



## AusPlay NSW:

# Participation analysis in structured sport and physical activity amongst Adults

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The SPort & Recreation INTervention & Epidemiology Research (*SPRINTER*) group is a research partnership between the Prevention Research Collaboration, University of Sydney and the NSW Government, Office of Sport. SPRINTER provides leadership and evidence to inform evidence-based decision making.

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## Introduction

Australians who are physically active are happier, healthier, and more productive compared to their sedentary peers. Whilst there is strong evidence of the health and wellbeing benefits of regular participation in physical activity, sport and active recreation throughout life, too few Australians are sufficiently active. Physical activity is defined as **any bodily movement produced by skeletal muscles that results in energy expenditure**<sup>1</sup>. All Australian adults, aged over 18 years old, are recommended to do at least 150 minutes of moderate-to-vigorous intensity physical activity each week. Doing any physical activity is better than doing none but being active on most, preferably all days per week including at least 2 days with muscle strengthening activities is recommended to ensure good health and wellbeing<sup>2</sup>.

According to the Australian Bureau of Statistics, in 2017-18 more than half (55%) of adults were engaged in 150 or more minutes in the last week<sup>3</sup>. However, only 15.0% of these participants met both the physical activity and muscle strengthening aspects of the guidelines. Adults can accumulate their physical activity in a variety of ways. Sport and active recreation offer a valuable contribution to achieving physical activity guidelines, often providing aerobic and muscle strengthening activities during participation. There is, however, an ongoing need to improve state-wide participation rates and understand emerging trends in organised sport and physical activity participation to inform future policy and practice.



<sup>1</sup> World Health Organisation, Global strategy on diet, physical activity and health <http://www.who.int/dietphysicalactivity/pa/en/>

<sup>2</sup> Australia's Physical Activity & Sedentary Behaviour Guidelines for Adults (18-64 years) <https://www1.health.gov.au/internet/main/publishing.nsf/Content/fs-18-64years>

<sup>3</sup> Australian Health Survey 2017-18 <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.001~2017-18~Main%20Features~Physical%20activity~115>

AusPlay is the Australian national population tracking survey funded and led by Sport Australia. The purpose of AusPlay is to provide accurate and reliable information on national trends in sport and physical activity participation. These trends are relevant to monitor progress and inform where targeted actions may be required to increase participation. By enhancing understanding of current participation trends across demographic audiences and activities, it will inform and drive future participation policy and support policy makers across the sport and physical activity sector to make informed strategic and commissioning decisions. It will also make a significant contribution to the existing evidence base for the sector and academic space on the role of sport and physical activity in health and wealth promotion.

### Aim and Purpose

With input from the Sport Australia, SPRINTER, the research partnership between the New South Wales (NSW) Office of Sport and the University of Sydney, conducted a thorough analysis of AusPlay data at the NSW state level. The overall objective of interrogating AusPlay data at the state level is to enhance current understanding of the participation profile of adults<sup>4</sup> in structured sport and active recreation in NSW to inform future state policy.

The purpose of this report is to present the results of a trend analysis of participation and the costs of sport and activity in NSW using 51 months of AusPlay data collected between October 2015 and December 2019.

The report focuses on three core questions:

- 1. How active are NSW adults?** Pages 8-17
- 2. What variety of activities do NSW adults participate in?** Pages 18-29
- 3. What factors influence participation in sport and active recreation of non-participants?** Page 30-31

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<sup>4</sup> Throughout this report, adults are defined as individuals aged 15+ years.

## Our Approach

This analysis used AusPlay survey data for NSW adults, defined as aged 15 years and over, between 1<sup>st</sup> October 2015 to 31<sup>st</sup> December 2019. Data for **22,785** NSW adults were analysed. AusPlay data on participation is collected through telephone interviews using the Sport Australia sampling protocol. Unweighted (raw) frequencies and weighted percentages were calculated by age, sex and socio-economic status (SES) for all **22,785** adults (15+ years) in the dataset. The Australian Bureau of Statistics' Index of Relative Socio-Economic Disadvantage (SIEFA) was used as a proxy for socio-economic status. SEIFA uses a broad definition of relative socio-economic disadvantage and aids understanding of the relative level of social and economic wellbeing of a region. SEIFA is shown in quartiles 1 – 4, with 1 representing the most disadvantaged area and 4 representing the least disadvantaged area. These were also calculated separately for participants (Np=20,220) and non-participants (Nnp=2,565). In AusPlay, a 'participant' is defined as someone who has participated at least once in any physical activity for sport, exercise or recreation in the last 12 months.

To obtain population estimates with accurate standard errors (SE)<sup>5</sup>, statistical procedures which accounted for the survey design, that is stratification<sup>6</sup> and weights<sup>7</sup>, were used (see Appendix for more detail). Estimates of population participation rates were reported for each of the most popular sports and for those participating annually and weekly by age, sex and SES. The weighted median duration of the last session and the weekly duration of physical activity was calculated by age, sex and SES for all adults. Data from this survey were also used to estimate the median annual expenditure on physical activities. A footnote and a glossary of terms is also provided at the end of the report to aid interpretation for the reader.

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<sup>5</sup> SE refers to standard error which is the standard deviation of its sampling distribution or an estimate of the standard deviation

<sup>6</sup> To ensure adequate representation across Australia the sample was stratified into 13 geographic strata based on states and territories with some states further divided into greater capital city area and the rest of the state.

<sup>7</sup> Weights are needed to reduce the bias in survey estimates. Weights are produced to make the sample match the population as closely as possible.

## Results

### Descriptive statistics

Through the AusPlay survey, **22,785** adults in NSW, of which **20,220** participated in physical activities for sport, for exercise, or for recreation during the last 12 months (participants), compared with **2,565** adults that did not (non-participants). The AusPlay participation rates of adults in NSW are like those of all Australians, as shown in table 1.

*Table 1 Demographics of all adult respondents in AusPlay from October 2015 to December 2019.*

	Respondents only from NSW		Participants in NSW		Respondents in Australia		Participants in Australia	
	N = 22,785		N = 20,220		N = 87,111		N = 77,102	
	n	%	n	%	n	%	n	%
<b>Sex</b>								
<b>Men</b>	11,467	49	10,198	49	42,407	49	37,563	49
<b>Women</b>	11,318	51	10,022	51	44,704	51	39,539	51
<b>Age</b>								
<b>15 - 17 years</b>	625	4	595	4	2,301	4	2,170	4
<b>18 - 24 years</b>	2,176	12	1,969	12	7,310	12	6,607	12
<b>25 - 34 years</b>	2,780	18	2,484	18	9,745	18	8,801	18
<b>35 - 44 years</b>	3,132	16	2,838	17	11,285	17	10,235	17
<b>45 - 54 years</b>	3,639	16	3,289	16	13,972	16	12,596	16
<b>55 - 64 years</b>	4,059	15	3,596	14	16,067	14	14,166	14
<b>65 years and overs</b>	6,374	20	5,449	19	26,431	19	22,527	18
<b>Household income</b>								
<b>&lt; \$84, 999</b>	6,007	23	5,132	23	25,994	25	22,265	25
<b>\$85, 000 - 149, 999</b>	3,025	14	2,810	14	12,201	15	11,302	16
<b>\$150, 000+</b>	3,538	17	3,351	18	12,038	16	11,435	17
<b>Refused/ don't know</b>	9,590	42	8,332	41	34,577	40	29,930	39

<b>Socio-economic status #</b>								
<b>1 most disadvantaged</b>	3,714	17	3,065	16	14,315	16	11,883	15
<b>2</b>	5,634	25	4,899	25	18,912	22	16,391	22
<b>3</b>	4,411	19	3,913	19	20,401	24	18,138	24
<b>4 least disadvantaged</b>	8,261	35	7,688	37	30,271	34	28,020	35
<b>Missing</b>	765	4	655	3	3,212	4	2,670	4
<b>Indigenous status</b>								
<b>Aboriginal or Torres Strait Islander</b>	486	2	396	2	1,687	2	1,369	2
<b>No/Refused/don't know</b>	21,674	94	19,229	94	83,123	94	73,563	94
<b>Missing</b>	625	4	595	4	2,301	4	2,170	4
<b>Country of Birth</b>								
<b>Australia</b>	15921	69	14196	69	61760	69	54901	70
<b>Other</b>	5971	26	5204	26	22279	26	19390	25
<b>Missing</b>	893	5	820	5	3072	5	2811	5
<b>Language spoken at home</b>								
<b>English (only)</b>	17934	76	15995	76	71945	79	63999	79
<b>Language other than English</b>	4116	20	3541	19	12478	17	10619	16
<b>Missing</b>	735	4	684	4	2688	4	2484	5

*n* are unweighted, % are weighted. # SEIFA IRSD quartiles were constructed using national percentiles.

## 1. How active are NSW adults?

### Estimated population participation rates

Most adults (**90%**) responding to the AusPlay survey in NSW had taken part in physical activities at least once over the past 12 months; and **83%** reported participating at least once a week (Figure 1). These estimates were based on normalised weights; more detail on these can be found in the appendix.

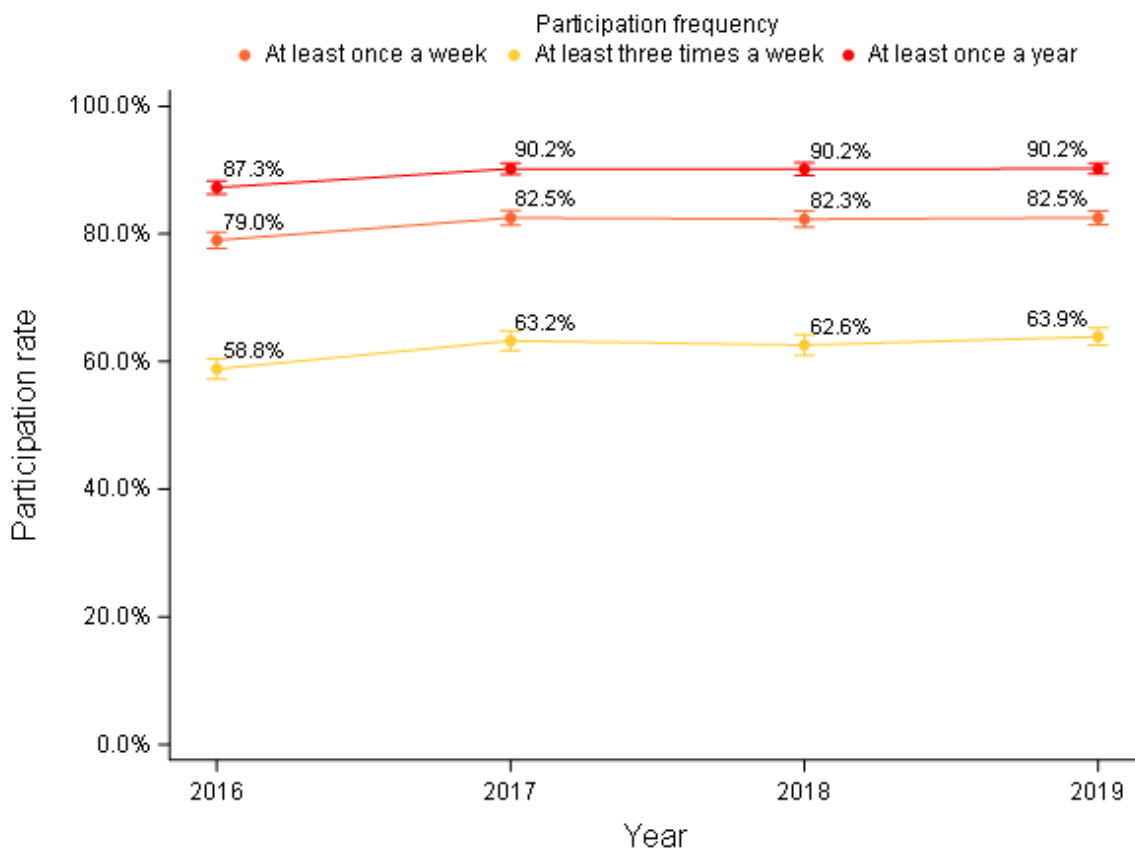


Figure 1 Annual and weekly participation rates in NSW adults



There were between **80%-85%** of adults participating in physical activity once a week across all age groups (Figure 2). Participation rates for at least once a week and once a year display a similar trend, gradually declining with age. However, the proportion of adults who participate at least three time a week increases with age with adults 55+ demonstrating most regular participation in physical activities (Figure 2).

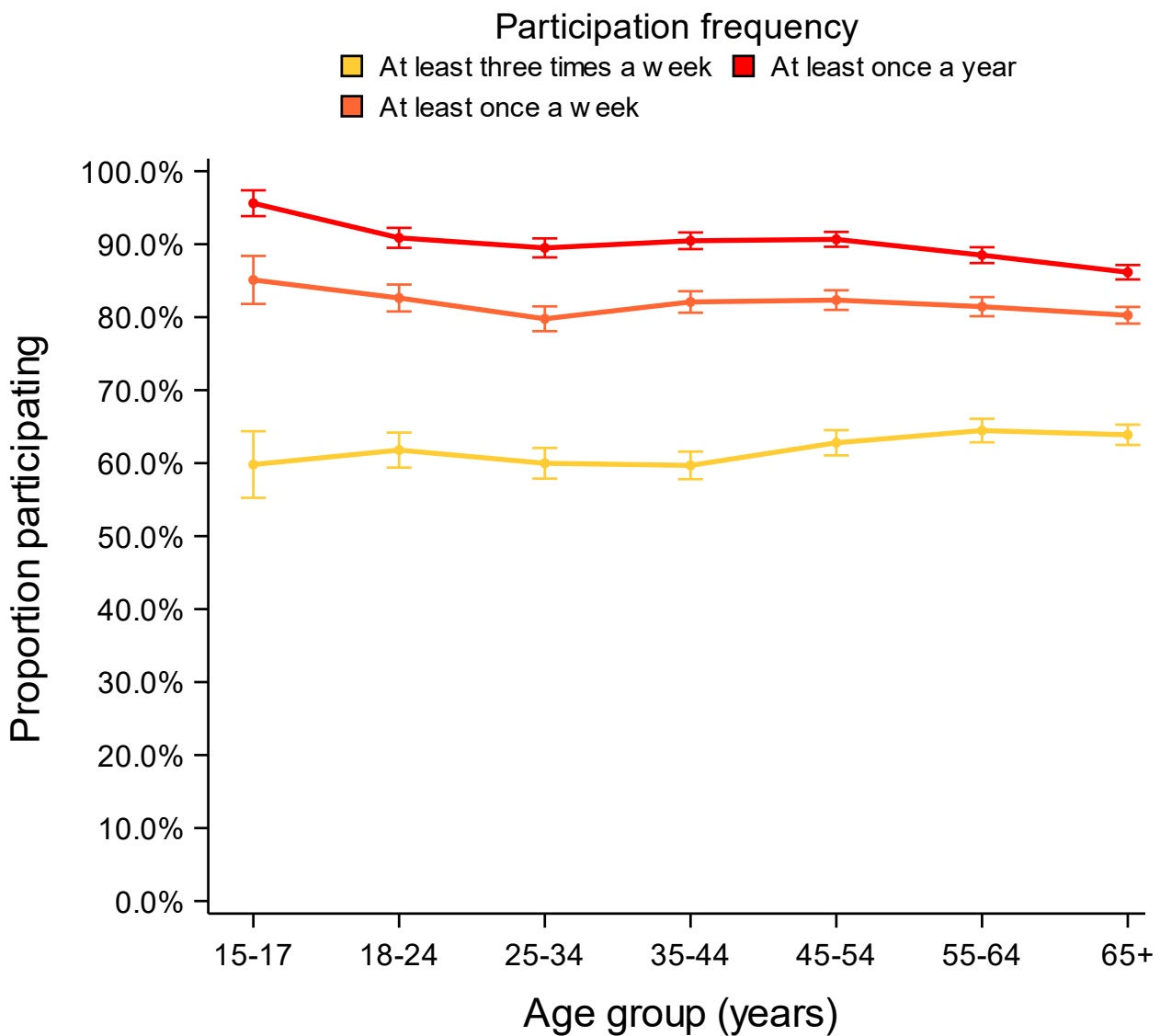


Figure 2 Adult participation by age in NSW

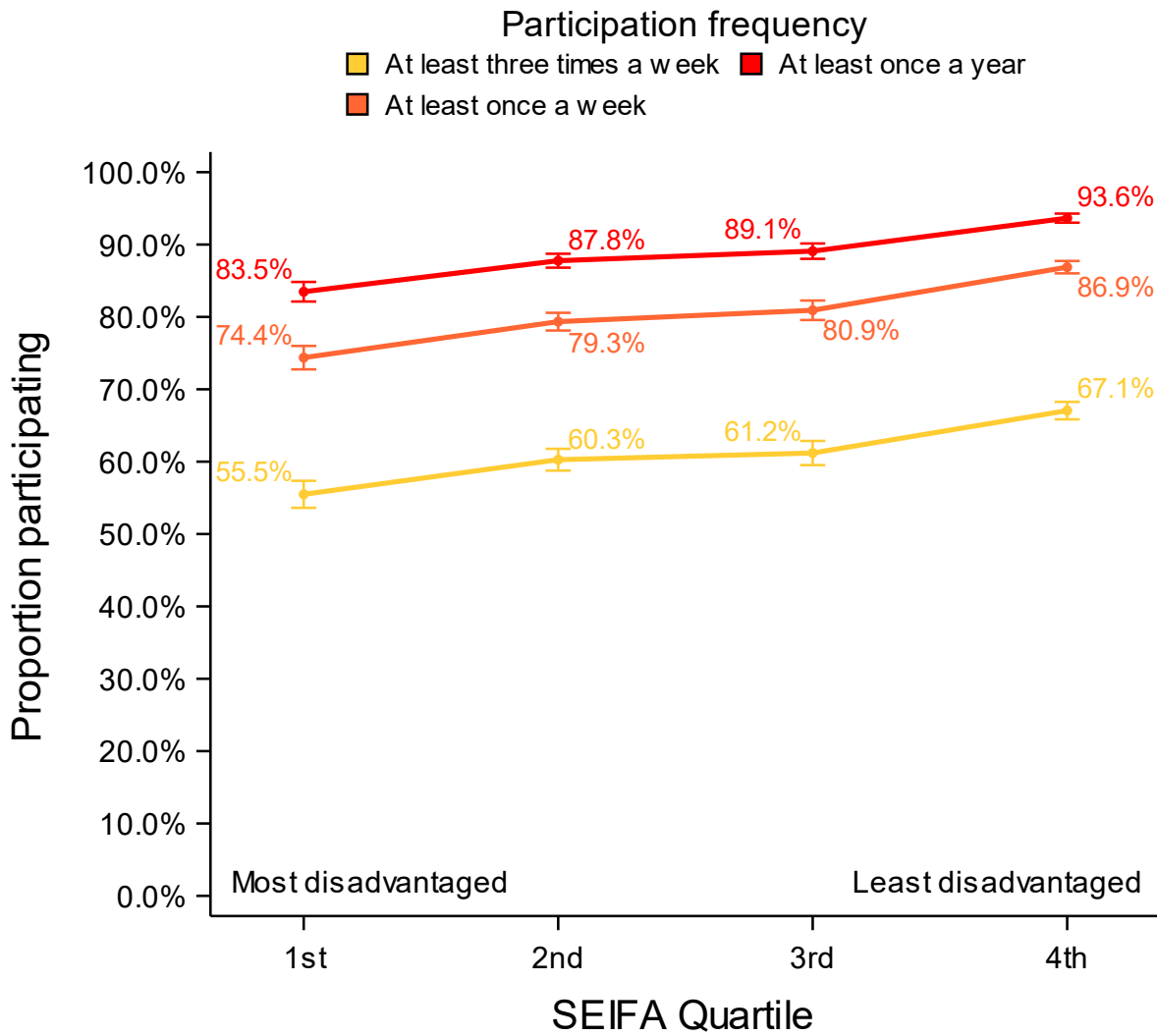
**90% of men and 89% of women participated in physical activity at least once in the last 12 months.**

**80% of men and 83% of women participate in physical activity at least once a week on average.**

Having a country of birth other than Australia was associated with lower rates of participation both weekly and annually. **82%** of adults born in Australia reported participating in structured sport and physical activity once a week compared to **80%** of adults born in a country other than Australia.

Participation rates were also lower for adults who reported speaking languages other than English (LOTE) at home, **78%** of LOTE population compared to **82%** English only speaking adults participated in structured sport and physical activity once a week.

Socio-economic status was associated with changes in NSW adults' participation in physical activity. The approximate linear increase reflects continuous increases in participation rates both annually and weekly across areas of increased socio-economic advantage. Those living in the most disadvantaged areas have the lowest participation rates. **74%** of adults in the most disadvantaged quartile reported weekly participation compared to **87%** adults living in least disadvantage (Figure 3). The indicator for disadvantage (SEIFA IRSD) ranks areas using a complex matrix considering income, education, employment, occupation, housing and other miscellaneous variables of relative disadvantage. As disadvantage in these variables reduces, participation in physical activities increases.



*Figure 3 Participation rates of NSW Adults across quartiles of socio-economic status*

### Meeting physical activity guidelines

Overall, **68%** of NSW adults achieved on average, 150 minutes of physical activity per week through physical activity and structured sport (Figure 4). Due to different physical activity guidelines for children, the 15-17 year old age group is separated from the trend line in Figure 4. Significantly less 15-17 year olds meet their guidelines for health, compared to adults.

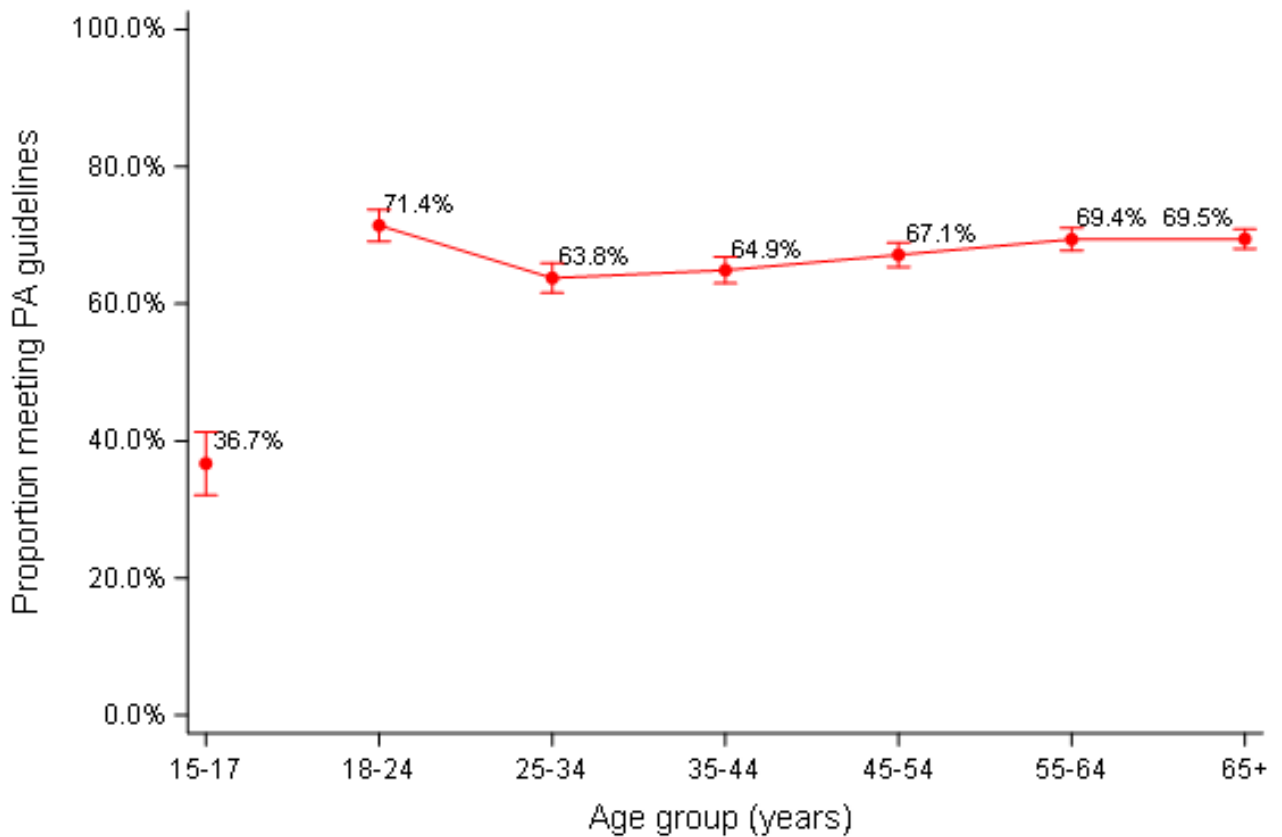


Figure 4 Proportion of adults meeting physical activity (PA) guidelines

### Duration of participation in activity

The duration of the last session was reported for all activities participated in during the last 12 months. An average duration of weekly activity was calculated (for details see Appendix). The median session duration reported was 60 minutes and the median weekly duration was **232 minutes** of participation in physical activities. These results are within the recommended range of minutes (150-300 minutes) for achieving health and wellbeing benefits. Over the past 4 years, duration of sessions has remained similar (Figure 5).

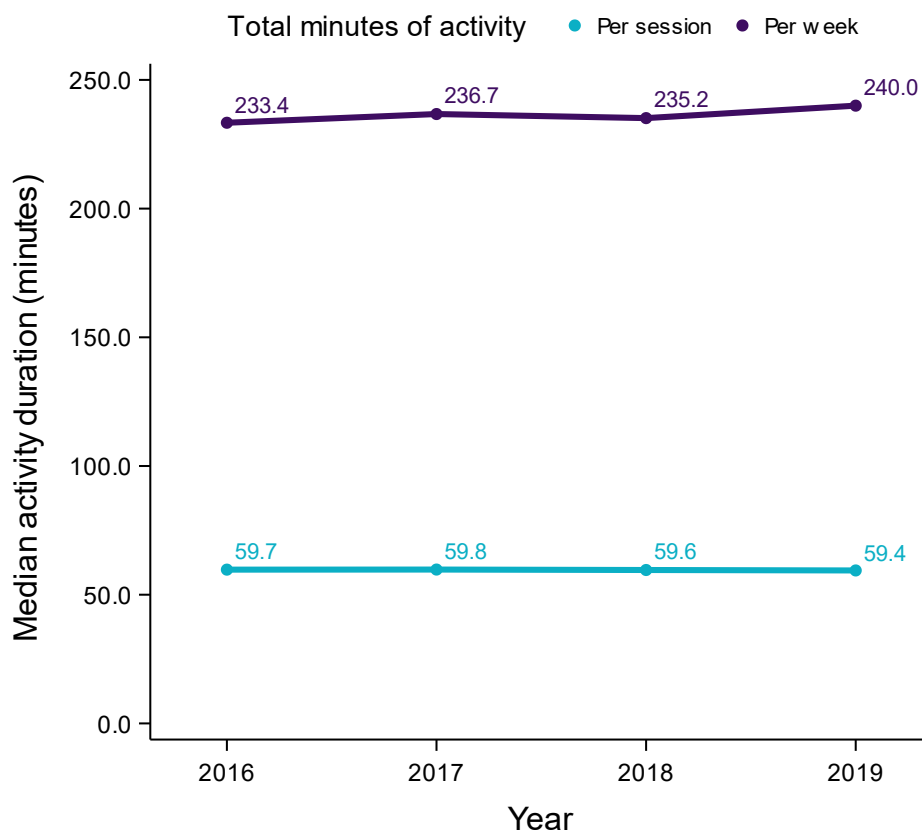
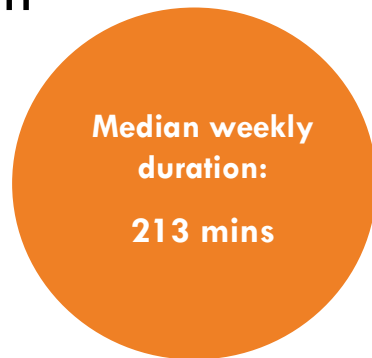


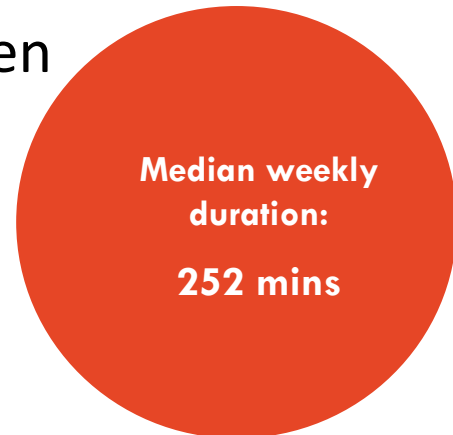
Figure 5 Time spent on activity

For all adults, sex influenced the median number of minutes you participate in a physical activity.

Women



Men



Throughout adulthood, men and women's weekly session duration showed great variation and followed different trends by age group. The median weekly activity duration was mainly higher for men, except during the 45-54 age group when women achieved slightly higher durations than men, doing **230** and **226 minutes** per week respectively (Figure 4). After this brief period of equitable participation, median weekly session duration divides again with men increasing to similar levels to young adults (18-24 years) after 55 years of age, while women's weekly participation declines (Figure 6).

Although the median minutes varied, men consistently participated for more minutes per session across all age groups (Figure 6). The median duration of one session of activity, the last one before participating in the survey, was **70 minutes** for men and **56 minutes** for women.

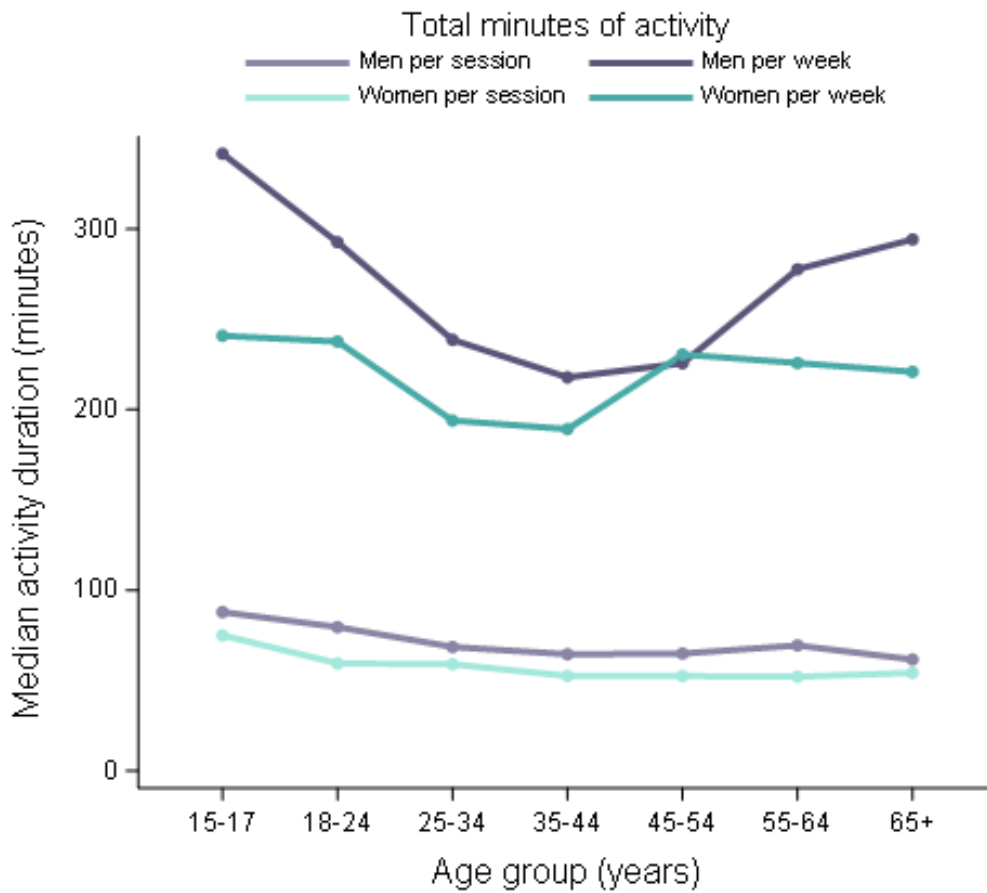


Figure 6 Duration of last session by age group and sex

Duration of last session were not associated with socio-economic status, with all quartile reporting doing 60 minutes per session (Figure 7). However, we note that the people living in the most disadvantaged areas (Quartile 1) participate for the shortest weekly duration (**211 minutes**) and those from the least disadvantaged areas (Quartile 4) participate for the longest (**243 minutes**).

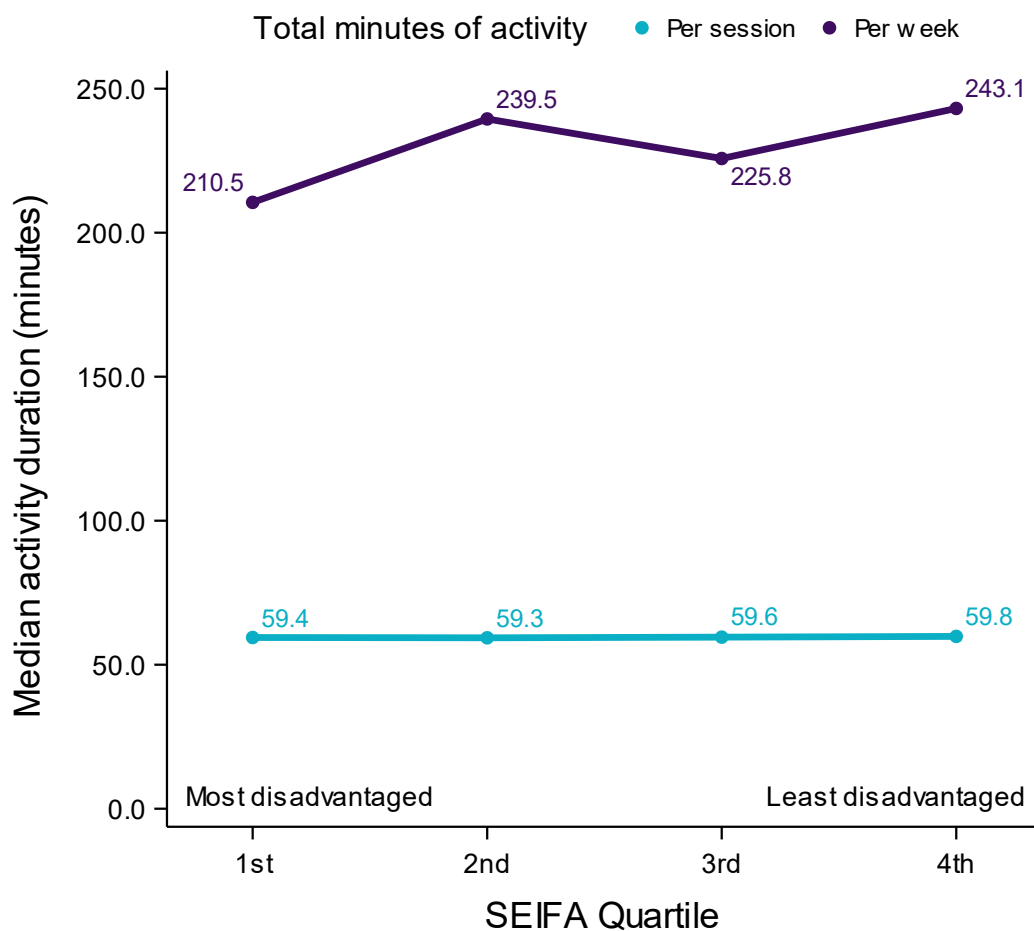


Figure 7 Duration (mins) of all session per week, by socio-economic status

People who were born outside Australia reported doing **29 minutes less** activity per week, compared to those born in Australia (211 and 240 minutes respectively). The gap in weekly session duration was greater again for LOTE populations (**39 minutes less**), with weekly participation time dropping to 201 minutes, compared to 240 minutes in populations who only speak English (Figure 8).



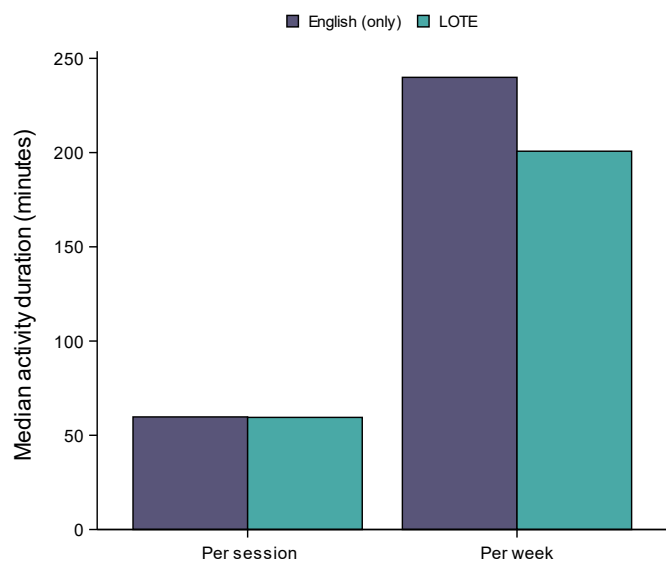
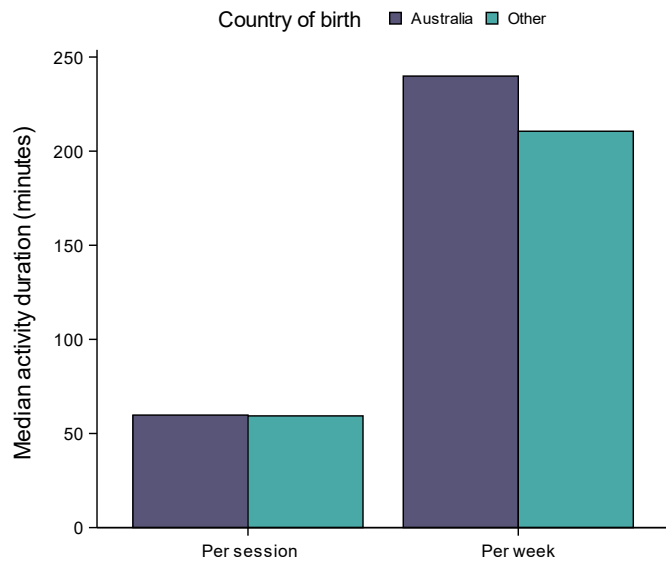


Figure 8 Duration (mins) of all session per week, by country of birth and language spoken at home

## 2. What variety of activities do NSW Adults participate in?

### Number of activities annually

The total number of activities reported by adults in NSW were summed for each participant; with an upper category created for 5 or more activities. The median number of activities was equal for men and women (**1.3 activities**) over the past 12 months. During the last 4 years, the number of activities people participate in has remained similar over time with over half the population (58-61%) doing 2 or more activities annually (Figure 9).

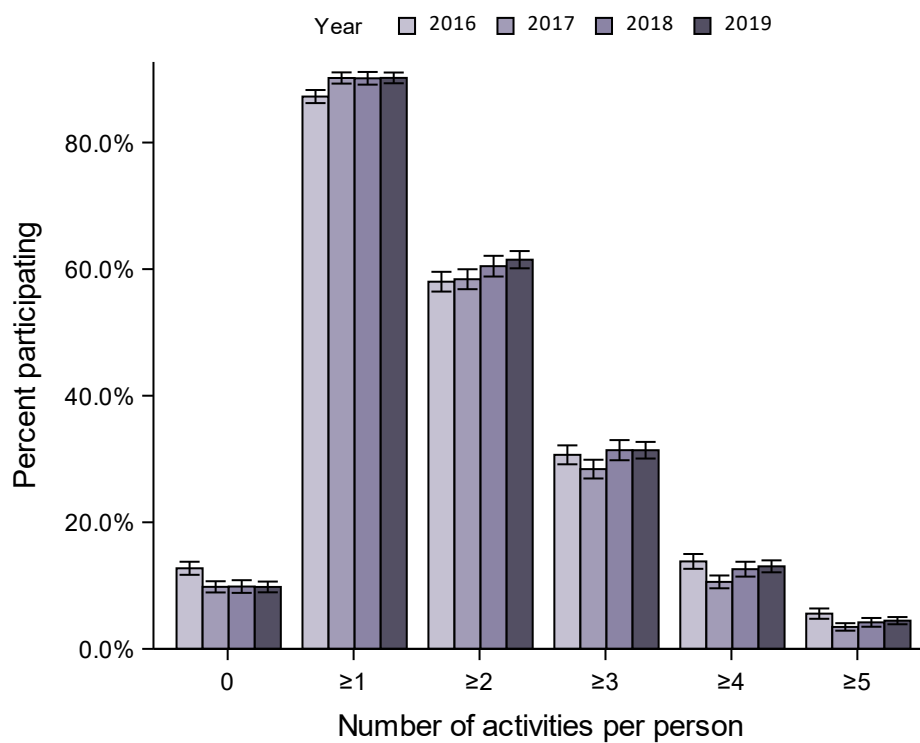


Figure 9 Number of activities over time in NSW

The number of activities an adult participates in is associated with age. Drop out follows the same linear decline as number of activities increase, with young people participating in the widest variety of activities, and the 65+'s having the least variety in their activities (Figure 10).

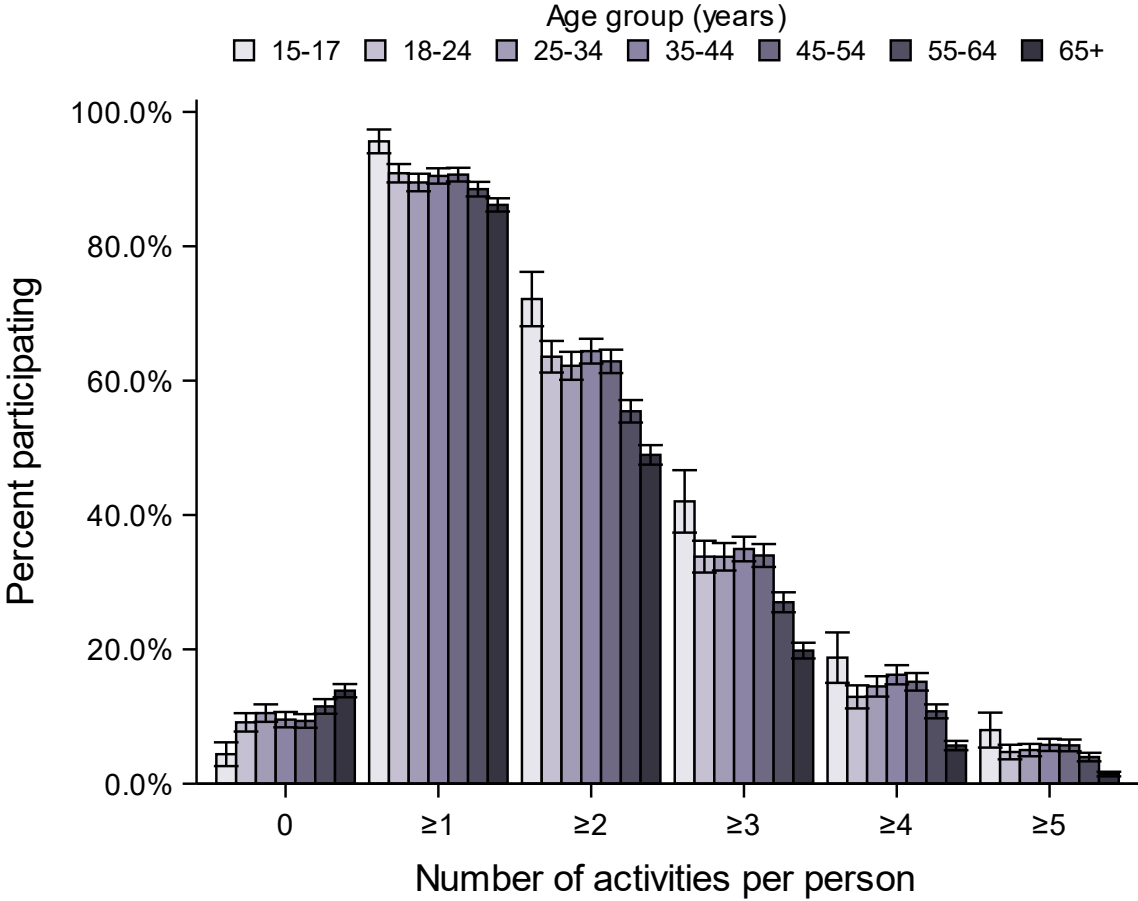


Figure 10 Number of activities per year, by age group

Socio-economic status has a strong association with the number of different activities respondents participate in. Adults in the most disadvantaged quartile participated in fewer activities compared to the least disadvantaged populations (Figure 11).

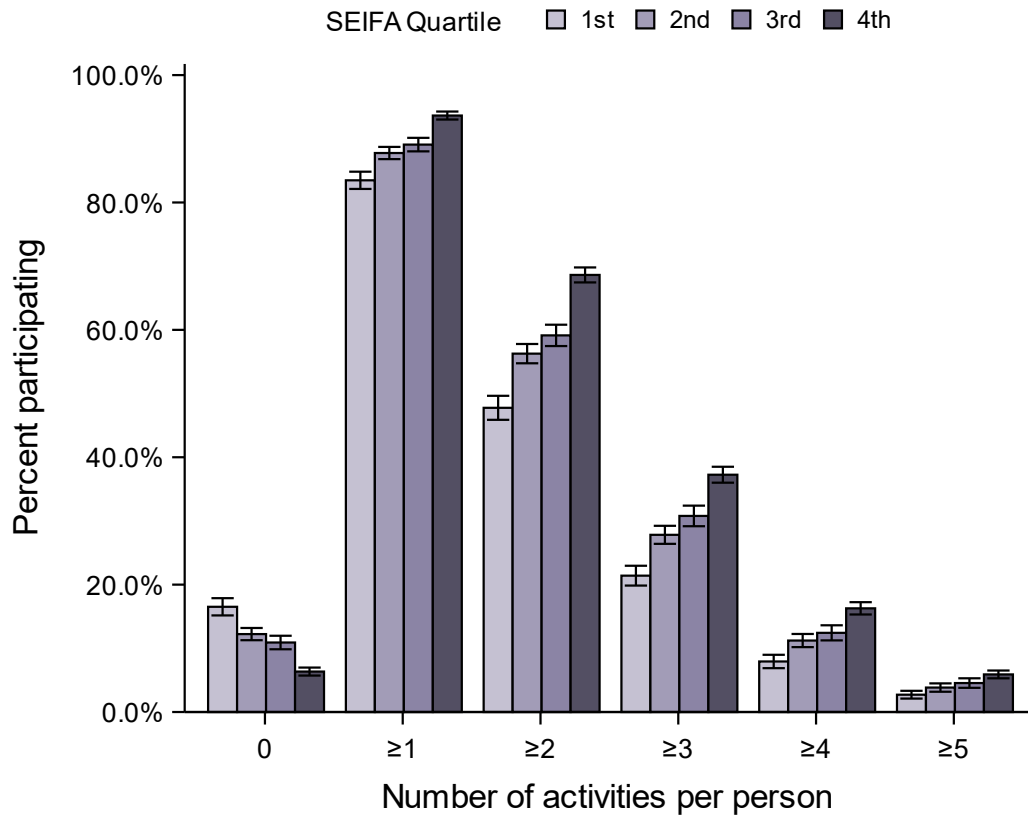


Figure 11 Number of activities per year, by socio-economic status

Adults who were born in Australia and/or speak English as their primary language at home participate in a greater number of activities than those born outside Australia. Culturally and linguistically diverse adults participate in a smaller variety of physical activities (Figure 12).

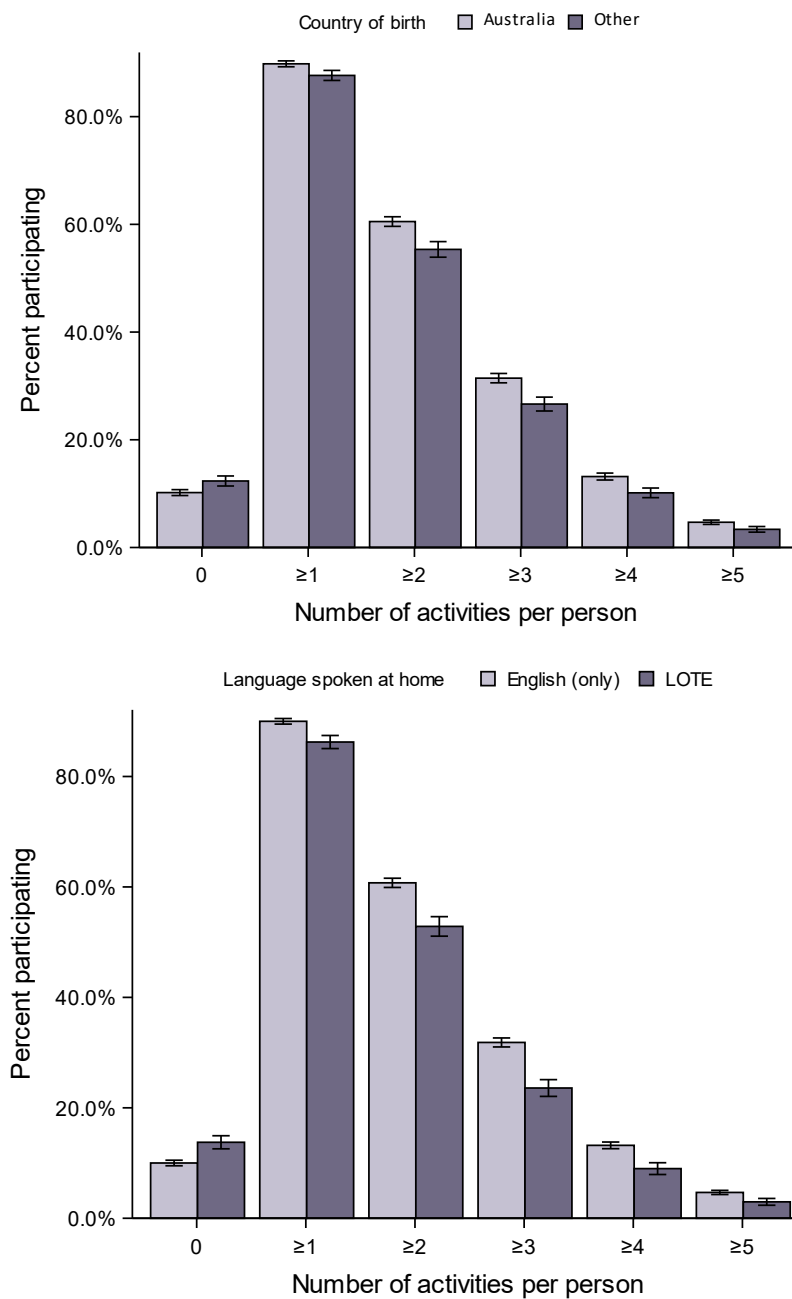
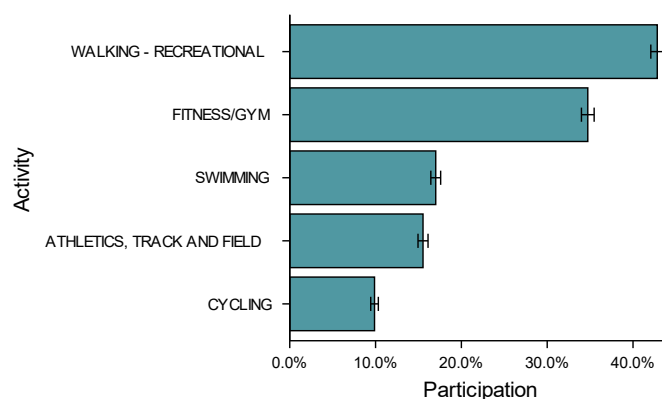


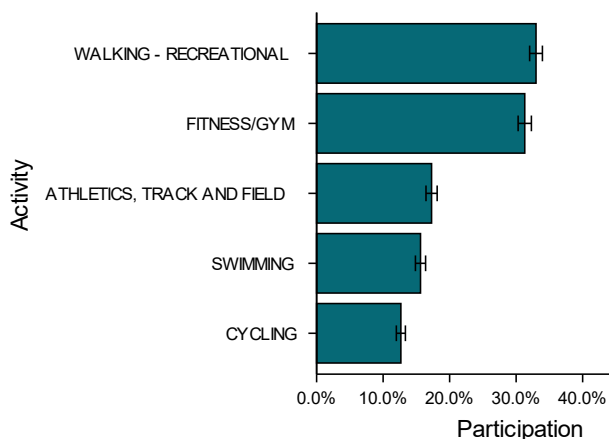
Figure 12 Number of activities per year, by culturally and linguistically diverse populations

### Five most commonly reported activities<sup>8</sup>

The most commonly reported activities adults in NSW reported participating in were Walking, Fitness/gym, Swimming, Athletics (which includes jogging and recreational running) and Cycling. Interestingly, most of these activities are individual pursuits and can be done all year round, with no off-season (Figure 13). The top five activities were not influenced by socio-economic status or country of birth, however age, sex and speaking a language other than English did influence the activities people participated in.



#### Top 5 activities for men



#### Top 5 activities for women

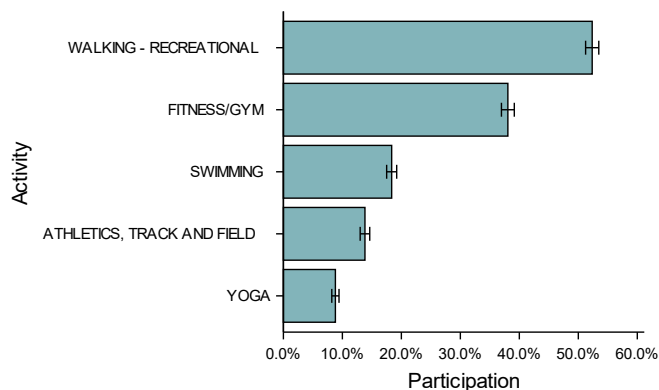


Figure 13 Participation rates for the top 5 activities

<sup>8</sup> Note: this is according to having participated in the activity at least once in the past 12 months.

### Most commonly reported activities by age group and sex

Throughout adulthood, the proportion of the population who participate in the top 5 activities in any age group (nine activities below) is influenced by gender (Figure 14). Overall, recreational walking is the most popular activity for adults, with 52% of women and 32% of men participating in the past 12 months. Team sports such as football and basketball were most popular among the younger adults (15-17 year olds) and reduced with age.

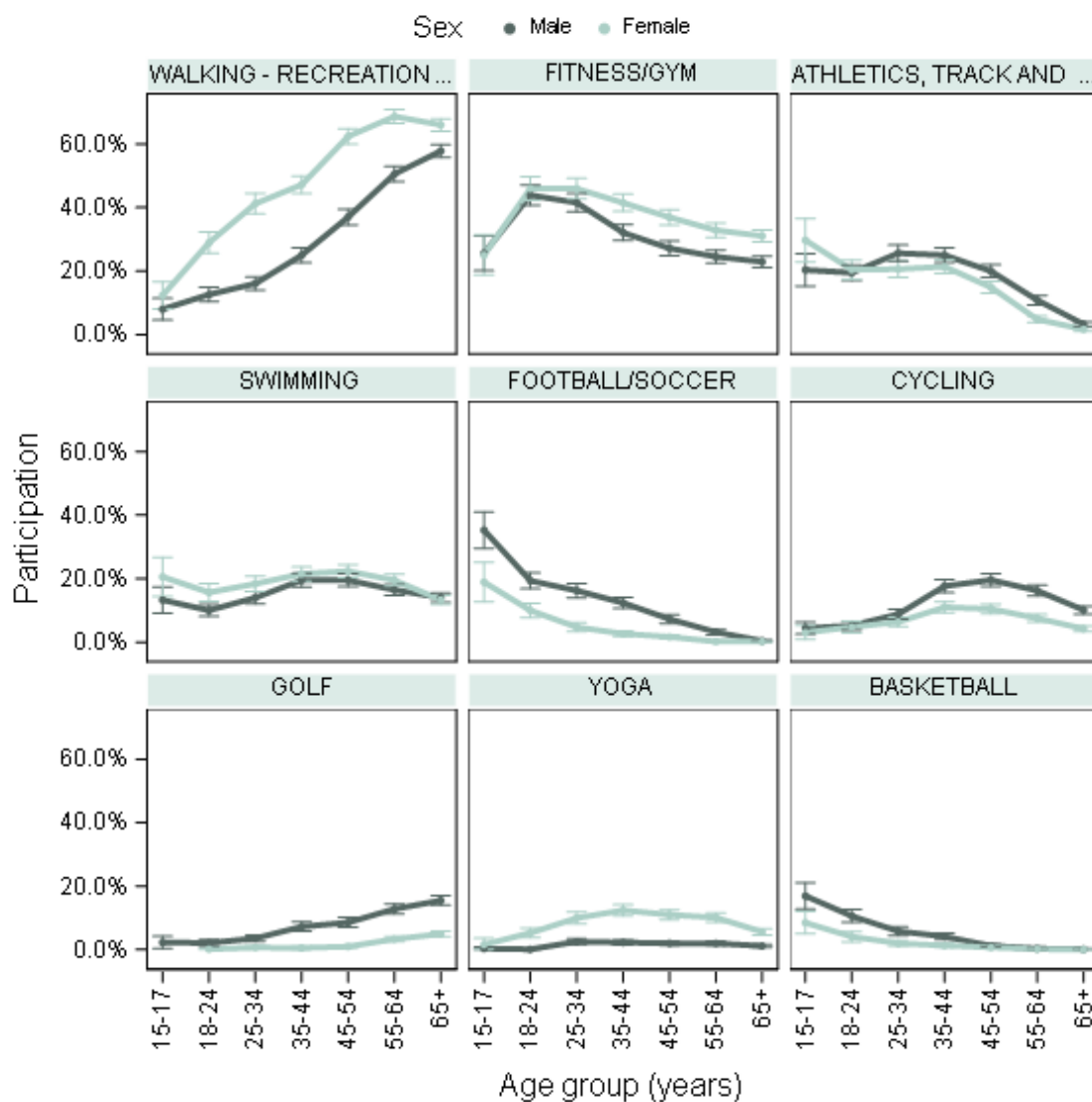


Figure 14 Participation rates for the top 5 activities across all age groups, by sex

### Most commonly reported activities by language spoken at home

For those who spoke English only at home, the top 5 sports remained the same as overall NSW. Speaking a language other than English at home was associated with a different top 2 activities with Fitness/gym most popular (36%), followed by Walking (34%), Athletics, track and field (18%), Swimming (15%) and Football/soccer (8%). In this population group, swimming was lower in the list and cycling replaced by football/soccer when compared to the English only population (Figure 13 and Figure 15).

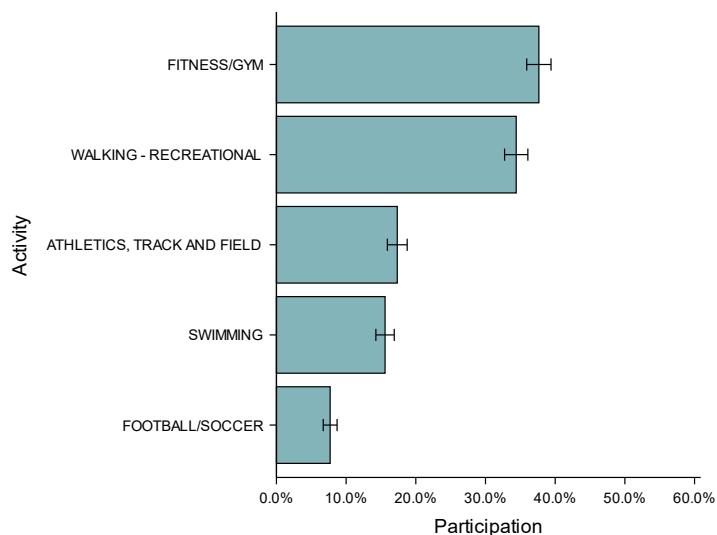


Figure 15 Participation rates for the top 5 activities for people who speak a LOTE at home



## Sport or non-sport activity type

Using the Sport Australia classifications of sport and non-sport related activities<sup>9</sup>, the type of activity can be examined. The type of activity chosen was significantly influenced by gender. Women were far more likely to participate in non-sport activities (**40%**) than sports (**11%**); Men are more likely to do sport only (**28%**) than non-sport activities only (**22%**) (Figure 16).

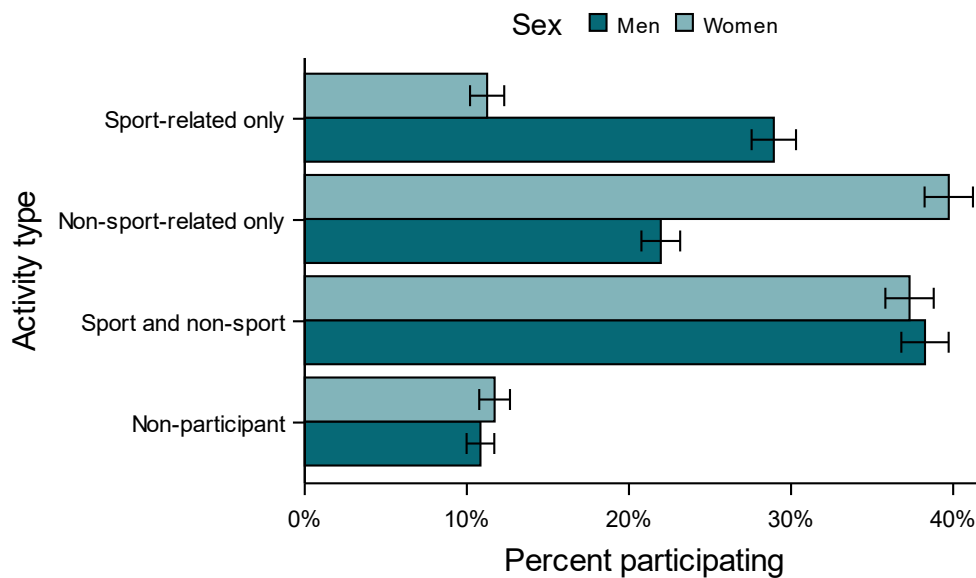


Figure 16 Type of activities adults participate in across NSW, by sex

More than half (**55%**) of the 15-17-year olds reported participating in sport only, while **8%** did solely non-sport related activities (Figure 17). The proportion of people participating in only sports activities reduced with age, with just **10%** of people aged 65+ participating in sport only. Participation in non-sport related activities showed an inverse trend, where **44%** of the 65+ age group participated in non-sport activities. The proportion of adults who participated in both sport and non-sport activities remained between 40-42% throughout most of adulthood (18-54 years) (Figure 17).

<sup>9</sup> AusPlay activity list, available here:

[https://www.clearinghouseforsport.gov.au/data/assets/excel\\_doc/0007/735235/AusPlay\\_activity\\_list\\_July\\_17.xlsx](https://www.clearinghouseforsport.gov.au/data/assets/excel_doc/0007/735235/AusPlay_activity_list_July_17.xlsx)

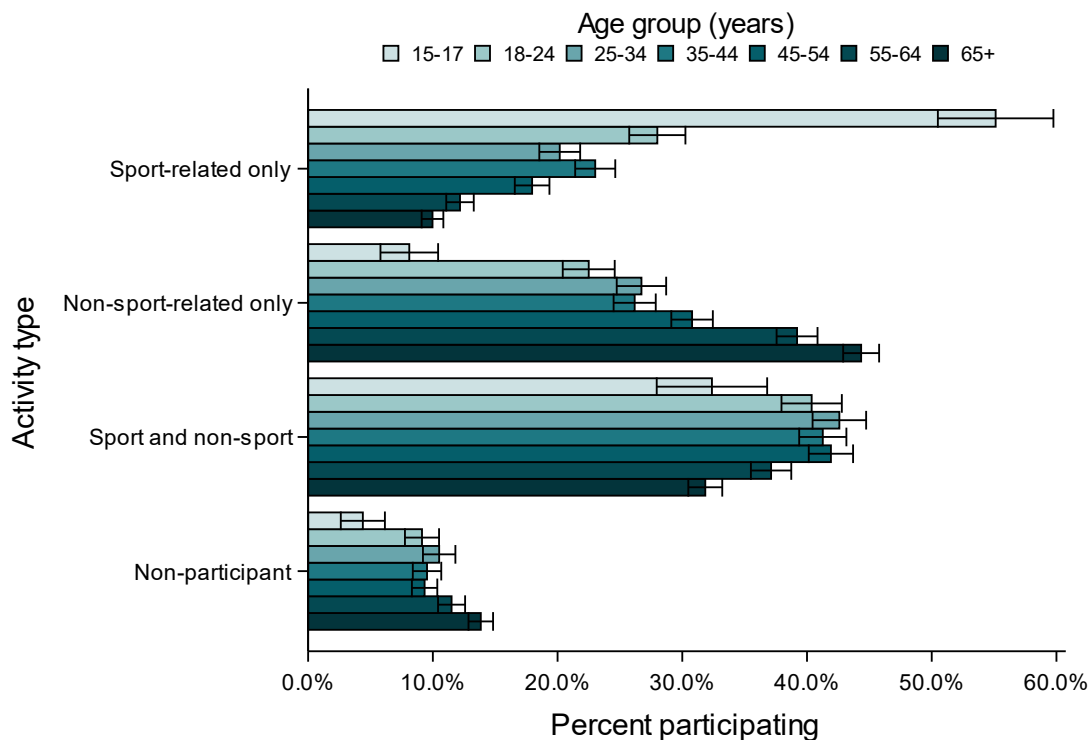


Figure 17 Type of activity by age in NSW

The type of activity adults participated in was associated with socio-economic status, when they participated in non-sport activities or both sport and non-sport. Those living in the most disadvantaged areas are more likely to participate in non-sport activities (Figure 18).

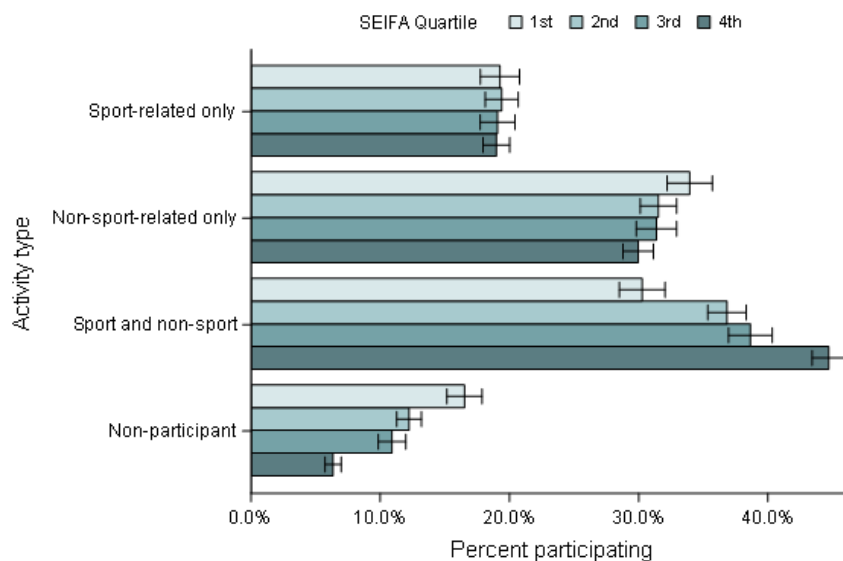


Figure 18 Type of activity by SEIFA in NSW

Having a country of birth which was not Australia was associated with lower sport related activity, whilst speaking a language other than English at home was associated with slightly higher participation in sport related-only or non-sport only activity. Being a non-participant and participating in both sport and non-sport activities was most common in culturally and linguistically diverse groups (Figures 19 and 20).

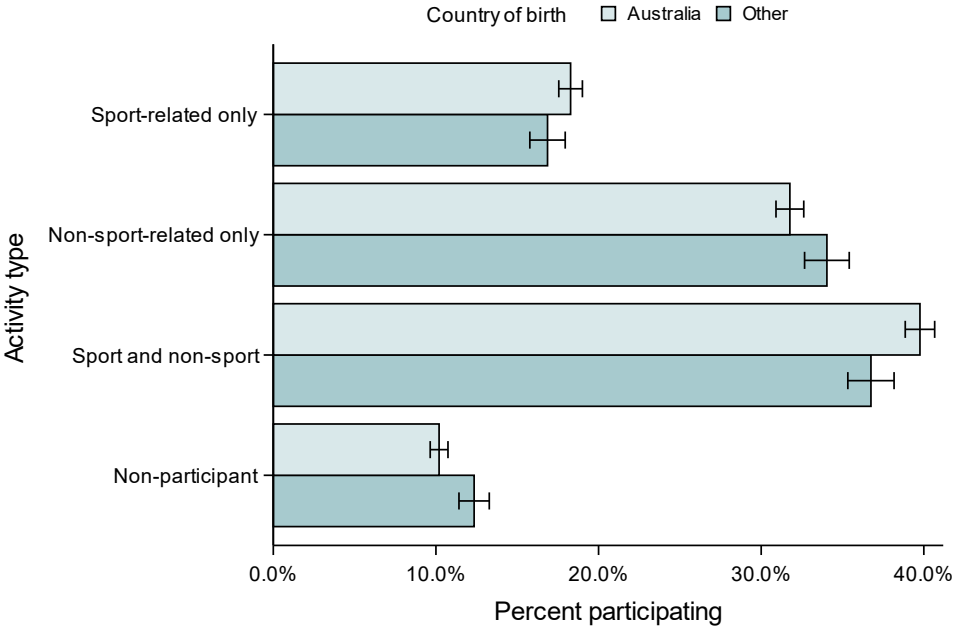


Figure 19 Type of activity by country of birth in NSW

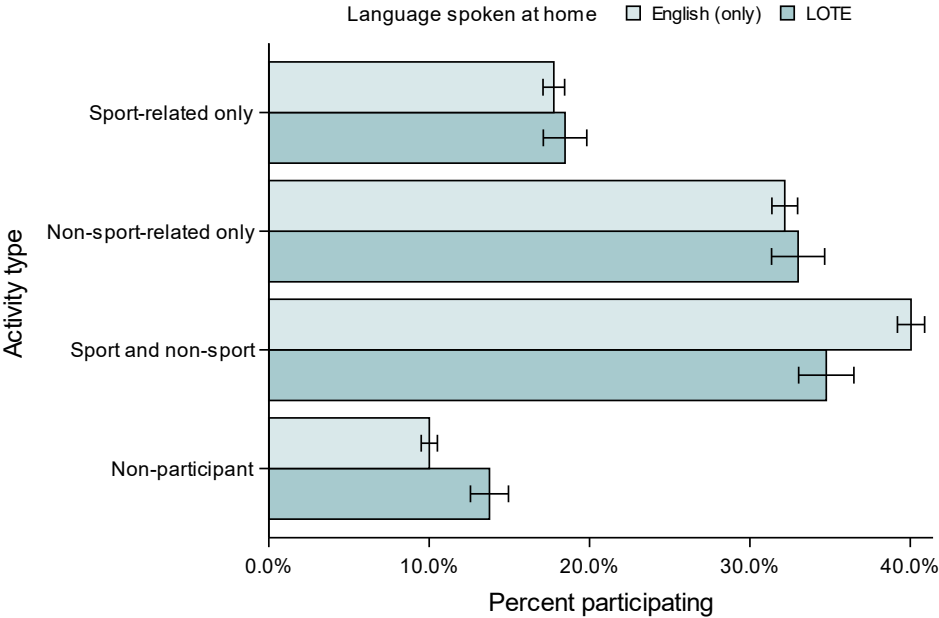
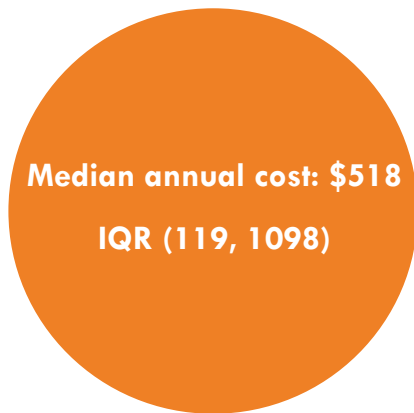


Figure 20 Type of activity by LOTE in NSW

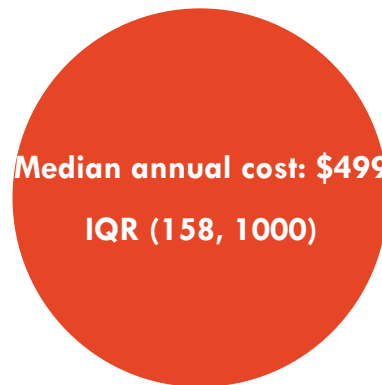
### Total annual cost of participation

Of all adults who participate in physical activity at least once a year, **66%** report doing so through a club or organisation. The median annual cost of participation through a club or organisation is **\$500** (IQR 140, 1046); with women's participation more expensive than men's.

## Women



## Men



The median cost of participating in sport or physical activities through a club or organisation is relatively stable throughout adulthood (indicated by the central horizontal line in Figure 21). Young people (15-17 years) report spending less than half what those over the age of 18 spend on their participation.

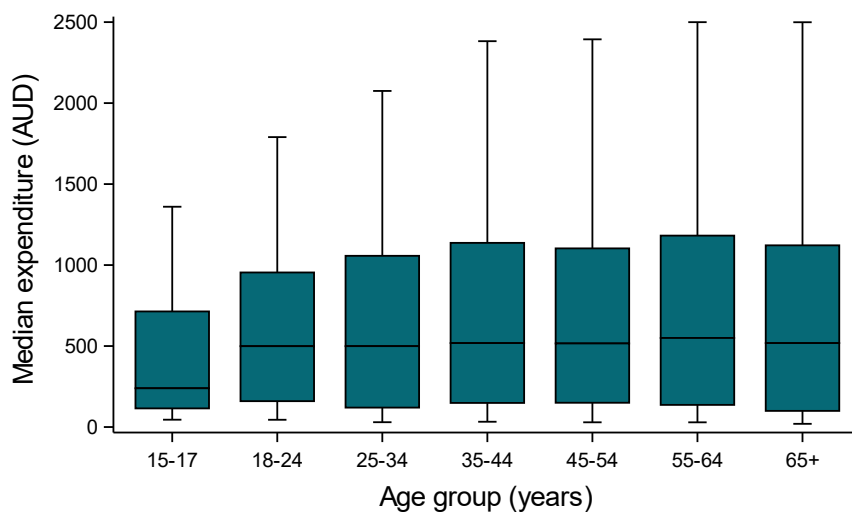


Figure 21 Total spend through clubs and organisation on sport and physical activity, by age group

Total expenditure on sport and physical activity participation is associated with socio-economic status. People living in the least disadvantaged communities have the greatest median spend (**\$621**) on physical activities whilst those in the most disadvantaged areas have a median spend of **\$399** (Figure 22).

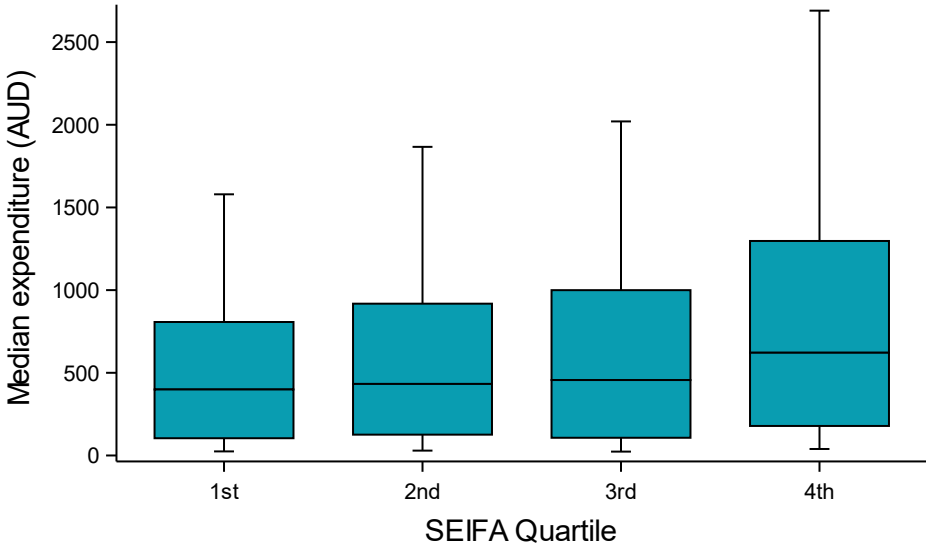


Figure 22 Total spend through clubs and organisation on sport and physical activity, by socio-economic status

### 3. What factors influence participation in sport and active recreation of non-participants?

#### Barriers to participation

When AusPlay respondents reported not participating in any sport or physical activities in the last 12 months they were classed as 'Non-participants' (n=1,463). These 'non-participants' were asked why they did not participate in sport and physical activities. Numerous respondents included 'other' as a reason, which limits the interpretation of these barriers due to this ambiguous variable.

The top five barriers for adults to participate in sport and physical activities were:

1. **Not enough time/too many other commitments 33%**
2. **Poor health or injury 28%**
3. **Other 13%**
4. **Physical Job 7%**
5. **Disability 7%**

These barriers were influenced by age and sex, but not socio-economic status. The top barrier for men was '*not enough time/too many other commitments*' while this barrier was second for women whose main barrier was '*poor health/injury*' (Figures 23 and 24). Poor health/injury was not in the top five barriers until the 35+ age groups and disability was not common until 45+ age groups. '*Looking after a child/infant*' was another a common barrier reported during 25-44 age group.

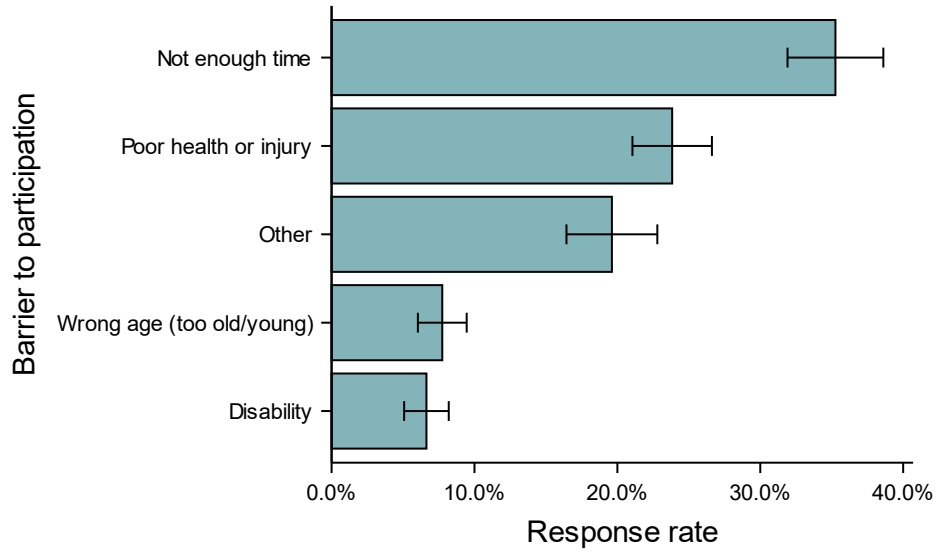


Figure 23 Top 5 barriers for men in NSW

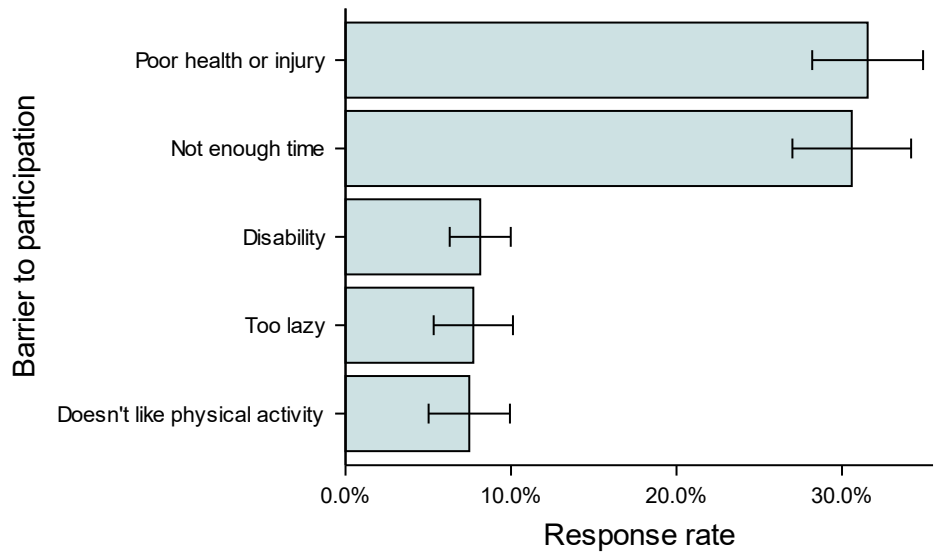


Figure 24 Top 5 barriers for women in NSW

## Relevance for policy and practice

This analysis of the state level AusPlay data between October 2015 and December 2019, provides insights into participation rates and trends among adults in NSW. A finding from this report is the common dose response relationship between socio economic status and overall participation rates. In NSW, individuals living in the most disadvantaged areas are less active as adults from the least disadvantaged areas and are less likely to participate in more than 1 activity. The social gradient is prominent in those defined as non-participants, essentially representing the inactive population through sport.

**Recommendation:** There is a clear opportunity for state-wide participation strategies that focus on equitable and accessible participation to reduce the gap between the least and most socioeconomically disadvantaged areas, with a specific targeting of inactive populations to reap the greatest health outcome.

Throughout adulthood, men and women choose to participate in different activities and when they do engage, engage for different lengths of time. This highlights the need to prioritise increasing participation rates amongst women, especially among the 25-44 age group. Individual recreation-based activities such as walking, and fitness/gym were amongst the most popular choice of activity for NSW adults. Women were more likely to favour non-sport activities with team sports most popular amongst young adults.

**Recommendation:** Insights are needed to best understand and implement effective strategies to engage, maintain or re-engage women in sport and active recreation. People preferences also change throughout their life and the sport sector must be nimble and agile to respond to changing demand.

As participation is defined as at least one session of sport and physical activity in the previous 12 months, it represents a small fraction of health-related physical activity. Estimates of regular participation in sport



and other forms of physical activity are required to assess health-enhancing levels of activity, which are challenging to achieve in only one survey (AusPlay) that only asks about more structured activity, and not about incidental activity and active travel.

**Recommendation:** Agree a consistent definition for participation but also focus on capturing outcome related data such as achievement of guidelines, frequency and duration of engagement with sporting activity to gather a more accurate reflection of the contribution sport makes to overall activity levels. In addition, classification of activities is critical and must be consistent if we are to have an accurate reflection of activity choice.

## Appendix

### Weights

Except for the demographics (table 1), all estimates and figures were calculated from the data using normalised weights. To obtain population estimates from the data, weights were calculated for everyone by the *Clearinghouse for Sport*. Details of these calculations can be found in their [methodology report](#). For our purposes, these weights were normalised for each quarter using the following

$$n_i = \frac{w_i}{\bar{w}}$$

where  $n_i$  and  $w_i$  are the normalised and raw weights of person  $i$  respectively and  $\bar{w}$  is the mean raw weight.

### Average weekly duration

Average weekly duration of participation (mins) was calculated by multiplying the yearly frequency of participation by the length of the last session, and then summing the yearly duration over all activities nominated by each individual and dividing by 52. That is

$$\text{Weekly duration}_i = \frac{\sum_{j \in \text{activities}_i} \text{frequency}_j * \text{duration}_j}{52}$$

where  $\text{activities}_i$  is the set of all activities reported by each individual  $i$ .

### Total annual cost of participation

Annual cost was reported for all activities separately or, where that was not possible, as a total for a group of activities (package). The total annual cost for each child is the sum of all packages and costs of individual activities. Where the respondent gave the same dollar value for the cost of the package for two activities separately, these were assumed to refer to each other and were only counted once.

## Glossary of statistical terms

**Central tendency:** A measure of **central tendency** is a single value that attempts to describe a set of data by identifying the **central** position within that set of data.

**Median:** The median is the middle score for a set of data that has been arranged in order. The median is less affected by outliers and skewed data.

**Quartiles:** Quartiles divide a rank-ordered data set into four equal parts.

**IQR or Inter-quartile range:** IQR is a measure of variability, based on dividing a data set into quartiles. On the figures, the central horizontal line indicates the median. Vertical lines represent the 10th to 90th percentiles.

**Distribution:** The distribution of a statistical data set (or a population) is a listing or function showing all the possible values (or intervals) of the data and how often they occur.

**Weighted data:** When the data collected from survey respondents are adjusted to represent the population from which the sample was drawn.

**Standard error:** a statistical term that measures the accuracy with which a sample represents a population.