The contribution of organised sports to physical activity in Australia: Results and directions from the Active Healthy Kids Australia 2014 Report Card on physical activity for children and young people

Stewart A. Vella, Natasha K. Schranz, Melanie Davern, Louise L. Hardy, Andrew P. Hills, Philip J. Morgan, Ronald C. Plotnikoff, Grant Tomkinson

Abstract
Youth participation in organised sport and physical activity is important for healthy development, growth and wellbeing. In 2014, Active Healthy Kids Australia released its inaugural Report Card on Physical Activity for Children and Young People, which synthesised the best available national- and state-level data for children and young people (<18 years). This paper provides a more detailed examination of the evidence informing the grade for Organised Sport from the 2014 Report Card, compares Australia’s Organised Sport grade with other countries, identifies future directions for research and surveillance, and explores possible beneficial strategies. The Report Card highlighted that between 64% and 85% of Australians aged 5–17 years participate in organised sports, a rate higher than alternate forms of physical activity such as active transportation, active play and school based physical activity. This finding reflects Australia’s position as one of the global leaders for participating in organised sport. Future research and surveillance methodologies however, need to incorporate standardised metrics that aim to capture more detailed data regarding organised sport participation. Facilitating access for all children and preventing dropout from organised sports are important initiatives to improve current levels of sport participation. However, given that 80% of Australians aged 5–17 years are not sufficiently physically active to achieve the daily recommendation, participation in sport alone is not enough to ensure that children can accrue the health benefits associated with being physically active. As such, there is a pressing need to develop strategies that engage children in other forms of physical activity such as active transportation and active play.

© 2015 Sports Medicine Australia. Published by Elsevier Ltd. All rights reserved.

1. Introduction
Sport occupies a prominent place in the Australian national identity. The number one indicator of national pride in Australia is international sporting achievements,1 which is reflected in the large number of Australians aged 5–17 years (64–85%) who participate in some form of organised sport.2 Organised youth sports are adult-controlled and led programmes with children and young people typically attending training and competitive fixtures under the formal guidance and supervision of an adult leader, most often the coach.3 While current figures show Australia is a leading nation in youth sports participation, compared to other developed and developing countries with reported participation rates of 20–59%,4 it is still concerning that about one third of young Australians do not participate in any form of organised sport or physical activity.2 National data show that Australian children who participate in organised sports have better health-related quality of life and mental health than their non-participating peers.5,6 However, analyses of the overall physical activity levels of Australian children unequivocally demonstrate that sport is not enough as the sole
outlet for physical activity with less than 20% of Australians aged 5–17 years meeting the recommended Australian physical activity guidelines.²

2. Physical activity and sport: Are they the same and why are both important?

Physical activity is “any bodily movement produced by skeletal muscles that results in energy expenditure”, however physical activity and sport are not synonymous. Physical activity can be divided into components, including: leisure-time; occupational (e.g., physical education participation at school); transport (e.g., walking to and from different destinations); and domestic (e.g., household chores) related activity, with sport a sub-set of leisure time physical activity. Therefore the health benefits associated with physical activity during childhood and adolescence, including benefits to blood pressure, metabolic syndrome, adiposity, skeletal and mental health, and reduced risk of chronic diseases such as heart disease and Type-2 diabetes¹⁰ are also indirectly associated with the physical activity young people engage in while participating in organised sports.

Organised sports participation during childhood and adolescence however, is also associated with important psychosocial benefits including increased self-esteem, wellbeing and social skills.¹³ Sport has the potential to provide children with the opportunity to engage with their peers and learn teamwork and negotiation skills; to develop self-discipline; to learn how to work within the rules, regulations and etiquette of a social system; to develop decision-making skills; and to cumulatively acquire transferable movement skills that gives them a sense of movement competence and confidence.¹² It has been estimated that organised sports contribute between 23% and 60% of Australian children’s (6–12 years) daily physical activity time¹³ and up to 60% of daily activity energy expenditure during adolescence (9–16 years).¹⁴ The Global Advocacy for Physical Activity has identified participation in sports as one of the seven worldwide “investments that work” for improving physical activity levels,¹⁵ and it has been suggested that if every child participated regularly in two distinct organised sports per year, the prevalence of obesity in childhood could be reduced by 20%.¹⁶ Further, research undertaken in a nationally-representative sample of Australian children showed that participation in organised sports for at least two years was associated with a clinically significant increase in health-related quality of life and a 10–20% reduction in risk of being diagnosed with a psychiatric disorder relative to children who do not participate.⁶

3. What is the Physical Activity Report Card and what is its purpose?

Active Healthy Kids Canada has released a Report Card on Physical Activity for Children and Youth annually for the past 10 years.¹⁷ The Report Card is a translation of knowledge on surveillance, policy and research related to physical activity of children and youth, which aims to inform stakeholders of the epidemiology of children’s physical activity, guide programmes, messages and policies to promote and support physical activity, and highlight where high quality national data are lacking for specific indicators. The Active Healthy Kids initiative has now expanded to 15 countries from five continents, including Australia, resulting in the development of country report cards. In 2014, Active Healthy Kids Australia (AHKA, www.activehealthykidsaustralia.com.au) produced the first evidence-informed Australian Report Card on Physical Activity for Children and Young People.² The AHKA Report Card is a synthesis of the best available national and state-level evidence across 12 physical activity indicators, which were interpreted by a national Research Working Group (RWG) comprising 24 physical activity and health experts from 10 Australian Universities and research institutes. The data (nationally representative datasets were primarily used) were evaluated by the RWG (purposeful discussions occurred before the expert panel reached a consensus) based on pre-determined weighting criteria in order to assign letter grades to each of the indicators using a quintile-based grading framework.²

The indicators include individual behaviours contributing to overall physical activity levels (Organised Sport and Physical Activity Participation, Physical Education and Physical Activity Participation in Schools, Active Play, Active Transportation, and Sedentary Behaviours), settings and sources of influence (Family and Peers, School, Community and the Built Environment), strategies and investments (Government Strategies and Investments), and traits (Aerobic Fitness, Movement Skills) (Fig. 1). A summary of the Report Card results and the specific survey characteristics for each of the primary national data sources used have been published elsewhere.²,¹⁸

A prominent finding from the 2014 Report Card was that Overall Physical Activity Levels was graded ‘D’ minus (−), on the basis of national evidence indicating that only 19% of 5–17 year olds met the recommended Australian physical activity guideline of at least 60 min of moderate-to-vigorous physical activity every day.²,¹⁸ While similar grades were allocated to other behaviours (e.g. Active Transportation was graded ‘D’), Organised Sport Participation was graded ‘B’–, based on estimates that about two-thirds of young Australians engage in some form of organised sport each year. In comparison to international participation rates, this grade represents a national strength and highlights the potential of organised sports to facilitate healthy growth, development, and wellbeing of Australian children and young people. However, it is unclear why there is a substantial gap between organised sports and other indicators of physical activity in Australia. Organised sports are potentially an important aspect to be included within a national preventative health priority, focused on increasing overall physical activity levels, with over 2.5 million children participating in organised sports nationwide.¹⁹ The objectives of this paper were to: (1) provide a more detailed examination of the evidence informing the Organised Sport grade from the 2014 AHKA report card (2) explore other important national research and surveillance findings in the area of organised sports; (3) provide a comparison of Australian data to that of other countries; (4) provide suggestions for future research and surveillance; (5) suggest ways in which we can improve the grade for Organised Sport; (6) discuss ‘Is Sport Enough?’ in the context of overall physical activity levels; and, (7) describe the limitations of the Report Card methodologies and findings.

4. Summary of the evidence used to grade the participation levels of Australian children and young people in organised sports

The core metric used to assess participation in organised sport was “the proportion of Australian children and young people participating in organised sport at least once over the past 12 months [both in and outside of school]” and the grade assigned was reflective of the synthesis of several large national data sets that report a range of participation rates, with variations potentially highlighting measurement inconsistencies. For example, the Australian Bureau of Statistics (ABS) estimated that 64% of Australians aged 5–17 years participated in organised sports over the past 7 days.²¹ Another nationally-representative sample of Australian secondary school students aged 12–17 years showed that 85% participated in organised sports across the past 12 months.²² Estimates for younger
children aged 6–7 years suggest that 74% had participated in organised sports (at least once per week for the duration of an entire sporting season) in the past 12 months, increasing to 79% for children aged 11–12 years. In the absence of consistent measures and subsequent variations in reported participation rates, organised Sport was assigned a B grade. This reflects the likelihood that the overall organised sports participation rate for Australians aged 5–17 years is between 64% and 85%. From these findings and those of the other physical activity behaviours assessed by the Report Card, it seems a larger proportion of young Australians participate in organised sport than other physical activity behaviours such as active transport (graded a D) and active play (graded an Incomplete).

5. Findings based on additional national and state-based sources

The ABS report the overall organised sport participation rates of Australians aged 5–14 years has remained relatively stable over the last 15 years. In the year 2000, 64% of children participated in organised sports, 68% in 2006, and 66% in 2012. However, when examining state-based data, it appears there has been an increase in sports participation in some states. For example in South Australia participation in organised sports among 9–13 year olds increased from 57% to 68% between 1985 and 2013. In Victoria, the increase in participation among this age group was reported to be 57% in 1985 to 92% in 2001. Similarly, in New South Wales the median time spent in organised sports significantly increased during summer and winter school terms among 12–16 year olds boys and girls between 1997 and 2004. Large variability in state-based estimates and inconsistencies with national data highlight the need for standardised national surveillance measures to eliminate methodological inconsistencies and enable inter-jurisdictional comparisons. Also, given the lack of current data for some of the above-mentioned states, it is important that new surveys be conducted to determine recent time trends in participation rates.

While cross-sectional surveillance data can help to ascertain population estimates of participation, these data are limited because they cannot shed light on important behaviours including dropout, maintenance, and commencement rates. Data from the Longitudinal Study of Australian Children (LSAC) show that 12% of all sports participants at age 8 had dropped out by age 10. On the other hand, 47% of all nonparticipants at age 8 had commenced sport participation by age 10. These fluctuations are masked by...
the overall participation rate remaining steady at 79% at both age 8 and age 10.5

National surveillance data indicate that participation rates in organised sport rise throughout childhood (5–11 years) and decline during adolescence.13 Participation rates are slightly higher for girls than for boys aged 5–8 years, but higher for boys from age 9 and throughout adolescence.15 Girls aged 5–8 years spend more time in organised sports (including dance) per week than age-matched boys (approximately 2 h 9 min vs. 1 h 51 min).15 In contrast, boys aged 12–17 years spend more time in organised sports per week than age-matched girls (8 h 23 min vs. 6 h 13 min).15 However, it is important to note that a large proportion of the time that children spend participating in organised sport is spent being inactive (e.g., listening to instructions from the coach, game stoppages, poorly designed activities that require minimal movement and long waiting periods, etc.). Sport contributes to an average of 45% (approximately 43 min) of MVPA each day and approximately 58% of MVPA energy expenditure,14 with a greater percentage of MVPA present in practice sessions (20 min per hour) than competitive games (18 min per hour).29 Finally, research suggests that access and affordability of sports may be an important barrier to participation.30 Using LSAC data, indicators of social disadvantage, such as low household income and a primary language other than English, predicted both non-participation and dropout from organised sports during childhood.30 Together, these variables successfully predicted 83% of cases of sports participation and 90% of cases of dropout at a two-year follow-up.

6. Comparison to other countries

The 2014 Physical Activity Report Card was released alongside the 14 other country report cards as part of a “Global Matrix” of grades released at the Global Summit on Physical Activity for Children in Toronto, Canada, in May 2014. All country report cards graded nine core indicators of physical activity using a standardised methodology and reporting process (e.g., the metric used to assess Organised Sport was ‘the proportion of children and youth who participate in organised sport and/or physical activity programmes’). The coordinated release of data allowed for international comparison of grades and activity levels across 15 developed and developing countries. The full range of global grades for Organised Sport Participation is given in Table 1. While most countries received a grade of ‘C’ with about half of children participating in organised sport, New Zealand (B) and Australia (B−) are leading the world with well over half of children participating in organised sport. It is probable that this good grade for Australia will continue, with evidence of increases (~5% point per decade) in the prevalence of children who regularly participate in organised sport in recent decades25–27 (see previous section). Interestingly, analysis of Table 1 reveals that the grades for Organised Sport Participation are strongly and positively related to the grades for Community and the Built Environment (rho = 0.65, p = 0.03). This relationship makes sense because community infrastructure, policies, programmes, space, safety and supervision are important factors that may positively affect organised sports participation.4

For example, the availability of sporting facilities close to home and in a safe neighbourhood may be an important facilitator of organised sports participation at the population level. There was a consensus across countries that more and better quality data are needed on the quality of organised sports programmes, as well as on the frequency, intensity, and duration of physical activity associated with organised sports participation.4

7. Future directions for research and surveillance

The inconsistency in measurement of physical activity behaviours across Australian states and territories is detrimental when determining estimates of organised sports participation as well as other physical activity domains. The Australian Physical Activity Report Card highlighted this significant issue and a key recommendation of the Report Card’s RWG was to address measurement issues. Accelerometry, despite providing objective estimates, is not the sole solution as it does not provide contextual information to estimate children’s participation in different domains of physical activity, including participation in organised sports. Rather, consensus across jurisdictions on a standardised measure or multiple measures is required: a problem not unique to Australia.

The RWG recommends that national surveillance should measure the proportion of Australian children and young people participating in organised team/individual sports at least every 3 years (to fit with the pre-existing national data collection cycle). To (1) promote consistency in national surveillance; (2) assess only those who participate consistently (e.g., throughout an entire sporting season); (3) capture the participation rates in both individual and team sports, given the differential health effects; and (4) capture the participation rates both within and outside of school. It is recommended the following items be used to monitor participation in organised sports outside of school: “Have you/has your child participated in organised team sports (e.g., basketball, football, netball) on a regular basis outside of school (at least once per week for at least 3 months or an entire sporting season) over the past year?”; and “Have you/has your child participated in organised individual sports (e.g., martial arts, dance) on a regular basis outside of school (at least once per week for at least 3 months or an entire sporting season) over the past year?”

To more fully understand and delineate the health benefits of participation in organised sport and physical activity, it is also recommended that objective measures of physical activity be used. Along with observational data (in both practice and competitive settings), this will enable quantification of intensity and duration of physical activity during participation in organised sports. These data will be valuable alongside other health indicators such as health-related quality of life, psychosocial measures and biomarkers of cardiometabolic diseases. This information may also guide public understanding of why sports may be insufficient by themselves to provide enough physical activity for minimum health benefits. More longitudinal data are also required to reliably track children’s engagement with organised sports over time.
preventing dropout, and the association between organised sport participation and physical and mental health outcomes, and the influence of the quality of sporting experience (e.g., coach quality, motivational climate) on physical activity and physical and mental health outcomes. It is also important to examine whether young people are involved in a single sport or multiple sports at each time point, and the time spent in sport, to determine dose-response relationships between sports participation and health outcomes.

Due to demonstrable health benefits associated with participation in organised sports, preventing dropout from youth sport should be considered a public health priority. The gross health-care savings attributable to maintaining participation in organised sports are approximately $1.49 billion per year in Australia. More attention is also warranted to assess the contribution of lifestyle and action sports such as BMX riding, skateboarding and rock climbing. Despite claims that the popularity of these sports is rising, data remain scant. As reported by the Australian Sports Commission, these sports are likely to attract more participants through generational change and have a higher ‘visibility’ as a result of their online prevalence. The health benefits of these particular sports, however, are unknown and given the lack of data at present it is unclear the best way to capture participation in such sports.

8. Improving the grade

Sport occupies a prominent place in the Australian national identity, but despite Australia being one of the leading countries worldwide in terms of participation, 25–35% of young Australians (5–17 years) do not participate in organised sports. An important opportunity exists to leverage the significant national interest in sports to promote greater participation through direct and indirect means. Direct means include increasing access to organised sports and preventing dropout, while indirect measures include the provision of good quality physical education during primary school, which predicts participation in organised sports at a national level. Affordability and access to organised sports needs to be addressed to ensure socially disadvantaged groups have equitable access to good quality sporting programmes.

This may include a decrease in the cost of sports participation through government assistance, or providing community sporting programmes in low socioeconomic areas. Twelve percent of Australian children (approx. 300,000 individuals) drop out of organised sports between the ages of 10 and 12 years, and this is likely to increase with age. Therefore, programmes and/or strategies that are designed to increase retention in organised sports and also aim to improve the quality and increase the quantity of physical activity encountered by children when participating in organised sports, should be supported by policies at the national, state and community levels. For example, young Australians who participate in Australian Rules Football and Football (soccer) do so without the accumulation of competition points. Such measures are hypothesised to reduce stress and anxiety in sports, support the acquisition of basic skills, and lead to higher rates of enjoyment.

Indirect measures such as the addition of good quality PE during primary school is also an important strategy. The use of specialist PE teachers during primary school has been shown to predict participation in organised sports at a national level. This is perhaps because specialist PE teachers or highly trained classroom teachers are able to facilitate greater sport-related outcomes such as higher levels of physical activity, fitness, and fundamental movement skills when compared with untrained teachers, and are therefore more likely to facilitate successful and motivated participation in organised sports. Non-specialist PE teachers do not have the relevant expertise to facilitate these outcomes and experience significant barriers to teaching PE. Other indirect measures include initiatives to increase the quality of the sporting experience, such as coach training. Coach behaviours and the coach-created motivational climate are salient predictors of dropout from organised youth sports. Coach training aimed at helping coaches to facilitate motivating climates has shown that dropout can be reduced by 80% and this would have substantial economic and public health benefits if applied nationally. However, current coaching accreditation courses do not include relevant information to allow coaches to promote physical activity or to prevent dropout from organised sports and in addition many sporting associations/organisations do not enforce mandatory coaching courses, especially for primary school sports.

9. Is sport enough?

It is encouraging that a large proportion of young Australians participate in organised sport. It is also important that attempts are being made at the community, state and national levels to standardise research and surveillance methodologies and improve the grade through various programmes, policies and strategies. However, as mentioned previously, sport is only one component of physical activity therefore in order to improve the Overall Physical Activity Levels of young Australians, we need to acknowledge that sport alone is not enough. It is imperative that we encourage, support and facilitate the incorporation of more physical activity throughout their everyday life such as using active transport to and from school; allowing children to engage in unstructured indoor and outdoor play at both school and home; and breaking up long periods of sedentary time whilst limiting time engaged in electronic media. Improving the physical activity levels of children and young people when participating in organised sports is also an important factor to consider moving forward.

10. Limitations of the Report Card methodology and its findings

The 2014 AHKA Report Card is based upon the best available national- and state-level data but there are methodological limitations that need to be noted. The heterogeneity of data collection methodologies (e.g., self-report, proxy-report CAtI) and instruments/questionnaires (e.g., difference in questions, recall periods) is a limitation as different methods and instruments can produce different estimates. The use of self-report data is also a limitation, however population monitoring typically relies on self-report data due to the expense and expertise required for objective monitoring. The strength of self-report data however is that contextual information can be collected which is not available from objective measures such as accelerometers.

Secondly, each of the core metrics were based upon self-report data due to the lack of high quality nationally representative objective data across each of the indicators. This prevented the RWG from assessing the quality of the activity being performed (e.g., while we know that approximately two-thirds of young Australians participate in organised sport, we do not know how active they are when they participate). Lastly, each of the 15 country report cards released at the 2014 Global Summit used standardised methodology and reporting process; however the level of the evidence used to inform grades varied between countries. For example, while some countries used objectively measured data, most used self-reported questionnaire data. These limitations highlight the need for standardised measures (and where possible the use of objective measures) at both the national and international levels.
11. Conclusion

It is estimated that over two-thirds of Australian children participate in sport, however less than 20% meet daily physical activity recommendations. While sport provides many health and psycho-social benefits to children, it is clearly not enough. The AHKA 2014 Report Card on Physical Activity for Children and Young People has highlighted evidence gaps including a lack of participation information (e.g., drop-outs, and commences of participation), limited surveillance data across state jurisdictions, and measurement differences. Facilitating access to, and preventing dropout from, organised sports for all young Australians is an important public health issue to improve health now and in the future. However, a greater focus is needed on facilitating higher levels of physical activity outside of organised sports to promote public health, including active transportation, good quality physical education and active play.

Acknowledgements

We would like to thank all other members of the Research Working Group for their assistance and guidance during the production of the 2014 Report Card. Prof Tim Olds, Dr Dylan Cliff, Dr Lina Engelen, Prof Billie Giles-Corti, Dr Sjaan Gomersall, Dr Kylie Hesketh, A Prof David Lubans, Prof Dune Macdonald, Ms Rona Macivren, Prof Tony Okely, Dr Anne-Maree Parrish, A Prof Trevor Shilton, Prof Leon Straker, A Prof Anna Timperio, Prof Stewart Trost and Jenny Ziviani.

The 2014 Report Card used unit record data from the Growing Up in Australia, the Longitudinal Study of Australian Children. The study is conducted in partnership between the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), the Australian Institute of Family Studies (AIFS) and the Australian Bureau of Statistics (ABS). The findings and views reported in this paper are those of the author and should not be attributed to the FaHCSIA, the AIFS or the ABS. It also used unit-record data from the National Secondary Students’ Diet and Activity (NaSSDA) survey. We acknowledge that the NaSSDA survey was funded by Cancer Council Australia and the National Heart Foundation of Australia.

We would like to acknowledge that author RCP is funded by a Salary Award from the National Health & Medical Research Council of Australia (GNT1023602).

References

11. Rosewater A. Learning to play and learning to play: organized sports and educa-
12. Wickel EE, Eisenmann JC. Contribution of youth sport to total daily phys-
39(9):1493–1506.
and-physical-activity/national-secondary-students-diet-and-physical-activity
-survey.html.
22. Australian Institute of Family Studies. Growing Up in Australia, Melbourne, Lon-
gitudinal Study of Australian Children (LSAC), 2011.
27. Vella SA, Clift DP, Okely AD et al. Associations between organized sports par-
37. Sallis JF, McKenzie TL, Alcaraz J et al. The effects of a 2-year physical educa-
38. Morgan P, Barnett L, Clift D et al. Fundamental movement skill interven-