Participation and Dropout of Hockey New South Wales Participants in 2017 and 2018: A Longitudinal Study

Katherine B Owen (✉ Katherine.owen@sydney.edu.au)

SPRINTER, Prevention Research Collaboration, The University of Sydney

Bridget C Foley

SPRINTER, Prevention Research Collaboration, The University of Sydney

Rochelle Eime

Federation University

Catriona Rose

SPRINTER, Prevention Research Collaboration, The University of Sydney

Lindsey J Reece

SPRINTER, Prevention Research Collaboration, The University of Sydney

Research Article

Keywords: Sport, physical activity, drop out, adolescents, children, adults

Posted Date: August 23rd, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-805654/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background

Sports have a focus on increasing participation, which contributes to increasing population levels of physical activity, social cohesion and longevity of the sport. The primary aim of this study was to examine reasons for drop-out of a popular team sport in Australia, Field Hockey and identify opportunities to increase participation.

Methods

This longitudinal study obtained routinely collected registered player data from Hockey New South Wales over two consecutive years, and survey data from registered players who dropped out. Logistic regression models identified demographic subgroups who were more likely to drop out of sport, and the reasons for dropping out.

Results

In 2018, 8,463 (31%) of hockey players did not return to play hockey after the previous season and 805 (10%) of these completed a survey. Specific groups who were more likely to stop playing included 5–6 years (OR: 2.1, 95% CIs 1.8, 2.6; reference: 12–17 years), females (OR: 1.1, 95% CIs 1.3, 1.2; reference: males), Indigenous (OR: 1.2, 95% CIs 1.1, 1.4; reference: non-indigenous), most disadvantaged (OR: 1.1, 95% CIs 1.0, 1.2; reference: least disadvantaged) or regional and remote (1.1, 95% CIs 1.0, 1.2; reference: major cities). Top reasons for drop out were; medical/age (17%), change in circumstances (16%) and high cost (13%), lack of time (13%) and lack of enjoyment (7%).

Conclusions

This research makes recommendations to sport on how to reduce dropout and specifically amongst 5–6 year olds, females, Indigenous, disadvantaged and regional or remote areas through enjoyable flexible, modifiable versions of the game.

Background

Regular participation in physical activity provides various physical and mental health benefits for all age groups [1, 2]. The benefits of team sport extend further than those of individual types of physical activity, as a result of the additional psychological and social benefits of being part of a team or sports club [2]. For children and adolescents, the social nature of team sport improves self-esteem, social skills, confidence, competence and reduces depressive symptoms [2]. For adults, sport participation within a team can provide emotional social support, sense of belonging, higher self-esteem, social network and

reduce stress and anxiety [3]. On a community level, sport can contribute by bringing the community together and increasing social cohesion in crisis situations (e.g. COVID-19) [4]. In Australia, it is estimated that sport creates over \$29 billion of benefits through reduced healthcare costs and reduced early mortality annually [5]. It is therefore critical for economic, social and health benefits to increase sport participation.

The World Health Organisation has recognised that sport is a central element of increasing population levels of physical activity [6]. Increasing physical activity within each sport is a specific focus of sports governing organisations. Studies examining sport participation have found that participation peaks at around 10–11 years [7–9], and then declines throughout adolescence [10] and adulthood [7, 9]. This peak can partially be explained by children tending to sample multiple sports, and then at approximately 13 years, choosing one sport to specialise in, or dropping out altogether [10]. The main reasons associated with drop out among children are a lack of physical or sport competence and limited enjoyment of sport [11]. Children who have higher perceived competence or actual competence are more likely to enjoy the sport and be intrinsically motivated. Intrinsic motivation exists when the behaviour is viewed as interesting or enjoyable and leads to long-term participation [12]. The development and implementation of strategic actions which address these reasons are required to reduce sport drop out.

Designing effective national and sub-national sports policy and participation strategies continues to be a challenge in Australia due to a historical lack of sport participation data that is representative of all Australian's participating in sport. With some exceptions [e.g., 7], most studies are limited to small self-report samples that are subject to response bias [13]. Sport specific registration data is effectively a census of all members and can provide valuable information about participation trends. Furthermore, sport-specific registration data is currently underutilised and, if used critically, could inform national sport policy and participation strategies [7].

Field hockey is a popular sport worldwide and in Australia, with approximately 65,000 Australians playing each year and one quarter of these playing in New South Wales (NSW) [9]. Field hockey can be played by people of all ages and all levels of ability and involves being physically active, hand-eye coordination, motor skills, communication and teamwork. Unlike many sports, field hockey can be played on multiple surfaces, some specialised for the sport (watered turf, artificial/synthetic field), and others multi-purpose (grass, indoor boarded surface). To play field hockey, equipment is required including a hockey stick and protective gear (e.g., mouth guard and shin pads). Existing field hockey research tends to focus on elite athletes [e.g., 14], rather than the population participation. Research on community-level participation is crucial to increase participation in sport and subsequently, population levels of physical activity. The aim of this study was to examine participation and drop-out of field hockey in NSW using longitudinal data that is representative of hockey participants. Secondly, this study explored the reasons for drop-out to inform strategies that Hockey NSW and other sporting organisations could use to reduce drop-out.

Methods

This longitudinal study obtained routinely collected participant registration data from Hockey NSW over two consecutive years, and a cross-sectional survey. The University of Sydney Human Research Ethics Committee granted ethics approval for this study (Protocol number: 2020/732).

A field hockey participant was defined as a participant registered with Hockey NSW, the peak body for Field Hockey in NSW. Hockey NSW provided routinely collected participant registration data for all hockey participants in 2017 and 2018. Routinely collected registration data included their unique sport membership ID, and the compulsory questions asked at registration including date of birth, sex, parent's country of birth, disability status (Yes/No/Do not wish to disclose), Indigenous status (Yes/No/ Do not wish to disclose), and residential postcode. This data is a census of most field hockey participants in NSW and includes all ages (i.e., juniors, adults, masters and seniors) and all versions of the game (i.e., indoor and outdoor school competitions, and modified versions).

Postcode of residence was used to determine socioeconomic status (SES) using the Socio-Economic Index for Area (SEIFA), specifically the Index of Relative Socio-Economic Disadvantage [15]. SEIFA ranks regions in Australia based on relative socioeconomic disadvantage into percentiles, which were converted into quartiles ranging from 1 (most disadvantaged) to 4 (least disadvantaged). Postcode was also used to categorise location (i.e., metropolitan vs regional and remote areas) using the Accessibility and Remoteness Index of Australia [16].

Players who participated in 2017 and did not register and participate in 2018, were categorised as having dropped out of field hockey participation through linking the Hockey NSW 2017 and 2018 data. These members (n = 8,463) were invited to participate in an online survey by Hockey NSW during September 2018. The survey included six multiple choice questions which were created by Hockey NSW, each with an optional 'other' free text box. The survey questions that asked about reasons for dropping out (e.g., "What is the main reason for no longer playing hockey?") and strategies that hockey organisations could use to increase participation (e.g., "We really miss you, what is the one thing hockey could do to get you back?"). Participation was voluntary and members who participated were entered in a draw to win one of 2x \$100 Sport gift cards.

Data analysis

Descriptive statistics, including frequencies and proportions were calculated for participants in 2017 and 2018. The 2017 and 2018 registration data was linked using participant's unique player registration ID. Those who dropped out of Hockey were identified and the odds of dropping out for each demographic characteristic were calculated using logistic regression models. All analyses were performed in SAS Enterprise Guide 9.4 (SAS Institute, Cary, NC, USA).

Results

Demographic characteristics of Hockey NSW participants in 2018

The total number of participants was similar across 2017 (N = 27,534) and 2018 (N = 26,826) (Table 1). Of these, almost half were aged 0–17 years (2017: 47%; 2018: 46%) and more than half were females (2017 and 2018: 58%). Some participants identified as Indigenous (2017: 5%; 2018: 4%) or having a disability (2017 and 2018: 1%). A greater proportion of participants lived in least disadvantaged areas (2017: 24%; 2018: 25%) compared with the most disadvantaged areas (2017: 15%; 2018: 16%).

Table 1
Hockey NSW registration demographics and the odds of dropping out in the 2018 season

	2017 registrations		2018 registrations		Odds of dropping out in 2018
	N	%	N	%	OR (95% CIs)
All registrants	27,534	100	26,826	100	
Age category					
5–6	1,091	4.0	914	3.4	2.1 (1.8, 2.4)
7–11	5,289	19.2	5,076	18.9	0.8 (0.8, 0.9)
12–17	6,547	23.8	6,369	23.7	Reference
18–25	3,944	14.3	3,812	14.2	1.6 (1.4, 1.7)
25–34	3,253	11.8	3,143	11.7	1.3 (1.2, 1.4)
35–44	3,251	11.8	3,185	11.9	0.9 (0.8, 1.0)
45–54	2,739	10.0	2,802	10.5	0.8 (0.7, 0.8)
55–64	1,112	4.0	1,187	4.4	0.6 (0.5, 0.7)
65+	308	1.1	337	1.3	0.9 (0.7, 1.1)
Sex					
Male	11,319	41.1	11,200	41.8	Reference
Female	16,057	58.3	15,535	57.9	1.1 (1.0, 1.2)
Missing	158	0.6	91	0.3	
Country of birth					
Australia	15,213	55.3	21,367	79.7	Reference
Other	2,577	9.4	3,864	14.4	1.3 (0.6, 2.8)
Missing	9,744	35.4	1,595	6.0	
A parent born overseas					
Yes	3,189	11.6	4,855	18.1	1.1 (0.5, 2.2)
No	11,938	43.4	17,075	63.7	Reference
Missing	12,407	45.1	4,896	18.3	
Identified as Indigenous					
Yes	1,231	4.5	1,180	4.4	1.2 (1.1, 1.4)

	2017 registrations		2018 registrations		Odds of dropping out in 2018
	N	%	N	%	OR (95% CIs)
No	25,950	94.3	25,333	94.4	Reference
Missing	353	1.3	313	1.2	
Identified as having a Disability					
Yes	305	1.1	337	1.3	0.7 (0.5, 0.9)
No	26,910	97.7	26,239	97.8	Reference
Missing	319	1.2	250	0.9	
Socio-economic status					
1st quartile (most disadvantaged)	4,244	15.4	4,221	15.7	1.1 (1.0, 1.2)
2nd quartile	9,429	34.2	9,130	34.0	1.1 (1.0, 1.2)
3rd quartile	6,682	24.3	6,550	24.4	1.1 (1.0, 1.1)
4th quartile (least disadvantaged)	6,661	24.2	6,569	24.5	Reference
Missing	518	1.9	356	1.3	
Location					
Major Cities	12,612	45.8	12,358	46.1	Reference
Inner Regional	12,356	44.9	12,048	44.9	1.1 (1.1, 1.2)
Outer Regional and remote	2,124	7.7	2,137	8.0	1.1 (1.0, 1.2)
Missing	442	1.6	283	1.1	

Demographic characteristics of participants who dropped out of hockey in 2018

In 2018, 8,463 (31%) of Hockey NSW players did not return to play hockey after the 2017 season (Table 2). Compared with the 12–17 year age group, the 5–6 year age group were twice as likely to drop out (OR: 2.07, 95% CIs 1.81, 2.35) and the 18–34 year age groups were more likely to drop out of hockey (18–25 OR: 1.55, 95% CIs 1.43, 1.69; 26–34 OR: 1.28, 95% CIs 1.17, 1.40). Females were 9% more likely to drop out compared with males (OR: 1.09, 95% CIs 1.03, 1.15). Participants who identified as Indigenous were 21% more likely to drop out compared to those who did not (OR: 1.21, 95% CIs 1.07, 1.36). Participants with a disability were 32% less likely to drop out compared to those without a disability (OR: 0.68, 95% CIs 0.52, 0.80). Those in disadvantaged area and regional and remote areas were

approximately 10% more likely to drop out (OR: 1.10, 95% CIs 1.01, 1.20 and OR: 1.12, 95% CIs 1.02, 1.24, respectively).

Survey Responses

Of the 8,463 hockey participants who dropped out after the 2017 season, 805 completed a survey (response rate: 9.5%). The response rate increased with age, with the highest rate in the 65 + year age group (28%). Those living in the least disadvantaged areas were also more likely to respond to the survey compared to the most disadvantaged areas (11% vs. 8%).

Table 2
Hockey NSW drop out registration and survey demographics

	2018 registration dropouts		2018 registration dropouts who completed a survey		Response rate
	N	%	N	%	%
All registrants	8,463	100.0	805	100.0	9.5
Age category					
0–17	3,862	45.6	258	32.1	6.7
18–25	1,574	18.6	140	17.4	8.9
26–34	1,152	13.6	88	10.9	7.6
35–44	889	10.5	128	15.9	14.4
45–54	673	8.0	117	14.5	17.4
55–64	231	2.7	51	6.3	22.1
65+	82	1.0	23	2.9	28.0
Sex					
Male	3,321	39.9	330	41.0	9.9
Female	4,993	60.1	475	59.0	9.5
Socio-economic status					
1st quartile (most disadvantaged)	1,316	15.6	111	13.8	8.4
2nd quartile	2,888	34.1	281	34.9	9.7
3rd quartile	2,001	23.6	204	25.3	10.2
4th quartile (least disadvantaged)	1,933	22.8	203	25.2	10.5
Location					
Major Cities	3,657	44.8	384	47.7	10.5
Inner Regional	3,847	47.1	357	44.4	9.3
Outer Regional and remote	667	8.2	62	7.7	9.3
Note. Age was categorised in a multiple-choice question in the survey and therefore cannot be broken down any further.					

Reasons For Drop Out

The most common reasons for dropping out of hockey were medical/age (17%), change in circumstances (16%), high cost/low value (13%), no time (12%) and a loss of interest (7%) (Table 3).

Of those who indicated medical/age explained why they had not returned, 75% elaborated in the free text box and reported an injury, 15% specified an illness and 10% stated increasing age. The odds of reporting medical/age significantly increased with age, with the 55+ year age group being 18 times more likely to drop out for medical/age reasons compared with the 0-17-year age group (OR: 18.4, 95% CIs 8.8, 38.5).

Change in circumstances included moving interstate (61%) or overseas (16%), and pregnancy (23%). Change in circumstance was a more common reason for dropout among 18–34 years compared with 0–17 years (18–25 years OR: 4.3, 95% CIs 2.4, 7.6; 26–34 years OR: 4.5, 95% CIs 2.4, 8.5), for females compared with males (OR: 2.0, 95% CIs 1.3, 3.0), and for outer regional and remote areas compared with major cities (OR: 2.8, 95% CIs 1.6, 5.1).

Participants expanded on high cost and indicated that the cost of participation was too high (81%) and it put a strain on the family budget (19%). High cost was more likely to be reported by 18–44 years compared with 0–17 years (18–25 years: OR 3.3, 95% CIs 1.8, 6.3; 26–34 years OR: 3.7, 95% CIs 1.8, 7.4; 35–44 years OR: 2.3, 95% CIs 1.2, 4.6).

Those who reported they 'lost interest in hockey' (7%) had other recreational commitments (40%), or other sporting commitments (60%). The 0-17-year age group was significantly more likely to report losing interest in hockey compared to all other age groups. The most disadvantaged group were also more likely to report losing interest compared to the least disadvantaged group (OR: 2.4, 95% CIs 1.0, 5.9) and participants living in inner regional areas were more likely to report losing interest compared with participants living in major cities (OR: 2.1, 95% CIs 1.2, 3.9).

Table 3
Odds of reporting the top reasons for drop out by demographic characteristics

	Medical/Age (N = 133; 17%)	Change in circumstances (N = 126; 16%)	High cost (N = 105; 13%)	No time N = 99; 12%)	Loss of interest (N = 57; 7%)
Age category					
0–17	Reference	Reference	Reference	Reference	Reference
18–25	1.8 (0.8, 4.1)	4.3 (2.4, 7.6)	3.3 (1.8, 6.3)	1.2 (0.7, 2.2)	0.2 (0.1, 0.5)
26–34	2.1 (0.8, 5.2)	4.5 (2.4, 8.5)	3.7 (1.8, 7.4)	1.3 (0.7, 2.7)	0.1 (0.0, 0.4)
35–44	5.0 (2.4, 10.3)	2.5 (1.3, 4.6)	2.3 (1.2, 4.6)	1.1 (0.6, 2.1)	0.1 (0.0, 0.4)
45–54	11.5 (5.8, 22.9)	0.8 (0.3, 1.8)	1.8 (0.9, 3.8)	1.4 (0.7, 2.6)	0.2 (0.1, 0.5)
55+	18.4 (8.8, 38.5)	1.0 (0.4, 2.4)	1.4 (0.6, 3.5)	0.3 (0.1, 1.1)	0.1 (0.0, 0.5)
Sex					
Male	Reference	Reference	Reference	Reference	Reference
Female	0.8 (0.6, 1.2)	2.0 (1.3, 3.0)	0.9 (0.6, 1.4)	1.1 (0.7, 1.7)	1.0 (0.6, 1.6)
Socioeconomic status					
1st	1.4 (0.8, 2.6)	0.7 (0.3, 1.4)	1.6 (0.8, 3.1)	0.5 (0.2, 1.0)	2.4 (1.0, 5.9)
2nd	1.3 (0.8, 2.1)	1.3 (0.8, 2.2)	1.4 (0.8, 2.5)	0.7 (0.4, 1.2)	1.2 (0.5, 2.8)
3rd	1.2 (0.7, 2.0)	1.2 (0.7, 2.0)	1.2 (0.7, 2.2)	0.8 (0.4, 1.3)	2.6 (1.2, 5.8)
4th	Reference	Reference	Reference	Reference	Reference
Location					
Major cities	Reference	Reference	Reference	Reference	Reference
Inner Regional	1.10 (0.7, 1.6)	0.8 (0.5, 1.2)	1.4 (0.9, 2.2)	0.6 (0.4, 0.9)	2.1 (1.2, 3.9)
Outer Regional and remote	0.9 (0.4, 1.9)	2.8 (1.6, 5.1)	1.0 (0.4, 2.4)	0.48 (0.2, 1.3)	1.8 (0.6, 5.0)

Strategies To Prevent Drop Out

Hockey participants who dropped out of the sport suggested that Hockey NSW might get them to return to play if they reduced the cost (31%), did nothing at this point in time (15%) or provided additional hockey fields for training and games (9%). Suggesting that hockey should lower the costs was reported by a higher proportion of registrants living in the most disadvantaged areas (35%) compared to those living in the least disadvantaged areas (26%). Half (51%) of the 18-25-year age group reported that lowering the cost of hockey would encourage more people to participate compared with 16% of people in the 0–17 year age group.

Discussion

This study utilized registration data over a two-year period from the main sporting organization for field hockey in NSW, to examine sport participation and dropout. In 2018, 31% of hockey registrants did not return after the 2017 season. Specific groups who were most likely to drop out included 5–6 years and 18–35 years, females, Indigenous, disadvantaged and regional or remote areas. Understanding key demographic groups that do not return to the sport, as well as motives for dropping out, can unlock the potential for new strategic plans and policies to increase participation in hockey, and other sports.

Hockey NSW reaches a large proportion of participants who are underrepresented in sports participation, including females, indigenous, disadvantaged, and regional and remote areas. A positive finding of this study was that females made up 58% of all hockey participants in 2017 and 2018 and were significantly less likely to drop out of hockey compared with men. Reducing the prevalence of inactivity in women, without changing the prevalence in men, would achieve the 2025 WHO global target for inactivity [17]. This is a positive finding and hockey should continue to strive for gender equity within the sport.

Although Hockey NSW successfully reaches a large proportion of underrepresented groups in sport, these groups are more likely to drop out (with the exception of females). To effectively retain these population groups in sport, Hockey NSW (and all sports) should adapt elements of their sport delivery. Staley et al (2019) suggests sports should recruit appropriate product deliverers, build the capacity of the delivery organisation, and develop relevant social sport products which align with the specific needs and characteristics of the target groups [18]. For example, Peralta, Cinelli (19) conducted a sport-based mentoring program with remote Aboriginal communities in Australia. All parts of the program design and evaluation were conducted in consultation with an Aboriginal organisation and Aboriginal community members within each community to ensure that the program met each specific school and student needs. This resulted in the program successfully engaging Aboriginal youth living in remote communities. National and state sporting organisations should consult with community groups that advocate for these underrepresented sections of society to develop sport products that are popular among the cohort and appropriate to their needs.

Hockey participants who reported having a disability were significantly less likely to drop out compared with registrants without a disability. This shows that a person with a disability who registered with Hockey NSW in 2017 was likely to continue playing in 2018; however, they were less likely to register in the first place. Only 1.3% of hockey registrants identified as having a disability, whereas 18% of the Australian population are estimated to have a disability [20]. People living with disabilities face additional barriers to participation in team sports, compared to those without a disability such as a lack of disability-trained coaches/instructors, unwillingness to be inclusive, negative societal attitudes towards disability, and a lack of local opportunities [21]. Through collaboration with disability organisations, state and national sports organisations could develop introductory programs for children with disability that can be delivered in schools, increasing the accessibility of sport to this cohort.

Young children (5–6 years) were significantly more likely to drop out of hockey compared to any other age group. The top reason for dropout among this age group was losing interest because they had other sporting commitments, which is consistent with a recent systematic review [11]. These findings could be partially explained by children of this age sampling multiple different sports before deciding which one they want to specialize and focus on [10]. Ensuring that children enjoy sport and promoting the sampling of different sports could lead to increased long-term sport participation. Adults aged 18–35 were more likely to drop out of hockey than adolescents, where the highest rates of drop out are usually observed.

Cost was a common reason for drop out, particularly for people living in the most disadvantaged areas. This is consistent with the findings of a recent systematic review that identified cost as one of the top barriers to sport [22]. The cost of participating in some sports can be high and often includes registration, uniforms and sporting equipment. Overcoming the cost barrier, while remaining financially viable is a challenge for sports to overcome. Governments can assist sports organisations through the implementing voucher programs and tax rebates which aim to reduce the cost of sports participation. Although promotion of such initiatives to individuals living in disadvantaged areas should be strengthened [23, 24]. Sport voucher programs are only one part of a multi-component, approach to improving accessibility to sport participation, however they may allow organisations to focus on overcoming remaining barriers. National sporting organisations, such as Sport Australia should work with the sector to develop partnerships across government and industries such as health, education, retail, digital and science to create new opportunities for investment in sport.

The strengths of this study include using the registration data over a two-year period from the peak body for field hockey in NSW. Drawing from a sample of approximately 65,000 hockey participants each year, this data set represents most hockey participants in the state. This data is a key asset to interpretation of these findings as it provides an accurate representation of players, and a stronger evidence base for decision making for the sport of field hockey. However, it would be beneficial to collect more than two-years of data to identify different trajectories, such as young children who drop out to trial another sport, and then return to hockey. Future studies should obtain longitudinal data over at least 3 years. The short surveys provide in depth understanding of why participants dropped out and make clear recommendations on how Hockey NSW could try to increase participation. We recommend that surveys

like this one are sent to all hockey members on a longitudinal basis to inform future strategic decisions. Future surveys should use standardised questions to enhance the comparability of the survey data to other sports. However, some caution is warranted when interpreting the survey results as response rates were lower in the younger age groups and most disadvantaged areas.

It is timely to note the impact that COVID has had on community sport, with social and physical distancing measures, lockdowns of small businesses, schools and overall social activities, and disruptions to many regular aspects of life, including sport and physical activity. As these measures and lockdowns begin to lift, understanding how to engage people in sport, maintain their engagement, and preventing drop-out is essential, not just for participant outcomes but sport sustainability.

Conclusions

Increasing and maintaining sport participation is a priority for sports. This research makes explicit recommendations to Hockey NSW on how to maintain engagement amongst children and young adults, females, Indigenous, disadvantaged and regional or remote areas through enjoyable flexible, modifiable versions of the game. Integrated research within the sport online registration data would be an efficient and effective approach for future participation strategies.

Declarations

Ethics approval and consent to participate

The University of Sydney Human Research Ethics Committee granted ethics approval for this secondary data analysis of de-identified data which had been collected by the primary data custodians (Protocol number: 2020/732). Informed consent was inferred by return of a survey. All methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

No funding.

Authors' contributions

KO, BF, CR, RE, and LR contributed to the conception and design of the work. KO performed all analyses and drafted the manuscript. All authors revised the manuscript critically and approved the final version to be submitted.

Acknowledgements

The authors wish to acknowledge Hockey NSW.

References

1. Biddle SJ, Ciacconi S, Thomas G, Vergeer I. Physical activity and mental health in children and adolescents: An updated review of reviews and an analysis of causality. *Psychology of Sport and Exercise*. 2019;42:146–55.
2. Eime R, Young J, Harvey J, Charity M, Payne W. A systematic review of the psychological and social benefits of participation in sport for children and adolescents: informing development of a conceptual model of health through sport. *International journal of behavioral nutrition and physical activity*. 2013;10(1):1–21.
3. Andersen MH, Ottesen L, Thing LF. The social and psychological health outcomes of team sport participation in adults: An integrative review of research. *Scandinavian journal of public health*. 2019;47(8):832–50.
4. Women's Refugee Commission U, and, GRYC. "We believe in youth": global refugee youth consultations final report (<https://www.womensrefugeecommission.org/youth/resources/1385-gryc-final-report-sept-2016>). 2016.
5. Australian Sports Commission. Intergenerational review of Australian sport. Canberra, Australia, The Boston Consulting Group 2017.
6. World Health Organization. Global action plan on physical activity 2018–2030: more active people for a healthier world. Geneva: World Health Organization; 2019.
7. Eime R, Harvey J, Charity M, Casey M, Westerbeek H, Payne W. Age profiles of sport participants. *BMC Sports Sci Med Rehabil*. 2016;8(1):1–10.
8. Vella SA, Schranz NK, Davern M, Hardy LL, Hills AP, Morgan PJ, et al. 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. *Journal of Science and Medicine in Sport*. 2016;19(5):407–12.
9. Sport Australia. AusPlay survey results July 2019 - June 2020. In: Australian Sports Commission, editor. Canberra: Australian Sports Commission;; 2020.
10. Eime R, Harvey J, Charity M. Sport drop-out during adolescence: is it real, or an artefact of sampling behaviour? *International Journal of Sport Policy and Politics*. 2019;11(4):715–26.

11. Crane J, Temple V. A systematic review of dropout from organized sport among children and youth. *European physical education review*. 2015;21(1):114–31.
12. Deci E, Ryan R. *Intrinsic motivation and self-determination in human behavior*. New York and London: Plenum. 1985.
13. Brooks MA, Post EG, Trigsted SM, Schaefer DA, Wichman DM, Watson AM, et al. Knowledge, attitudes, and beliefs of youth club athletes toward sport specialization and sport participation. *Orthopaedic journal of sports medicine*. 2018;6(5):1–8.
14. Delfino Barboza S, Nauta J, van der Pols M, van Mechelen W, Verhagen E. Injuries in Dutch elite field hockey players: a prospective cohort study. *Scandinavian journal of medicine & science in sports*. 2018;28(6):1708–14.
15. Australian Bureau of Statistics. *Census of population and housing: Socio-Economic Indexes for Areas (SEIFA) - Technical paper, 2006 (No.2033.0.55.001)*. Canberra: Australian Bureau of Statistics; 2016.
16. Australian Bureau of Statistics. *Australian Statistical Geography Standard (ASGS): Volume 5 - Remoteness Structure, July 2016*. (Canberra. 1270.0.55.005)2018.
17. Mielke GI, da Silva ICM, Kolbe-Alexander TL, Brown WJ. Shifting the physical inactivity curve worldwide by closing the gender gap. *Sports Medicine*. 2018;48(2):481–9.
18. Staley K, Donaldson A, Randle E, Nicholson M, O'Halloran P, Nelson R, et al. Challenges for sport organisations developing and delivering non-traditional social sport products for insufficiently active populations. *Australian and New Zealand journal of public health*. 2019;43(4):373–81.
19. Peralta L, Cinelli R, Bennie A. Mentoring as a tool to engage Aboriginal youth in remote Australian communities: a qualitative investigation of community members, mentees, teachers, and mentors' perspectives. *Mentoring & Tutoring: Partnership in Learning*. 2018;26(1):30–49.
20. Australian Bureau of Statistics. *Disability, Ageing and Carers, Australia: Summary of Findings*. Retrieved on 1 December 2020 from <https://www.abs.gov.au/statistics/health/disability/disability-ageing-and-carers-australia-summary-findings/2018>; 2018.
21. Shields N, Synnot A. Perceived barriers and facilitators to participation in physical activity for children with disability: a qualitative study. *BMC pediatrics*. 2016;16(1):9.
22. Somerset S, Hoare DJ. Barriers to voluntary participation in sport for children: a systematic review. *BMC pediatrics*. 2018;18(1):1–19.
23. Owen KB, Foley BC, Bauman A, Bellew B, Reece LJ. Parental awareness and engagement in the Active Kids program across socioeconomic groups. *Journal of Science and Medicine in Sport*. 2020;23(8):753–7.
24. Foley BC, Owen KB, Bellew W, Wolfenden L, Reilly K, Bauman AE, et al. Physical Activity Behaviors of Children Who Register for the Universal, State-Wide Active Kids Voucher: Who Did the Voucher Program Reach? *International Journal of Environmental Research and Public Health*. 2020;17(16):5691.