeletal problems in primary care – a pilot study

¹ Kopsansky-Giles¹, ² J Peranson², ³ S Reeves²

¹Canadian Memorial Chiropractic College and St. Michael's Hospital, Toronto, Ontario, Canada; ²St. Michael's Hospital, Toronto, Canada

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Purpose: This pilot had three aims: 1) To determine if a 4-day modular program will enable a mixed-professional group of learners to develop and/or improve their competencies in collaborative MSK health care; 2) To determine if this increased the student's confidence in being a collaborative health practitioner; 3) To determine effective facilitation strategies for enabling the acquisition of collaborative competencies by a mixed group of health science students.

Methods: This was a mixed methods design. Pre-and-post program semi-structured focus groups with students were conducted to explore satisfaction with the program, and perceptions of program impact on the acquisition of collaborative competencies in MSK care. Key informant interviews with teachers were conducted to determine program content and the different educational approaches to be used. Inductive thematic analysis and triangulation of data sets was utilized to evaluate qualitative data. A new quantitative tool, the Health Professional Collaborative Competency Scale ©2011 was also administered to students. A one-sided paired t test was used to compare pre- versus post-test scores from the instrument under the hypothesis that the educational module improved post-test scores. The standard for statistical significance was $p < 0.05$.

Results: Thirteen students from 6 different programs and 5 institutions participated, their year of study within their program varying to some degree. Learners also had variable levels of MSK training/experience with IPE. The students were satisfied with the program and discussing their own experiences and ideas as well as to learn from other students. Twenty-two facilitators participated from 11 professions and felt that best teaching was thought to occur through role modeling.

Conclusion: A 4-day interprofessional educational module can enhance the collaborative abilities of mixed health professional learners. Role modeling (by mentor facilitators) and discussion/interactive activities appear to be important key features of such programs.

P429

P05.69. Removal of one or more arsenic related infections by using medicinal plants: findings from a rapid assessment study in Satkhira district of Bangladesh

M Mollik

Peoples Integrated Alliance Bangladesh, Bogra, Bangladesh

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Purpose: One of the more perplexing ground water problems currently facing Bangladesh is the high concentration of arsenic in drinking water, which poses a relatively large risk to human health of this region. Traditional health practitioners (THPs) of Bangladesh primarily use medicinal plants for treatment of various ailments. The selection of any medicinal plant is a closely guarded secret and is usually kept within the family. As a result, the use of medicinal plants varies widely between THPs of different areas within the country, and is based on both medicinal plant availability and the THP's unique knowledge derived from practice. The aim of this present study was to conduct a survey amongst the THPs to learn more about the medicinal plants used to treat one or more arsenic related infections in the Satkhira district of Bangladesh. This area is unique in its proximity to the Sunderbans forest region and contains quite different medicinal plants compared to other parts of the country because of high salinity in the soil and water.

Methods: Semi-structured questionnaires were administered to twenty-four traditional health practitioners to evaluate the THPs' perceptions and practice relating to causation and treatment of one or more arsenic related infections. The THPs described the signs, symptoms, and cause of one or more arsenic related infections. Details of the preparation and use of medicinal plants for management of one or more arsenic related infections were recorded.

Results: In the present study, forty-one medicinal plant species belonging to thirty-nine genera and twenty-eight families were found to be used to treat one or more arsenic related infections in the Satkhira district.

Conclusion: Information on indigenous use of medicinal plants has led to discovery of many medicines in use today. Scientific studies conducted on the medicinal plants may lead to discovery of more effective drugs than in use at present.

P430

P05.70. Polypharmacy, interactions and collaborative care in the middle-aged and beyond

M Stargrove*, L Stargrove

Oregon College of Oriental Medicine, Portland USA

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Purpose: The popular perception of herb-drug and drug-nutrient interactions is that they are unintended and problematic. Actually, purposeful coadministration of therapeutic agents within a clinical strategy represents a valuable approach to complex and evolving patient-centered care. As individuals age, they are more likely to be prescribed pharmaceutical medications: many also take herbs and nutrients, which may interact. The occurrence of polypharmacy may be orchestrated or unsupervised, beneficial or risky, depending upon the individual patient's physiology, health status and medical condition(s) and the communication and collaboration among the involved healthcare providers.

Methods: A literature review was conducted using the following keywords: polypharmacy, herb-drug interactions, nutrient-drug interactions, safety, herbs, vitamins, minerals, amino acids, essential fatty acids, physiologics, nutraceuticals, nutritional supplements, adverse drug events, drug-induced nutrient depletion, integrative healthcare delivery, trans-disciplinary models, collaborative care, multidisciplinary care, therapeutic strategies, patient self-care, patient-centered medicine, aging, middle-aged, elderly.

Results: The challenges of multidisciplinary care involving diverse philosophical and clinical traditions bring forth the opportunity and necessity of formulating new models of proactive polypharmacy focused on patient safety, therapeutic efficacy and evidence-informed clinical-decision making. Patient demographics of medication, herb and nutrient usage, adverse drug event occurrence, and typical risk patterns are reviewed. Cardiovascular, degenerative bone and mind/mood conditions illustrate specific areas of concern.

Conclusion: Within the standard literature of pharmacy practice, several clinical management tools have been developed for eliciting, assessing, and managing multiple prescribed and over the counter drugs. By extending the tools for coordinating polypharmacy to encompass the full range of therapeutic agents, whether pharmaceutical, nutrient or botanical, clinicians can formulate and implement a patient-centered model of safe and effective polypharmacy.

P431

P05.71. A social science review of the TCM/Oriental medicine literature: initial lessons

T Stuardi^{1*}, C Cassidy¹, L Conboy², V Kumar³

¹Social Science Review Project, Fairhope, USA; ²New England School of

Acupuncture, Newton, USA; ³Johns Hopkins University, Baltimore, USA

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Purpose: The purpose of this project was to identify social science papers in the traditional Chinese medicine (TCM) and Oriental medicine (OM) literature. We believe the growing emphasis on qualitative research necessitates a review of the literature to date. By locating a compendium of articles that study Chinese medicine through social science, we aim to achieve two objectives. First, all of the material will be catalogued to provide a resource for fellow researchers. Second, papers on similar topics will be reviewed to produce qualitative meta-syntheses that can direct future research.

Methods: We participated in several meetings to refine our definitions of social science, TCM, and OM, and to identify relevant search terms and databases. We used names of individual modalities related to TCM and OM (e.g. acupuncture), and broad methodological terms (e.g. qualitative research). Searches were conducted in MEDLINE, AMED, AnthroSource, PsycINFO, Dissertation Index and Social Sciences Citation Index, from 1990 – January 2012. Reference lists of relevant papers and book chapters were also hand-searched.

Results: Difficulties in accessing social science research arose from the lack of indexing of particular journals (e.g. European Journal of Oriental Medicine), the absence of keywords, keyword variations, and shared keywords with biomedical conditions. For example, the search attempting to identify papers concerning Chinese medicine cupping found optic nerve cupping associated with glaucoma in biomedicine. Over five thousand papers were identified in the searches, and were subsequently assessed for relevance. Approximately two hundred papers will be catalogued and included in future meta-syntheses.

Conclusion: Various difficulties are associated with identifying social science studies related to Chinese medicine; meanwhile, the number of studies increases. As Chinese medicine continues to grow as a source of integrative care, authors need to ensure that their work is accessible to the research community, by employing clear keywords and publishing in indexed journals.

P432

P05.72. Survey to assess the feasibility of providing a brief yoga skills training to improve outcomes of gynecologic cancer surgery

S Sohl¹, K Stanbery, J Tooze, S Lentz, K Stephenson, S Danhauer

Wake Forest School of Medicine, Winston-Salem, USA

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Purpose: More than 65,000 women are diagnosed with gynecologic cancers (i.e., ovarian, endometrial) in the United States each year. Exploratory laparotomy is a common primary treatment for these diagnoses; however, it leads to pain and distress in a majority of patients. Yoga is a promising intervention for improving these negative surgical

outcomes. The purpose of this study was to explore the interest in and feasibility of implementing a Yoga Skills Training (YST) for these women.

Methods: Adults scheduled for an exploratory laparotomy for a suspected gynecologic malignancy were eligible. Screening logs were documented and women were approached while in the hospital prior to and following surgery. Patients enrolled in the study completed questions regarding their interest in the YST, outcome expectations and were asked open-ended questions to clarify responses.

Results: Of 19 women approached, 9 agreed to complete the survey and one of these was a screen fail. Participants (n=8; mean age=48.5 years [SD=13.8]; 13% non-White) indicated that prayer (75%), gentle movement (75%), relaxation (75%), breathing (63%), counseling (63%), and information (38%) would be helpful to reduce bother they experienced during their hospital stay. A majority of participants (63%) would have been interested in the described YST before and after surgery, although 50% indicated they did not like the name "YST". Outcome expectations indicated that participants thought a brief YST would be helpful (on a scale from 0-10) for reducing pain (M=6.3[SD=2.3] and distress (M=6.5[SD=1.8]).

Conclusion: This study showed that there was interest in the YST among women undergoing surgery for a suspected gynecological malignancy. Thus, future studies should implement yoga for these women and investigate its efficacy for reducing negative surgical outcomes. Results also suggested that such future studies recruit before surgery, rename the intervention, and that prayer or counseling are of more interest for a control group than information.

P433

P05.73. A feasibility study of caregiver-provided massage for comfort care in Veterans with cancer

L Kozak^{1*}, E Vig², C Simons¹, E Eugenio¹, M Chapko¹

¹HSR&D, VA Puget Sound Health Care System & UW School of Public Health, Seattle, USA; ² VA Puget Sound Health Care System, Seattle, USA

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Purpose: The purpose of this study was to assess the feasibility of using a multimedia program to instruct caregivers in providing massage as supportive care for Veterans with cancer.

Methods: Dyads received a training program including DVD and manual, and were instructed to watch and practice at least 20 minutes/day over 8 weeks. The training program was specially developed for caregivers of cancer patients and previously tested in a randomized trial with non-veteran population. Feasibility assessed partner availability, perceived burden, clarity of instructional materials and compliance with training materials, weekly massage practice, and returning of data collection instruments.

Results: 26 patient-caregiver dyads (92% male patients and 95% female caregivers) were recruited; 15% wanted to participate but did not have a partner. Only 11/26 pairs, all of which were spouse dyads, completed the study, 38.5% of 26 recruited were unable to complete study because of being overwhelmed with caregiving activities. All patients were undergoing chemotherapy, radiation or both. For the 71.5% who completed 8 weeks, compliance with training materials was high (Mean times reading manual over 8 weeks=15.83). Dyads reported high satisfaction with training, 91% declared training was very clear and easy to follow. Compliance with weekly practice was also high (Mean times caregiver provided massage over 8 weeks=43.83). Compliance with data collection and returning of instruments was acceptable for caregivers but poor for patients, who perceived forms as a burden.

Conclusion: Massage has been shown to support co-management of pain and anxiety in palliative care. Although massage is widely used at cancer centers around US, the VA system lacks occupational codes to hire LMPs to offer massage. This study showed feasibility of training caregivers of Veterans to provide simple massage for comfort care at home. Future studies should include a larger population and consider provision of caregiver support to facilitate adherence.

Cite abstracts in this supplement using the relevant abstract number, e.g.: Kozak et al.: P05.73. A feasibility study of caregiver-provided massage for comfort care in Veterans with cancer. BMC Complementary and Alternative Medicine 2012, **12(Suppl 1)**:P433