Relative Age Effects

in Australian Junior Rugby Union

A thesis submitted for the degree

Master of Arts in Sport Studies (Research)

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Declaration

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Peter Damian Fernley

Date Submitted

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Preface

This is a thesis submitted for the degree of Master of Arts in Sports Studies, at the University of Technology, Sydney. This thesis, titled ‘Relative Age Effects in Elite Junior Rugby Union in Australia’, contains four chapters. Firstly, an introduction is provided to describe the background of this thesis, state the research problem, and detail the aims of research. An extensive review of literature is then included, detailing all previous work relevant to this research area. Next, a research study chapter is provided, outlining the various parts of the study, together with an analysis and discussion of the data. Finally, a summary chapter reports all major findings and draws attention to suggested areas for future research.

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Keywords

Relative Age Effects

Maturation

Adolescence

Performance Potential

Nature

Nurture

Talent

Contextual Factors

Perceived Competence

List of Abbreviations

RAE	Relative Age Effects
ABS	Australian Bureau of Statistics
ARF	Australian Rules Football
IRB	International Rugby Board
N	Number
CI	Confidence Interval
p	Statistical significance
Jan	January
Mar	March
Apr	April
Jul	July
Sept	September
Oct	October
Dec	December
Q1 – Q4	Quartile 1 up to and including Quartile 4
H1	First half (6 months) of the year
H2	Second half (6 months) of the year
U16	Under 16 years
U20	Under 20 years
Rugby	Rugby Union
UTS	University of Technology, Sydney

Abstract

Each of the four codes of professional football played in Australia (i.e., Rugby Union, Rugby League, Australian Rules Football and Soccer) is faced with the dilemma of identifying and developing talented young athletes into elite senior players. One of the key difficulties faced by talent scouts, coaches and selectors is identifying talented young individuals during adolescence. Individual differences in the timing and tempo of the maturation process, which are most visible during puberty, can have a significant impact on all aspects of sporting performance and resultant judgements of talented players. With junior and youth teams organised according to chronological age-groupings, inequalities related to perceptions of playing ability are likely to emerge between individuals based on when in a calendar year they are born. These inequalities have become known as 'Relative Age Effects', with young players born earlier in a selection year gaining advantages over their later-born counterparts. These advantages include more playing time, a perception of possessing more talent and a subsequent increase in the probability of gaining selection in elite representative teams.

The purpose of the first part of this investigation was to examine whether a relative age effect was present in a cohort of elite junior rugby union players competing at the annual national U16 championships. Individual birth-date data and playing position was recorded for each participant at the championships over a seven-year period (2004 – 2010). Chi-square statistics were used to examine differences between observed and expected birth date distributions in all players and general playing positions (forwards and backs). Comparison of birth date distributions between players in the 1st (top 8 teams) and 2nd division (bottom 4 teams) was also conducted. Odds ratios (ORs) and 95% confidence intervals (CIs) were also calculated for both quartile and half-year distributions (H1 and H2). For the OR analyses, the relatively

youngest members, (i.e. quartile 4 and H2 respectively) of the annual age-groupings were assigned as referent groups.

The second part of the investigation examined whether increasing age and skill levels would act as moderators of relative age effects in talented Australian rugby union players. Individual birth-date data was obtained for Australian U20 teams from 2008 to 2011. Birth-date distributions for this group were then compared to distributions from the U16 national championships for the equivalent time period (i.e. 2004 - 2007). Chi-square statistics were again used to examine differences between observed and expected birth date distributions in all players to determine the size of the relative age effect in the U20's teams and to the compare these results with those from the U16 group. ORs and CIs were also calculated for both quartile and half-year distributions (H1 and H2). For the OR analyses, the relatively youngest members, (i.e. quartile 4 and H2, respectively) of the annual age-groupings were assigned as referent groups. Player retention along the development pathway was also examined, with selection to Australian schoolboys teams observed as the intermediate step from U16 championships to the Australian U20 team.

The main finding from the first part of the investigation was the presence of a strong relative age effect within the cohort of elite junior rugby union players. The birth-date distribution was significantly biased towards a higher number of births earlier in the selection year. There was also a significant underrepresentation from players born in the fourth quarter of the year. This study also found that birth date distributions were influenced by age and skill level, but not playing position. A stronger age bias was observed for players from the division one teams competing at the U16 championships, with a larger disparity between players born in the first and last quarters of the selection year than in division two. Playing position did not appear to impact on the birth date distribution. Even though there was a strong

overrepresentation of players born in the first half of the year for both forward and backline playing positions, the percentage breakdown for each group were similar. The second part of the investigation showed there was a strong retention of players along the developmental pathway from the U16 age group through to the Australian U20 Junior World Cup team. These findings suggest that increasing age does not appear to act as a moderator of relative age effects in talented Australian rugby union players.

In conclusion, the results of this study demonstrated the presence of a strong relative age effect in a group of elite U16 rugby players. This biased birth date distribution also appeared along the developmental pathway until the Australian U20 team. On the basis of these findings, it is recommended that current selection processes require modification to assist with minimising and/or eliminating the various factors that have led to their development in elite junior rugby union teams.