

# **The Sport Participation Legacy of the Sydney 2000 Olympic Games and Other International Sporting Events Hosted in Australia**

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## **Abstract**

The legacy of an Olympic Games in a city can take many forms, including: urban infrastructure; strengthened sporting organizations; enhanced event management expertise; a higher national and international profile, with implications for increased tourism; possible financial windfalls (or debts); new or improved sporting facilities; and potential increases in grass roots sport participation. This paper concentrates on the last of these, particularly in regard to the Sydney 2000 Olympic Games. The paper examines claims by the Olympic movement and by Sydney Games organisers concerning increased sports participation as a legacy and explores available data to consider whether the hosting of the event boosted sports participation in Australia. While some estimates suggest that the sports participation in Australia did increase following the hosting of the 2000 Olympics, the failure of relevant organizations to maintain adequate and consistent data collection regime makes this conclusion extremely speculative. From 2001 onwards, the existence of a more stable data collection system makes it possible to make more reliable estimates of the pattern of sports participation following the hosting of the Rugby World Cup in 2003 and the Melbourne Commonwealth Games in 2006. However, even when reliable and consistent participation data are available, the question of causality remains difficult to address.

## **Introduction**

The prospect of a 'legacy' is just one of the motivations for cities and nations to seek to host the Olympic Games and other international sporting events. It is also often an important argument used to win local support for bids by candidate cities. Among the many forms which a legacy might take is the development of an increase in sports participation among the host population. The primary aim of this paper is to assess this claim in the case of the hosting of the Sydney 2000 Olympic Games. This examination is set in the context of an historical examination of the development of the concept of sporting legacy in the Olympic movement and available published evidence on outcomes in individual Olympic Games host cities. The analysis of the Australian experience focuses on the adequacy of the data available to assess sports participation legacy and includes not just an examination of the Sydney 2000 Olympic Games but also of the 2003 Rugby World Cup in and the 2006 Melbourne Commonwealth Games.

## **Sporting legacy**

The legacy of an international sporting event can take many forms. The editors of the report of the 2002 IOC international symposium on the legacy of the Olympic Games, concluded:

After hearing papers talking about different experiences from Games and cities, the idea emerged that the effects of the legacy have many aspects and dimensions, ranging from the more commonly recognized – architecture, urban planning, city marketing, sports infrastructures, economic and tourist development – to others, less recognised but that are just as important, if not more so. In particular, it is necessary to point out the importance of so called intangible legacies, such as production of ideas and cultural values, intercultural and non-exclusionary experiences (based on gender, ethnicity or

physical abilities), popular memory, education, archives, collective effort and voluntarism, new sport practitioners, notoriety on a global scale, experience and know-how, etc. These intangible legacies also act as a driving force for the tangible ones to develop a long-term legacy of the Olympic Games, affecting not only the host cities, regions and countries, but also the athletes, the spectators, the Olympic Movement and society as a whole. (De Moragas, Kennett and Puig, 2003: 492)

Richard Cashman (2003) has proposed a six-fold typology of sporting event legacy, including economic impacts, built infrastructure, sport, information and education and public life, politics and culture. If sporting built infrastructure is separated from non-sporting built infrastructure and sport is further subdivided into elite performance, mass participation and financial support, the typology become nine-fold. Furthermore, a recent report sponsored by the World Health Organization concerning the public health legacy of the Beijing Olympics (Dapeng, Ljungqvist and Troedsson, 2010), suggests the addition of a tenth category, health. Health could of course be seen as a benefit arising from mass sport participation, but other aspects of health arising from hosting of major international sporting events have been identified, for example improvements in relation to host city air pollution and water quality. With this addition and other modifications of the Cashman typology, the legacy typology becomes:

1. Economic impact
2. Built environment – non-sporting
3. Public life, politics and culture
4. Sport – information and education
5. Sport – elite performance
6. Sport – mass participation
7. Sport – financial/administrative support
8. Sport – physical infrastructure
9. Sport – symbols, memory, history
10. Health

The ‘sporting legacy’ comprises categories 4-9. These categories are of course inter-related: for example, information and education about sport (4), financial/administrative support (7) and physical sports infrastructure (8) are all likely to have an impact on elite sport (5) and/or mass sports participation (6). This paper concentrates on just one of these categories, namely mass sport participation (6), while recognizing its links with the other sporting categories and health. Mass sports participation is also referred to as community sport, grass roots participation or Sport for All, the latter term being the name of the campaign launched by the Council of Europe in the 1970s and since endorsed by many governments and by the International Olympic Committee (IOC, 2000).

There is an apparent contradiction in seeking to promoting grass roots participation by hosting elite-level international sporting events. The practice is predicated on the belief that success in elite sport inspires individuals to become sport participants at the grass roots level – a process sometimes referred to as the 'trickle down' effect. The question arises as to whether the trickle down effect actually works and, if so, by what mechanisms.

A recent review of the research evidence on physical activity and health legacies of the Olympic Games accruing to host cities/nations concluded:

Firstly, ... there has been *no evidence* collected or collated that any previous Games has raised participation (this is not the same thing as not having raised participation) and, secondly, no previous Games has employed strategies towards raising physical activity or sport participation. (Weed, Coren and Fiore, 2009: 8, emphasis in original)

While a limited amount of ‘before and after’ data do exist, as discussed below, in regard to strict scientific criteria of cause and effect, we would concur with this conclusion. It basically suggests that ‘the jury is out’ because the research has not been done and, in any case, no Olympic Games organizers to date have adopted specific policies to foster increased grass roots sports participation. It is also the case, that no research has been conducted to test the opposite thesis, put forward in the 1970s by John Bloomfield in a report to the Australian government, that ‘.. so much adulation is centred on those who are physically gifted that many an average participant is discouraged through fear of embarrassment’ (Bloomfield, 1975: 3).

As for the mechanisms by which the trickle down effect might operate, they could be direct or indirect. In the direct process, individuals would themselves be inspired by the Olympic Games to take up sport: as described by Sebastian Coe in his speech to the IOC in July 2005 in support of the London bid for the 2012 Summer Games. He spoke of his experience as a twelve year-old watching, on a black and white television set in a school hall, British athletes John and Shelia Sherwood performing at the 1968 Mexico City Olympics and declared:

That day a window to a new world opened for me. By the time I was back in my classroom, I knew what I wanted to be and what I wanted to do. The following week I stood in line for hours at my local track to catch a glimpse of the medals the Sherwoods had brought home. It didn’t stop there. Two days later, I joined their club. Two years later, Sheila gave me my first pair of running spikes. Thirty-five years on, I stand before you with these memories still fresh, still inspired by this great movement. (quoted in Lee, 2006: 180-81)

Of course, if the Olympic Games were to be successful in inspiring would-be sport participants only on the basis that anyone can become an Olympic athlete, the process would involve disappointment on a grand scale. But arguably the desire to succeed at lower levels in the sport hierarchy, or simply the desire to participate for its own sake, might also feature, either initially or over time, as individuals gain a realistic view of their capabilities.

The indirect version of the trickle down effect would involve the various mechanisms associated with taking part in and hosting the Olympic Games providing the context and support for mass participation in participating countries, including such things as the establishment of built and organizational sporting infrastructure and the development of the sports infrastructure required to send teams of athletes to participate in the Games. Thus, in Sheffield, in 1970, there was an athletics club for Sebastian Coe to join, a stadium in which to train and system of coaches and local, regional and national competition. Added to this, could be *ad hoc* measures which host cities and countries take to ‘leverage’ the occasion of the Games to promote mass sport participation.

Bruce Kidd, using the example of marathon running, argued, at the 2002 IOC symposium on the legacy of the Olympic Games, that both the direct and indirect trickle down process can

be at work. He notes how the widespread publicity given to the marathon in the first modern Olympic Games in Athens in 1896 inspired first Boston, then other cities around the world, to organize their own marathons, unleashing ‘a ‘marathon craze’, the twentieth century’s first mass running movement’ (Kidd, 2003: 135). He goes on:

Outside the circles of competitive sport, [marathon running] has become the pinnacle of achievement for fitness enthusiasts, encouraging thousands of adults to take up running, and with running, better nutrition, a healthier lifestyle and a profound appreciation of the speed and the stamina of those ahead of the pack. It is both sport development – the encouragement of training and competition – and development through sport – the enhancement of health, education and the values of citizenship through participation in sport and other forms of physical activity. ... Similar examples could be drawn from virtually every Olympic sport and Olympic Games. ... I would ... suggest that one or two mass participation events, such as a mass marathon, be added to the [Olympic] Programme, to affirm the importance of sport for all. (Kidd, 2003: 136, 138)

These examples suggest the existence of two versions of trickle down effect: global and local. In the global version is, as described by Sebastian Coe, the Olympic Games are believed to reach out and inspire people all over the world. The local version applies to cities and countries hosting the Games, where it is generally expected that the effect will be enhanced. This is the focus of this paper. The direct/indirect, global/local dimensions of sporting legacy are summarized in Table 1.

**Table 1. Dimensions of sport participation legacy of major sporting events**

	<i>Global: all participating countries</i>	<i>Local – host city/country</i>
	<b><i>Individuals are inspired to take up sport as a result of:</i></b>	
<i>Direct</i>	A. Engagement with the event via mass media	B. Engaging with the event via mass media + live spectating + volunteering etc.
<i>Indirect</i>	C. National sporting organizations’ activities in developing athletes to take part and succeed in the event	D. Enhanced sporting facilities and strengthened sporting organizations

### **The Olympic Games and grass roots sporting legacies: the intent**

Mass participation, among males at least, was one of the major anticipated effects of the Olympic Games in the mind of the founder of the modern Games, Pierre de Coubertin. It is widely accepted that part of the motivation of de Coubertin, in pursuing the revival of the Games towards the end of the nineteenth century, was concern about the lack of physical fitness of young Frenchmen which may have contributed to the nation’s lack of military success at that time (Toohey and Veal, 2000: 35; Guttman, 2002: 8). In explaining in 1908 why he had revived the Olympic Games, De Coubertin drew some links between elite and mass sport when he said: ‘the athletic life of modern youth demands the revival of the Olympic Games’ (de Coubertin, 1908/1988). Reflecting this theme, the *Olympic Charter* states: ‘The goal of the Olympic Movement is to contribute to building a peaceful and better

world by educating youth through sport practised in accordance with Olympism and its values' (IOC, 2010: 13 ). Specifically, item 12 of the Mission and Role of the International Olympic Committee (IOC), as set out in the charter, is: 'to encourage and support the development of sport for all' (IOC, 2010: 15). The 1962 version of the charter refers to the fact that 'the facilities provided for the Games become civic assets, which benefit succeeding generations' (quoted in McIntosh, 2003: 452), while the 2003 version gave more explicit expression to the 'trickle down' theory, stating: '... the IOC encourages the development of Sport For All, which is part of the foundations of high-level sport, which in turn contributes to the development of Sport For All' (IOC, 2003: 12), but this statement was dropped in 2004.

The IOC indicated its general support for sport for all in 1983 with the establishment of the Sport for All Commission (IOC, 2000). Its aim is 'to encourage and support the efforts and developments disseminating the health and social benefits to be gained by all members of society through regular physical activity' (IOC, nd). In terms of the dimensions of legacy presented in Table 1, the work of the commission relates primarily to the global dimension, categories A and C. This it pursues through provision of financial support for a limited number of grassroots sporting events and sponsorship of the annual 'Olympic Day' (June 23) and the biennial 'World Congress on Sport for All', the latter in conjunction with the World Health Organisation. The IOC website provides information on the activities of the commission but offers no evaluation of its performance in actually stimulating grass roots sport participation.

In 2002 the IOC hosted an international symposium on *The Legacy of the Olympic Games 1984-2000* (De Moragas, Kennett and Puig, 2003). Although sponsored by the Barcelona Olympic Studies Centre and suggested as a theme by Richard Cashman, Director of the Australian Centre for Olympic Studies, the symposium can be seen as an indication of an emerging awareness in the IOC of the need to plan for Olympic sporting legacy, including grass roots participation. In his opening address, IOC member Hein Verbruggen stated: 'The Olympic legacy is ... to remain educational rather than elitist, and always to ensure some degree of continuity between base and summit, competitive sports and leisure sport, professionals and amateurs' (Verbruggen, 2002: 21). However, of the 55 papers in the published proceedings, only four addressed the topic of Sport for All as a legacy (Cashman, 2003; Charmetant, 2003; Kidd, 2003; McCloy, 2003; Warren and West, 2003).

Despite these general indicators of IOC support for sport for all, there was, until recently, nothing in the agreements between the IOC and host cities requiring the latter to specifically address the question of sporting legacy. Thus, following his observations on the marathon at the IOC symposium, referred to above, Bruce Kidd went on to state:

The IOC should make it explicit that no city should contemplate bidding for the Games unless it demonstrates an exemplary commitment to high-performance sport and sport for all, and a commitment to strengthen sporting programmes and facilities in both the preparation for the Game and its aftermath, both for its own citizens and the international sporting community. It should place questions about the bidding cities' proposals for sporting legacy in the candidature files, and press each candidate city for solid answers. (Kidd, 2003: 143)

Similar sentiments were expressed by Cora McCloy (2003: 162) at the same symposium.

Eventually, these ideas were adopted by the IOC, in two forms. First, although not presented as a Sport for All initiative, the IOC's Olympic Games Global Indicators (OGGI) project, established in the early 2000s, refers specifically to the measurement of the level of sports participation in host communities. The OGGI requires host cities to collect data on up to 150 indicators over a period of 11 years, from two years before the election of the host city until two years after the event. The indicators cover environmental factors, such as greenhouse gas emissions, economic factors, such as job creation, and social factors, including grass roots sport participation. The four indicators relevant to grass roots participation are: participation rates in sport, in general and in individual sports, school sports and available sports facilities. Data collection is to be organized in association with suitable local universities. The Beijing 2008 Games were the first to be subject to these requirements and the results will be contained in a fourth volume of the official report of those Olympic Games, which can be expected to be published in 2011/12. Given that the data to be collected must relate to the period beginning two years before the awarding of the games, this means that data collection is also already underway for the London 2012 and Rio de Janeiro 2016 Summer Olympic Games and for the Sochi 2014 Winter Olympics.

The second form in which sporting legacy obligations were placed on Olympic host cities by the IOC is contained in the *Candidature Procedure and Questionnaire*, the document which forms the basis of candidates' bids to host the Games. Until 2008, the year of publication of the version relating to the hosting of the 2016 Games (IOC, 2008), the document ignored the question of legacy, including sporting legacy. In the 2008/2016 version however, under the heading 'Vision, Legacy and Communication', candidate cities were required to include in their bid document a response to the following question: 'What will be the legacy for sport in your city/ region?' This was followed by the following request for information: 'Describe the measures you intend to take to promote and develop Olympic sports that are less popular in your country in the lead-up to the Olympic Games'. It should be noted that reference is not made explicitly to sport for all – a 'legacy for sport' includes elite sport. Furthermore, it is not clear why the emphasis should be placed only on 'less popular' sports.

### **Sport participation legacy and individual host cities**

Despite the fact that, until recently, bidding cities were not required to make commitments in regard to legacy of any kind, research in the Olympic archives by Martha McIntosh (2003) reveals that bidding cities have occasionally made commitments in regard to sporting legacy: but she identifies only six examples between 1920 and 1988, four of them failed bids. Typically these references dealt with post-Games use of sports facilities and the commitment to devote any financial surplus to sport development.

In cities bidding for or hosting the Games, it would be natural for organizations and individuals with responsibility for promotion of the games domestically to identify possible legacy benefits, including sport. Thus, for example, the 1999 report of the Sydney Olympic Games Review Committee listed a number of anticipated legacies of the Sydney Games, including 'increased participation in sport' (quoted in Cashman, 2006: 171). Organizations with responsibilities for boosting sports participation could be expected to exploit the Games for their purposes. In relation to the Sydney 2000 Games, Henny Oldenhave of Active

Australia, the Sport for All division of the Australian Sport Commission, stated:

The year 2000 presents the sport and recreation sectors with an unprecedented marketing opportunity to capture public interest and new members. Certainly Sydney will benefit from much needed infrastructure, but how will the nation as a whole turn the sport euphoria into an ongoing benefit for every community? Looking at previous Olympics and Paralympics there is a raised motivation and desire to play sport, which unfortunately plateaus after about six months. This is an opportunity and challenge that Active Australia wants to take up. We need to make sure that when the Games are over this motivation is harnessed and captured by all those groups that provide sport and recreation programs to the community. (quoted in Australian Sports Commission, 2000)

In the early 2000s, given the indicators of raised IOC awareness of legacy, as discussed above, organizations associated with the bidding for, hosting and preparing to host the Games began to consider the issue and to make public statements of intent and to take action.

The official report of the Sydney 200 Games (Sydney Organising Committee for the Olympic Games, 2002) includes a chapter on legacy which, while not referring to mass participation as a legacy, does refer to the legacy of sport facilities. However, such a chapter was not included in the reports of the subsequent 2002 Salt Lake City Winter Games or the 2004 Athens Summer Games.

In advance of the 2008 Beijing Games, the Chinese government implemented programmes to promote grassroots sport, including: the 'National Fitness and Move with the Olympics' campaign launched in 2006 and involving nearly 100 million people; an annual National Fitness Week extended to an annual National Fitness Month; and special national events aimed at teenagers, women, students, the aged and farmers; and a substantial public sport venues construction programme (Jinxia and Mangan, 2008). Representatives of the Beijing Olympic Games Organising Committee stated, at the 2002 IOC symposium, that: 'It is expected that the proportion of the population who participate in sports activities on a regular basis will rise from 34.9% to over 40% because of the Games' (Xu, He and Ping, 2003: 424).

Arguably the most grandiose of host city statements of intent regarding a sporting legacy was that provided in support of the successful London 2012 bid. Prior to Britain making its bid to host the 2012 Games, the official view on sport participation legacy from hosting sporting events was skeptical. Thus the government's 2002 *Game Plan: a Strategy for Delivering Government's Sport and Physical Activity Objectives* stated:

There is little evidence that hosting events has a significant influence on participation. ... it is difficult to prove that actually hosting an event affects mass participation aside from the success of UK athletes and the level of media coverage. ... it would seem that hosting events is not an effective, value for money method of achieving either a sustained increase in mass participation or sustainable international success. (DCMS)/ Strategy Unit, 2002: 75).

Three years later, Britain promised, by hosting the Olympics, to inspire participation in the young people not only of London and Britain, but of the world. In his emotional speech to the



IOC in Singapore in July 2005, referred to above, bid president Sebastian Coe stated:

Today London is ready to join you to face a new challenge, to provide an enduring sporting legacy. ... We can no longer take it for granted that young people will choose sport. Some may lack the facilities or the coaches or the role models. Others, in an age of 24-hour entertainment and instant fame, may simply lack the desire. We are determined that London's Games will address this challenge. London's vision is to reach people all over the world to connect them with the inspirational power of the Games so that they are inspired to choose sport. ... No group of leaders does more than you to engage the hearts and minds of young people. But every year the challenge of bringing them to Olympic sport becomes tougher. The choice of host city is the most powerful means you have to meet this challenge. But it takes more than seventeen days of superb Olympic competition. It takes a broader vision. And the global voice to communicate that vision over the full four years of the Olympiad. Choose London today and you send a clear message to the youth of the world: more than ever, the Olympic Games are for you. ... Your decision today is critical. It is a decision about which bid offers the vision and sporting legacy to best promote the Olympic cause. It is a decision about which city will help us show a new generation why sport matters. In a world of many distractions, why Olympic sport matters. And in the twenty-first century why the Olympic ideals still matter so much. (quoted in Lee, 2006: 176-77, 181-82)

This was supported by a film showing individual children from humble backgrounds around the world watching images of the Olympic Games and being inspired to take up and succeed in sport, as Coe himself had done. The film commentary, however, suggests that the purpose of promoting mass participation was not for its own sake but to produce champions:

To make an Olympic champion it takes eight Olympic finalists. To make Olympic finalists, it takes 80 Olympians. To make Olympians it takes 202 national champions. To make national champions it takes thousands of athletes. To make athletes, it takes millions of children around the world to be inspired to choose sport. (quoted in Lee, 2006: 176)

In terms of the London bid, it is, of course, not clear why an Olympic Games held in London should be any more inspirational to children in other countries than a Games held in any other city, but Coe's speech and the theme of inspiring the youth of the world is believed by many to have been influential in the IOC's decision to award the 2012 Games to London. It is notable, however, that the account by Mike Lee, Director of Communications and Public Affairs of the London bid, of the development of the theme of legacy for Coe's speech makes no mention of the IOC's declared policies on legacy (Lee, 2006: 98-99).

### **The Olympic Games and grass roots sport participation legacies: achievements**

We have already noted the conclusion of Weed *et al.* (2010) that there is no scientifically valid evidence of the effectiveness of the trickle down effect of international sporting events. This is supported by Hindson, Gidlow and Peebles' (1994) research on New Zealand sporting clubs and national sporting organisations, which indicated no utilisation of the 1992 Summer and Winter Olympic Games for sport marketing and promotion purposes. In Australia, Hogan

and Norton (2002), drawing on existing national survey data, found no relationship between Australian success at the Olympic Games and levels of grass roots sport participation. But despite this lack of scientific evidence, a number of claims have been made

Itoh (1988) has indicated that, following the hosting of the 1976 Olympic Games, managers of sports facilities in the City of Montreal found it necessary to extend their opening hours to cope with increased demand, and tells of the success of a number of Olympics-inspired sporting groups for young people.

The indirect process of realizing the trickle down effect was implemented following the 1984 Los Angeles Olympic Games with the establishment of the Amateur Athletic Foundation (AAFLA), now known as the LA84 Foundation, which received \$US86 million of the profit from the games (Ueberroth, 1985: 369). Its mission is ‘to serve youth through sport and to increase knowledge of sport and its impact on people’s lives’ and by 2005 it was being estimated that ‘two million youngsters have benefited from the partnership of the AAF with community based organizations’ (LA84 Foundation, 2005).

Truno (1995) reports the substantial post-Games increase in participation of all adults and particularly of females in the host city following the hosting of the Barcelona 1992 Games. However, our own estimate of the corresponding male participation rates (assuming equal numbers of men and women), as shown in Table 2, suggests that the male participation rate must have fallen.

**Table 2. Adult sport participation in Barcelona, 1989-1995**

	% participating at least once per week		
	Males	Females	Total
1989	59*	35	47
1995	57*	45	51

Source: Truno (1995) \* Authors’ estimate.

A recent IOC fact-sheet on *Legacies of the Games* (IOC, 2010) lists legacy achievements from the last five of both summer and winter Olympic Games. A total of 67 legacy items are recorded, covering: accessibility, accommodation, country/city branding/reputation, cross-cultural exchange, cultural preservation, economic impacts, education, environment, events, medical impacts, public health, sport, telecommunications, tourism, transport infrastructure, urban regeneration, venues and volunteering. ‘Sport’ appears in the entries for only three of the ten Games (Barcelona, Turin, Salt Lake City) and only in one case (Barcelona, as above) is quantitative evidence presented on increased sport participation in the host community, although a number of the ‘venues’ items indicate that Olympic venues are used by the general public.

### **The Australian experience**

In this section we focus mainly on the experience of Australia in hosting the Sydney 2000 Olympic Games, but evidence is also presented in relation to other international sporting events host in Australia over the last decade, namely the 2003 Rugby World Cup and the 2006 Commonwealth Games.

### *The Sydney 2000 Olympic Games*

In September 1993, Sydney was awarded the 2000 Olympic Games without any commitments having been made regarding legacy, including sport participation. Nevertheless, when the Games were over it was possible to identify an extensive legacy, which has been documented by Richard Cashman (2006). In particular, he notes that the New South Wales government agency, the Olympic Coordination Authority, in its final report on the Games, claimed the following ‘sport and recreation’ outcomes:

- The sporting community of NSW ... has been left with a legacy of world class sporting facilities. It is anticipated the availability of these facilities will increase sport participation rates. ...
- Disadvantaged youth have been given the opportunity to experience the Games and have shown a greater interest in participating in sport.
- Post Olympic programs have been developed to promote sport in the community. (Olympic Coordinating Authority, 2001, quoted in Cashman, 2006: 172)

No details were given of the increased sport participation rates, the claimed greater interest of disadvantaged youth in sport participation, or of the ‘post Olympic’ programs and their impact.

At national level, as noted above, the Australian Sports Commission viewed the Sydney Games as an opportunity to promote sport participation in Australia. A generally accepted approach to public policy implementation is that, first, conditions prior to the rollout of the policy should be assessed, preferably measured: indeed, it is often such assessments and measurements which give rise to the policy in the first place. Second, once the policy has been implemented, conditions should be assessed/measured again, using the same methodology, and the results compared with the earlier assessment/measurement. We have already noted that some before and after measurements of Olympic Games sporting impact have been based on actual or expected levels of public after-use of Olympic sports facilities (eg. Charmetant, 2003; Warren and West, 2003). However, leaving aside the fact that some claims relate to facilities designed for professional or elite sport, where public use is for spectating only, this approach alone is inadequate, since any use of new sports facilities, or increased use of upgraded ones, could be at the expense of other, less attractive facilities or even of other sports, which may have consequently experienced a reduction in popularity. Grassroots sport participation should, therefore be measured by means of social surveys of the whole population, so a policy designed to increase the level of participation should involve ‘before and after’ surveys of sports participation. Such surveys were conducted in Australia before and after the Sydney 2000 Olympic Games. However, they were not conducted specifically because of the Games, so the principle that an identical methodology should be used for both the before and after survey, was not followed.

National surveys of sport participation have been conducted in Australia since the 1980s but until the 2001, frequent changes in survey design have meant that it has not been possible to establish trends over time (see Veal, 2003, 2005). Table 3 gives details of national surveys conducted immediately before the Sydney 2000 Games and for a number of years afterwards. Despite the failure to establish a specific programme of research to monitor the impact of hosting the Games on grass roots sports participation, attempts are made in what follows to

draw some conclusions on the topic on the basis of available data. It demonstrates that, unlike Australia's approach to organizing its participation in international sport, which is often praised as exemplary, its efforts in conducting research on its impact are less than impressive.

**Table 3. Sport, physical activity and exercise surveys, Australia, 1999-2005**

#	Year of survey	Organ-isation	Survey vehicle	Survey method	Age-range	Sample size, '000s	Ref. period**	Response rate, %
1	1997	Various*	NPAS	Telephone	18-74	4.8	2 weeks	na
2	1999	Various*	NPAS	Telephone	18-74	4.8	2 weeks	na
3	2000	Various*	NPAS	Telephone	18-74	4.8	2 weeks	na
4	1999-00	ABS	PSM	Face-to-face	18+	13	Year	na
5.	2000 $\perp$	ABS	PSM	Face-to-face	18+	6.5	Year	na
6	2001	SCORS	ERASS	Telephone	15+	14	Year	na
7	2002	SCORS	ERASS	Telephone	15+	14	Year	na
8	2002	ABS	GSS	Face-to-face	18+	15	Year	91
9	2003	SCORS	ERASS	Telephone	15+	14	Year	45
10	2004	SCORS	ERASS	Telephone	15+	14	Year	41
11	2005	SCORS	ERASS	Telephone	15+	14	Year	34
12	2005-06	ABS	MPHS	Face-to-face	15+	14	Year	88
13	2006	SCORS	ERASS	Telephone	15+	15	Year	42
14	2000	ABS	MPS (Apr)	Face-to-face & tel. §	5-14	9.7	Year	na
15	2003	ABS	MPS (Apr)	Face-to-face & tel. §	5-14	8.9	Year	na
16	2006	ABS	MPS (Apr)	Face-to-face & tel. §	5-14	8.7	Year	na
17	2009	ABS	MPS (Apr)	Face-to-face & tel. §	5-14	5.8	Year	na

NPAS = National Physical Activity Survey. PSM = Population Survey Monitor. GSS = General Social Survey. MPHs: Multi-purpose Household Survey. ERASS = Exercise, Recreation & Sport Survey. MPHs = Multi-Purpose household Survey. SCORS = Standing Committee on Recreation and Sport . MPS = Monthly Population Survey. \* Various agencies involved: Australian Sports Commission; Commonwealth Dept of Health and Aged Care; Australian Institute of Health and Welfare; and state governments. . \*\* period to which participation relates.  $\perp$  2 quarterly tranches, Aug. and Nov. only. § with parents.

It can be seen that 13 of the 17 surveys listed include only adults, typically aged 15 years and over. The results of the four children's surveys are discussed separately at the end of the paper.

The National Physical Activity Survey (NPAS, Table 3: surveys 1-3) was conducted in November (spring) in 1997, 1999 and 2000, but was not repeated in 2001 and has not been repeated since. So it gives a snapshot of activity levels only two months after the September Games, thus capturing only people who might have responded immediately to the stimulus of the September 2000 Olympics. It covers all forms of physical activity including gardening and vigorous household chores as well as sport, but does not distinguish individual sports. Thus, the survey is limited in terms of timing and measurement of participation.

Basic results from the three National Physical Activity Surveys are presented in Table 4. It shows a significant decline in male participation rates between 1999 and 2000 and a significant increase in female participation, but when these are added together, the small overall increase is not statistically significant, so the male increase cancelled out the female increase. However, given the 5.6 per cent fall in the total participation rate between 1997 and 1999, it is just possible that the Olympic Games halted a longer-term decline in participation. The 2000 survey also asked respondents whether they had changed their 'own participation in

physical activity or sport in response to the Olympics': only four per cent of respondents said that they had done so, which was hardly a ringing endorsement of the Olympic Games as a catalyst.

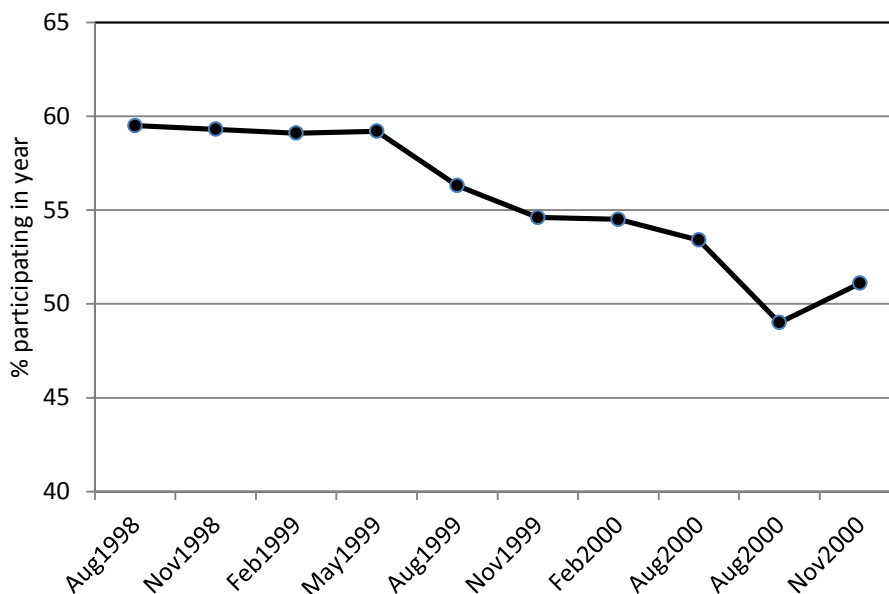
**Table 4. Levels of physical activity, Australia, 1997, 1999, 2000**

	<b>Nov. 1997</b>	<b>Nov. 1999</b>	<b>Nov. 2000</b>
	% of persons aged 18-74 achieving at least 150 minutes per week of moderate or vigorous activity in previous two weeks		
Men	63.4	59.6	57.6
Women	61.1	53.8	56.0
Total	62.2	56.6	56.8

Source: Bauman, Ford and Armstrong, 2001

Each annual survey in the Australian Bureau of Statistics (ABS) Population Survey Monitor (PSM) series (Table 3: surveys 4, 5) was conducted in four quarterly tranches, in August, November, February and May, and the results were invariably published as annual totals (eg. ABS, 2000). However, the 2000/2001 cycle was interrupted with only the August and November 2000 tranches completed. No report for 2000-2001 was ever published. But in November 2001 the ABS produced a draft paper on the impact of the September 2000 Sydney Olympics on grassroots participation (Vanden Heuvel and Conolly, 2001) which included results from the August 2000 and November 2000 and eight earlier quarterly tranches. The results are presented in Figure 1. A draft paper from the Australian Sports Commission also drew on this information (ASC, 2001). It should be noted that 'participation' refers to 'sport and physical activities', including walking for recreation, and participation rates refer to respondents' participation in the year prior to month in which the survey was conducted. Thus, for example, the August 1998 figure is based on interviewing conducted throughout August 1998, so it relates to participation in the period July 1, 1997 to August 31 1998.

The graph shows a steady decline in the participation rate, from May 1999 right up to August 2000, the month before the Sydney Olympic Games, followed by an apparent reversal in the November 2000 survey. But the reversal was not enough to make up for the decline over the previous year. The 'bounce' in the November survey results is, from the point of view of the current study, intriguing, but it is not possible to draw firm conclusions from a single month's data, making the decision to discontinue the ABS survey at this key time particularly frustrating.



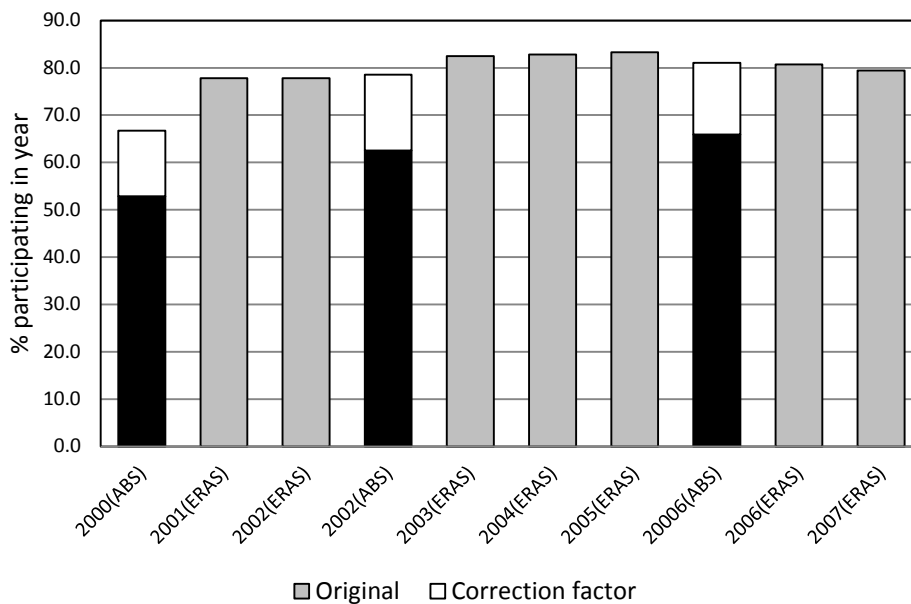
**Figure 1. Participation in sport/physical activity, 1998-2000: ABS quarterly surveys**

Source of data: Vanden Heuvel and Conolly (2001: 9)

As indicated in Table 3, a new annual survey was instituted in 2001, the Exercise, Recreation and Sport Survey (ERASS), funded by a committee of the Australian Sports Commission and state and territory governments and conducted by a commercial survey company. This survey has continued unchanged up to the present day, but the ABS has also continued to conduct surveys from time to time.

Reflecting the problems in continuity of data collection discussed above, the dilemma in assessing participation trends during the period around the Sydney 2000 Games is illustrated in Figure 2, which shows participation rates in sport and physical activities (including walking) from 2000 to 2007 as indicated by three ABS surveys, in black, and seven editions of ERASS (in gray).

The three ABS surveys are themselves not comparable with one another, each being conducted as part of a different omnibus survey and two of them covering people aged 15 years and over, while one covers people aged 18 years and over. But they have in common that they were conducted by face-to-face interview, while ERAS surveys were conducted by telephone, and the fact that, for those surveys for which the information is available, they have a substantially higher response rate than ERAS surveys (see Table 1). While demographic bias resulting from uneven response rates can be corrected by weighting, other factors may be at work which it is not possible to correct for. Whatever the key design differences between the two survey series, the result is that, even though they are ostensibly measuring the same thing, the ABS surveys show a consistently lower sport/physical recreation participation rate than the ERAS surveys, leading to the conclusion that data from the two sources cannot be directly compared. Thus the ABS 2000 survey results cannot be compared with the ERASS 2001 results.



**Figure 2. Participation in sport/physical recreation, Australian adults, 2000-07**

Data sources: 2000(ABS) is mean of ABS quarterly surveys from Nov1999 to Aug2000 (see Fig. 1); for ERAS and other ABS details see Table 1. Correction factor is mean ratio of ERAS: ABS 2002 and 2006 surveys.

Indirect comparison is, however, possible, based on the ratio between the participation rates from ABS and ERAS surveys conducted in the same year. In 2002 this ratio was 1: 1.24 and in 2006 it was 1:1.22, the average being 1:1.23. In addition, the ABS 2000 and 2002 surveys include only persons aged 18 and over, compared with the other surveys which include persons aged 15 and over. Examination of the 2001 ERAS survey indicates that, because of their higher than average participation rate, inclusion of 15-17 year-olds adds 1.7 per cent to the overall participation rate. Applying the 1:1.23 ratio and the 1.7 per cent age-related correction to the ABS surveys produces the 'correction factor' shown in Figure 2. Thus, for the pre-Olympics period, in place of the ABS participation rate of 53.0 per cent, we have a 'corrected' rate of 67 per cent. Comparing this with the ERASS participation rate of 78 per cent in 2001 suggests a substantial increase in participation in the year following the hosting of the Olympic Games, reinforcing the 'bounce' suggested by the quarterly data in Figure 1. The ERASS data and 'corrected' ABS data for subsequent years suggests that this increase was sustained. This is, of course, highly speculative and the precise figure of ten per cent cannot be relied upon.

The same procedure can be applied to individual sports. The question arises as to whether to apply the overall ratio of 1:1.23 to all activities, or calculate a separate ratio for each sport; the latter was chosen, on the grounds that it is possible that an important factor in any change could be the difference between Olympic and non-Olympic sports. Similarly, a separate age factor was applied to each variable. In Appendix A the calculations are presented for 23 Olympic sports for which there is information in the ABS/ERASS surveys and for 29 non-Olympic sports with participation rates of 0.3% and above. There is not an exact correspondence between Olympic sports and activities listed in ERASS and the ABS surveys,

so some judgement has been necessary in the classification, as indicated in Appendix A.

Table 5 summarises the results. It can be seen that, of the 24 Olympic sports, two thirds showed a decline in participation rate between 2000 and 2001. An overall indicator of change can be provided by adding the individual change percentages, to give an aggregate. For the Olympic sports this aggregate was -8.5. Of the 27 non-Olympic sports, more than half than showed an increase in participation, with an aggregate indicator of +1.2. The aggregate for all activities shows a decline of -7.3, which seems at variance with the figures for overall participation in Table 4. But in the latter participants are counted only once, regardless of the number of activities they engaged in, but the aggregate figures in Table 5 count a person once for every sport engaged in. The average number of sports engaged in fell from 1.59 in 2000 to 1.51 in 2001. To assess whether total sporting activity declined or increased, it would be necessary to consider frequency of participation and, possibly, time spent.

**Table 5. Changes in participation rates in Olympic and non-Olympic sports, Australia, 2000-01**

	Olympic sports	Non-Olympic sports
Number of sports showing an increase	5	13
Number of sports showing a decrease	16	12
Number of sports showing no change	3	2
Aggregate of change in participation rates	-8.5	+1.2

Data source: see Appendix A

Given the extent of the manipulation of the data which has been necessary to achieve Table 5, any conclusions drawn must be viewed as extremely speculative, but it does suggest that any increase in participation that may have taken place after the Sydney Olympic Games probably arose in non-Olympic rather than Olympic sports. This suggests that other factors are at work in addition to the direct effect on potential participants in individual sports. Such additional factors could relate to variation in the availability of physical and organisational infrastructure for different sports and local traditions.

### *The 2003 Rugby World Cup*

The Rugby Union World Cup was hosted in a number of Australia cities in 2003. The problem of changing survey vehicles which bedevils the analysis for the Sydney 2000 Olympic Games, does not therefore arise in this case, since the annual ERASS program was well underway by 2003. And dealing only with a single sport also greatly simplifies the exercise..

Table 6 shows that participation in Rugby Union increased steadily over the period 2001 to 2005. Individual annual increases in percentages, of between 0.03 and 0.15 are not significant statistically (the margin of error for these figures is  $\pm 0.2\%$ ), but the persistence of the trend suggests that it was real. The difference between the participation rate of 0.67% in 2002, the year before the World Cup, and 1.04% in 2005, two years after the event, is statistically significant. The largest increase took place in 2002-03, suggesting that the World Cup may have had an impact.



**Table 6. Participation in Rugby Union, Australia, 2001-05**

	Persons aged 15+ participating at least once in year		
	%	Number of persons	
		'000s	% increase over previous year
2001	0.64	96.4	
2002	0.67	102.1	+5.9
2003*	0.82	127.8	+25.2
2004	0.91	144.6	+13.1
2005	1.04	165.9	+14.7

Source: ERASS, see Table 1. \* World Cup year

The increase in the number of participants reflects the increase in both the participation rate and the population. The Australian population aged 15 and over increased by about 200,000 per annum, or almost a million over the five-year period. The number of rugby participants increased by 69,500 over the period, of which about 6000 was due to the population increase and the rest to the increase in participation rate. The number of participants increased by 72% over the period, including a 25% increase in the year following the World Cup.

The ERAS survey indicates that over 90% of rugby union participants are male and over 80% are aged 15-34. The substantial growth in participants is therefore even more impressive when it is noted that the population of males aged 15-34 in Australia increased by only 100,000 over the study period. While the number of male rugby participants increased by 79% over the period, the number of female participants increased by just 20%, suggesting that the World Cup was less of an influence on women.

The increase in participation in rugby union at the tie of the hosting of the World Cup took place against a background of increasing participation from at least two years earlier and continuing increases two years after. This suggests a sport which is in active 'recruiting mode', reflecting the keen competition for recruits between rugby union and rugby league in Australia. The question of the activities of governing bodies of sport in support of grass roots recruitment, as opposed to, or in support of, elite development, is the subject of a related programme of research (reference provided).

#### *The 2006 Melbourne Commonwealth Games*

In examining the impact of Melbourne Commonwealth Games, held in April 2006, not only do we have available the results of ERASS for 2005, 2006 and 2007, but in the 2006 edition of ERASS specific questions were included on the Commonwealth Games.

Figure 2 shows a very small, barely statistically significant, decrease in overall sport/physical recreation in Australia between 2006 and 2007, although there had been a significant fall from a peak participation rate in 2005. This, therefore does not offer evidence that the hosting

of the Commonwealth Games increased the sports participation rate in Australia, although this does preclude the possibility that it prevented a further fall.

The Commonwealth Games is a smaller event than the Olympic Games and, unlike the Rugby World Cup, takes place only in one city, in this case, Melbourne, which is the capital of the state of Victoria and accounts for 73 per cent of the state's population. In 2005 ERASS data indicate that the Victorian sport/physical recreation participation rate was 1.4 per cent above the national average, in 2006 it was 1.1 per cent above and in 2006 it was just 0.3 per cent above, suggesting that the Commonwealth Games did nothing to boost Victoria's level of participation.

As with the Olympic Games, it is possible that individual sports might tell a different story from the somewhat crude overall participation rate. Appendix B presents an analysis of individual Commonwealth Games sports and other sports. It indicates that between 2005 and 2007, 13 of the 18 Commonwealth Games sports experienced a decline in participation and five experienced an increase, with a change in aggregate score of -0.6. Of the 31 non-Commonwealth Games sports, 19 showed a decline and ten an increase, with a change in aggregate score of -13.7. Thus, both Commonwealth games and non-Commonwealth games activities saw an overall decline in participation.

For the first set of questions relating to the Commonwealth Games the approach was indirect: the sample was divided into a pre-Games sample (interviewed Nov 2005 and Feb. 2006) and a post-Games sample (interviewed May 2006 and Aug. 2006<sup>1</sup>) and asked whether, compared with a year ago, the time spent participating in ERAS had increased or decreased or stayed the same. Table 7 presents the results for Victoria and Australia as a whole. It can be seen that there is virtually no difference between the pre-Games and post-Games responses and no significant difference between the Victorian and national responses. Thus, if there was any impact of the Commonwealth Games on participation, this approach failed to identify it.

**Table 7. Change in level of sports participation over previous 12 months, 2006**

	Victoria		Australia	
	%	%	%	%
	Pre-Games interviews	Post-Games interviews	Pre-Games interviews	Post-Games interviews
Increased	29.3	28.8	28.3	28.0
Decreased	49.9	48.8	50.6	50.8
Stayed the same	20.3	22.3	21.0	21.1
Don't know/refused	0.5	0.2	0.1	0.1
Total	100.0	100.0	100.0	100.0

Data source: ERASS 2006

For those who recorded an increase in participation, a follow-up question was asked about the reason for the increase. For the pre-Games sample the Commonwealth Games did not feature as a reason for the change in any state except South Australia, where it was indicated as a

<sup>1</sup> The 2006 ERASS report indicates that the post-Games interviews were conducted in May 2006 and November 2006, but it is assumed that this was a misprint and it should have been August 2006. NB. A revised version of the 2006 ERASS report was published to correct errors caused by use of the wrong population figures, but the revised version does not include the Commonwealth Games-related data.

reason by one per cent of respondents. For the post-Games sample the only state where the Games were mentioned as a reason for the change was Victoria, but again the proportion was only one per cent.

Additional questions were asked about dropping activities and the taking up of new activities in the last year and reasons for doing so: approximately 25 per cent of respondents took up a new activity and 20 per cent dropped an activity. As with the earlier time-related questions, there were no significant differences between the pre-Games and post-Games interviews, no significant difference between Victoria and the other states and the Commonwealth Games did not feature as a reason for the changes.

This approach produces an interesting by-product concerning sport behaviour generally: if 25 per cent take up a new activity each year while 20 per cent drop an activity, this should result in a healthy growth in overall participation but, as we have seen, this is not the case. Further analysis of these results would obviously be desirable to establish the extent to which the changes reflect participants swapping activities and the extent to which they reflect new recruits into sport and the loss of participants from sport

Finally, respondents were asked whether the hosting of the Commonwealth Games made them feel more or less positive towards Australia. Only 1-2 per cent felt less positive, and around two thirds felt the same, the proportions who felt more positive are shown in Table 8. It can be seen that there was a post-Games increase in the proportion with a more positive attitude in four of the states and Victoria had a significantly higher proportion and a larger increase than the other states.

**Table 8. Effect of hosting of Commonwealth Games on attitude towards Australia**

	NSW	Qld	SA	Tas	Vic	WA	Aust.
	% with 'more positive' attitude						
Pre-Games interviews	30.0	26.7	28.5	22.9	31.3	26.3	29.0
Post-Games interviews	29.9	26.9	32.7	28.7	40.9	29.9	32.2

In general, this analysis provides no evidence that the Commonwealth Games had a positive impact on sports participation in Australia, or the host state Victoria. This is reinforced by direct questioning. The games coincided with a marginal decline in levels of participation in sport in Australia so there is of course the possibility that the hosting of the Games prevented a more substantial decline, but again, there is no evidence available to support this proposition.

### *Children*

Much of the rhetoric concerning the trickle down effect refers to children as the group most likely to be inspired to take up sport as a result of a country hosting or taking part in a major international sporting event. But most of the survey activity devoted to sports participation excludes young people aged under 15 years, while some excludes those aged under 18 years. As indicated in Table 1, the ABS conducted surveys of children's leisure activities in 2000, 2003, 2006, and 2009, with methodology basically unchanged. While this enables comparisons over time to be made, the timing of the surveys means that no research was carried out on the immediate impact, if any, of any of the three major events discussed in this

paper. In each case, the ‘before’ survey was conducted in the year of the event and the ‘after’ survey three years after the event.

The information collected refers to participation at least once in the previous two weeks and the previous year in organized sporting activity outside of school hours and organized by a club, association or school. Excluding participation in school hours is likely to understate levels of participation for some children. Unlike the adult surveys, informal activity is excluded, however, information is collected on informal skate boarding and rollerblading and bike riding in the previous two weeks among ‘other leisure activities’.

Table 9 presents a summary data from the children’s surveys in 2000 and 2003, with details provided in Appendix C. Contrary to popular opinion, the picture presented is one of modest increases in children’s overall participation rate in sport over the whole period. As with the adult data, to determine whether this reflects an increase in sporting activity would require examination of frequency and duration, which is beyond the scope of this paper.

The results for the period 2000-2003 reinforce the post-2000 adult findings in showing an overall increase in sports participation, but in the case of children the increase is largely in Olympic rather than non-Olympic sports, lending some support to the idea that the Olympic games might inspire young people to take part.

**Table 9. Participation in sport by children aged 5-14, Australia, 2000-03**

	Olympic sports	Non-Olympic sports
Number of sports showing an increase 2000-03	10	4
Number of sports showing a decrease 2000-03	3	6
Number of sports showing no change 2000-03	4	7
Change in aggregate participation rates 2000-03	+6.7	-0.7

Source: see Appendix C

Regarding rugby and the World Cup, the children’s participation rate rose from 1.3 per cent in 2003 to 2.1 per cent in 2006, supporting the adult findings that the World Cup may have had an impact. But, curiously, rugby league, which is a keen competitor of rugby union in the recruitment of young participants, experienced an even greater increase in participation rate in this period, from 2.9 per cent to 4.2 per cent.

The period 2006-2009 continued the trend, with Olympic and Commonwealth sports generally experiencing greater growth than other sports, thus, unlike the adult data, providing some support for the proposition that the Melbourne Commonwealth Games may have had an impact on children’s participation.

## Conclusions

This study offers mixed conclusions regarding the relationship between hosting major international sporting events and grassroots sport participation in the host community. The analysis of the Sydney 2000 Olympic Games suggests that there may have been a positive effect on sports participation overall but, curiously, for adults, non-Olympic sports rather than Olympic sports experienced stronger increases. For children Olympic sports did better, lending some support to the idea that the Olympic Games may be effective in inspiring young

people to take up sport. This analysis, however, offers a more important lesson: that changing the design of data collection instruments at a key time in the 'before and after' research process makes it virtually impossible to draw valid conclusions from the data collected.

The Rugby World Cup offers the most straightforward conclusions. There is a clear indication that the hosting of the event may have boosted participation in the sport. But this was against the background of increasing participation. Thus the effects of the recruitment and promotional activities of the Australian Rugby Union, both in relation to and independent of the World Cup must be taken into account. This is the subject of another component of the current research programme (Ref. supplied). This provides the second lesson from this research: that changes in participation levels are unlikely to be solely related to the hosting of an international sporting event, they are likely to be dependent on a range of other factors, particularly sports governing bodies and the providers of facilities.

In regard to the Melbourne Commonwealth Games, the analysis provides no evidence to support the proposition that they boosted sports participation in Australia or the host state of Victoria. This analysis raises a third lesson, that the level of sports participation is a dynamic phenomenon subject to numerous influences, of which participation in and hosting of international sporting events is but one. To understand the influence of this one factor it is necessary to establish a fuller understanding of the whole system and this requires a commitment of appropriate resources monitoring and analysis over the long-term.

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## Appendix A: Analysis of ABS & ERASS data, 1999-2000

The two ABS surveys carried out in 1999-2000 and 2001-02 produce overall substantially lower levels of participation than the editions of ERASS in 2001 and 2002. To compare the 'before' situation (ABS 1999-2000 – column D) with the 'after' situation (ERASS 2001 – column F), the ABS 1999-2000 survey has been weighted by the ratios (column C) of ERASS 2002 (column A) to ABS/GSS 2002 (column B) to produce weighted estimates of 1999-00 participation rates (column E).

There is not an exact correspondence between ABS/ERASS activity categories and Olympic sports, some judgement has been made, for example:

- While there is no Olympic sport called 'aerobics/fitness', it seems to embrace such activities as gymnastics, running and weight lifting in an informal way, as well as the training necessary to participate seriously in any sport; and in so far as the Olympic Games might have a general effect on people's desire to participate, get fit, etc., it seems reasonable to assume that many would respond by increasing participation in general fitness activities rather than a specific Olympic sport. It is for these reasons that it has been included among the Olympic sports.
- Similarly 'running' is included as an Olympic sport, even though the majority of activity recorded under this heading will be recreational/fitness running, since athletics/track and field is separately recorded.
- Indoor hockey, yoga and bush-walking were included in ERASS but not separately identified in the ABS survey; but are included here for completeness.

	A	B	C	D	E	F	G	H
	ABS	ERASS	Ratio	Age	ABS	ABS 2000	ERASS	Change
	2002	2002		correction	2000	Corrected	2001	
	%	%		%	%	%	%	%
			B/A			E x C + D		G-F
<b>Olympic sports</b>								
Swimming	10.9	14.9	1.37	0.10	13.9	19.1	16.0	-3.1
Aerobics/fitness	10.9	14.6	1.34	-0.16	10.5	13.9	13.0	-0.9
Cycling	5.7	9.3	1.63	0.11	4.9	8.1	9.5	1.4
Tennis	6.8	8.2	1.21	0.26	7.4	9.2	9.2	0.0
Running	4.6	7.6	1.65	0.22	4.7	8.0	7.2	-0.8
Soccer (outdoor)	2.6	4.5	1.73	1.01	1.4	3.4	3.7	0.3
Basketball	2.4	4.0	1.67	0.79	2.3	4.6	3.5	-1.1
Weight-training	0.9	2.2	2.44	-0.08	1.3	3.1	2.9	-0.2
Martial arts	1.5	2.1	1.40	0.21	2.2	3.3	2.1	-1.2
Volleyball	1.1	1.9	1.73	0.34	1.1	2.2	1.7	-0.5
Horse riding/equest	0.9	1.2	1.33	0.05	1.6	2.2	1.5	-0.7
Hockey (outdoor)	0.5	0.9	1.80	0.26	0.5	1.2	1.0	-0.2
Sailing	0.7	0.9	1.29	-0.03	1.0	1.3	1.0	-0.3
Athletics/track & field	0.2	0.7	3.50	0.50	0.1	0.9	0.7	-0.2
Badminton	0.6	0.7	1.17	0.13	0.6	0.8	0.6	-0.2
Canoeing/kayaking	0.5	0.7	1.40	0.06	0.7	1.0	0.7	-0.3
Softball	0.3	0.7	2.33	0.33	0.3	1.0	0.8	-0.2
Table tennis	0.6	0.6	1.00	0.01	1.2	1.2	0.5	-0.7
Rowing	0.4	0.4	1.00	0.00	0.2	0.2	0.4	0.2



Shooting sports	0.6	0.4	0.67	0.00	0.6	0.4	0.4	0.0
Triathlon	0.3	0.4	1.33	-0.01	0.2	0.3	0.2	-0.1
Baseball	0.3	0.3	1.00	0.02	0.1	0.1	0.3	0.2
Boxing	0.3	0.3	1.00	0.10	0.3	0.4	0.4	0.0
Gymnastics	0.3	0.3	1.00	0.02	0.3	0.3	0.4	0.1
Aggregate: Olympic						86.2	77.7	-8.5
<b>Non-Olympic sports</b>								
Walking (other)	25.3	30.8	1.22	-1.46	18.8	21.4	28.8	7.4
Golf	7.5	8.7	1.16	-0.44	9.6	10.7	8.2	-2.5
Fishing	3.5	2.3	0.66	-0.10	5.3	3.4	2.4	-1.0
Netball	3.1	4.1	1.32	0.77	2.7	4.3	4.1	-0.2
Cricket (outdoor)	2.5	3.0	1.20	0.44	1.9	2.7	2.7	0.0
Aust. Rules football	2.1	2.5	1.19	0.48	1.4	2.2	2.3	0.1
Yoga	2.1	3.0	1.43	0.07	0.0	0.1	1.5	1.4
Surf sports	2.0	2.2	1.10	-0.02	2.1	2.3	2.4	0.1
Lawn bowls	1.9	2.3	1.21	-0.14	2.7	3.1	1.9	-1.2
Dancing	1.8	2.1	1.17	0.18	0.9	1.2	2.0	0.8
Squash/racquetball	1.7	2.3	1.35	0.03	2.0	2.7	2.2	-0.5
Touch football	1.7	2.4	1.41	0.39	1.4	2.4	2.7	0.3
Cricket (indoor)	0.9	1.2	1.33	0.15	0.8	1.2	1.3	0.1
Ice/snow sports	0.9	1.6	1.78	0.03	1.4	2.5	1.3	-1.2
Motor sports	0.9	0.9	1.00	0.12	0.5	0.6	1.0	0.4
Soccer (indoor)	0.9	1.9	2.11	0.32	0.4	1.2	1.2	0.0
Tenpin bowling	0.9	0.8	0.89	0.01	2.9	2.6	1.0	-1.6
Waterski etc.	0.9	0.9	1.00	0.01	1.1	1.1	1.2	0.1
Rugby league	0.7	1.0	1.43	0.34	0.7	1.3	1.1	-0.2
Roller sports	0.6	0.8	1.33	0.21	0.4	0.7	0.9	0.2
Rugby union	0.6	0.7	1.17	-0.08	0.3	0.3	0.6	0.3
Carpetbowls	0.5	0.4	0.80	-0.75	0.4	-0.4	0.4	0.8
Rock climbing	0.5	0.8	1.60	0.10	0.4	0.7	0.8	0.1
Scuba diving	0.4	0.5	1.25	-0.04	1.1	1.3	0.5	-0.8
Aquarobics	0.3	0.9	3.00	-0.10	0.7	2.0	0.9	-1.1
Darts	0.3	0.2	0.67	-0.03	0.9	0.6	0.2	-0.4
Hockey (indoor)	0.2	0.2	1.00	0.06	0.2	0.3	0.2	-0.1
Aggregate: Non-Olympic						72.6	73.8	1.2
Aggregate: total						158.8	151.5	-7.3

Data source: ABS and ERASS, see Table 1

**Appendix B. Participation in individual activities, 2005-2007, Victoria**

	2005	2006	2007	Change 2005-07
<b>Commonwealth Games activities</b>	%	%	%	%
Aerobics/fitness	19.8	20.5	20.8	+1.0
Swimming	13.9	11.8	11.3	-2.6
Cycling	11.5	12.0	10.7	-0.8
Running	8.8	7.7	8.7	-0.1
Basketball	5.1	4.8	3.5	-1.6
Netball	4.4	3.5	3.8	-0.6
Weight training	2.5	3.5	2.3	-0.2
Lawn bowls	2.3	1.8	1.8	-0.5
Badminton	1.0	1.3	0.8	-0.2
Squash	1.0	1.6	1.1	+0.1
Table tennis	1.0	0.9	0.5	-0.5
Shooting sports	0.7	0.6	0.5	-0.2
Hockey (outdoor)	0.6	1.0	0.3	-0.3
Triathlons	0.6	0.3	0.3	-0.3
Athletics/ track & field	0.4	0.5	0.6	+0.2
Boxing	0.4	0.4	0.5	+0.1
Gymnastics	0.3	0.1	0.2	-0.1
Rugby union	0.2	0.1	0.4	+0.2
Aggregate				-6.4
<b>Non-Commonwealth Games activities</b>				
Walking	37.0	37.8	34.0	-3.0
Tennis	8.2	7.8	6.4	-1.8
Golf	7.6	6.9	6.8	-0.8
Australian rules football	6.7	4.5	3.3	-3.4
Bush walking	5.3	4.5	4.6	-0.7
Cricket (outdoor)	4.0	4.0	3.3	-0.7
Yoga	3.6	3.5	3.1	-0.5
Soccer (outdoor)	3.1	3.3	3.6	+0.5
Dancing	2.1	2.7	2.2	+0.1
Ice/snow sports	2.0	1.1	1.1	-0.9
Soccer (indoor)	2.0	2.5	1.6	-0.4
Surf sports	2.0	1.1	1.2	-0.8
Fishing	1.7	1.3	1.4	-0.3
Martial arts	1.6	1.4	1.7	+0.1
Horse riding	1.1	1.5	0.7	-0.4
Aquarobics	1.0	1.1	1.0	0.0
Tenpin bowling	1.0	0.9	0.6	-0.4
Volleyball	1.0	1.0	0.7	-0.3
Waterskiing / powerboating	1.0	1.0	0.4	-0.6
Roller sports	0.8	0.7	0.6	-0.2
Sailing	0.8	0.5	0.5	-0.3
Cricket (indoor)	0.7	1.3	0.8	+0.1
Motor sports	0.7	1.0	1.1	+0.4
Baseball	0.4	0.3	0.2	-0.2
Rock climbing	0.4	0.4	0.3	-0.1
Canoeing / kayaking	0.3	0.2	0.7	+0.4
Carpet bowls	0.3	0.3	0.3	0.0
Rowing	0.3	0.4	0.5	+0.2
Scuba diving	0.3	0.3	0.4	0.1
Touch football	0.3	0.3	0.4	+0.1
Softball	0.2	0.2	0.3	+0.1

Rugby league	0.1	0.3	0.2	+0.1
Aggregate			152.2	-13.7

Data source: ERASS, see Table 1

### Appendix C. Organised activity in last year, 2000-2009, Children aged 5-14, Australia

	2000	2003	2006	2009
	% participating, outside school hours			
<i>Olympic sports</i>				
Aerobics/fitness	0.5	0.3	<b>0.7</b>	0.4
Athletics	3.9	3.8	2.9	<b>3.3</b>
Badminton	0.2	0.2	<b>0.3</b>	0.3
Basketball	7.6	<b>7.7</b>	6.6	<b>7.4</b>
Cycling	0.5	0.3	0.3	0.3
Gymnastics	2.6	<b>3.5</b>	3.5	<b>4.6</b>
Hockey	2.4	<b>2.5</b>	1.9	<b>2.1</b>
Horse riding	1.2	1.2	<b>1.5</b>	1.3
Martial arts	4.0	<b>4.9</b>	4.5	<b>5.7</b>
Rowing	0.2	0.2	0.2	<b>0.3</b>
Running/jogging	0.3	0.3	na	na
Sailing	0.3	<b>0.4</b>	0.3	<b>0.4</b>
Soccer (outdoor)	11.4	<b>13.4</b>	<b>13.2</b>	13.2
Softball	1.0	<b>1.7</b>	1.0	<b>1.4</b>
Swimming	14.4	<b>16.6</b>	17.4	<b>18.5</b>
Table tennis	0.1	na	na	na
Tennis	8.5	<b>8.6</b>	7.3	<b>7.9</b>
Volleyball	0.3	<b>0.5</b>	0.4	0.4
Aggregate Olympic sports	59.4	<b>66.1</b>	<b>62.0</b>	<b>67.5</b>
<i>Non-Olympic sports</i>				
Aust. Rules football	6.6	<b>7.3</b>	7.5	<b>8.6</b>
Baseball	1.7	0.9	0.7	0.4
Cricket (indoor)	0.3	0.3	<b>0.5</b>	<b>0.7</b>
Cricket (outdoor)	5.3	5.0	<b>5.4</b>	5.2
Golf	1.0	1.0	0.9	0.7
Ice/snow sports	0.2	0.2	<b>0.5</b>	0.4
Netball	9.1	9.1	8.5	8.4
Roller sports	0.2	0.2	0.2	0.1
Rugby league	3.6	2.9	<b>4.2</b>	3.6
Rugby union	1.4	1.3	<b>2.1</b>	2.0
Soccer (indoor)	0.9	<b>1.2</b>	<b>2.2</b>	<b>2.8</b>
Squash	0.3	0.2	0.2	<b>0.3</b>
Surf lifesaving	0.8	<b>1.1</b>	0.9	<b>1.3</b>
Surf sports	0.3	0.3	<b>0.4</b>	0.4
Tenpin bowling	0.6	0.3	0.5	0.1
Touch football	1.3	<b>1.6</b>	<b>1.7</b>	1.7
Water polo	0.2	0.2	0.2	<b>0.4</b>
Aggregate non-Olympic sports	33.8	33.1	<b>36.6</b>	<b>37.1</b>
All sport (participation in at least one)	64.0	<b>66.7</b>	<b>67.9</b>	<b>68.7</b>
<i>Informal activity in last 2 weeks</i>				
Skateboarding & rollerblading	30.9	22.8	<b>23.6</b>	<b>49.3</b>
Bike riding	63.8	62.1	<b>67.8</b>	60.4

Numbers in bold indicate an increase over the previous survey.

Data source: ABS children's surveys: see Table 1.

