

Section 10 – Estimate of the percentage of children undertaking at least 60 minutes of physical activity per day

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Imputation of estimated minutes of physical activity

To develop an estimate of whether children were participating in at least 60 minutes of physical activity per day, a range of steps were undertaken. As parents/carers were asked to only report the mean session length in minutes for the three highest frequency physical activities, session lengths were not available for all activities for each child. This implied that average session minutes per activity had to be imputed for a proportion of respondents.

While Australian national guidelines require 60 minutes of Moderate to Vigorous Physical Activity (MVPA) per day (Department of Health, 2019), it was beyond the scope of the current study to measure the intensity of physical activity undertaken. In addition, all estimates of session length were only based on parent/carer self-report, rather than more objective physical activity measurement (e.g., use of accelerometers). It should similarly be noted that 60 minutes of MVPA per day is only one of the Australian national physical activity requirements. Other requirements are also placed on Sedentary Behaviour and Sleep.

This implies that estimates of 60 minutes per day, as measured in the current study, should not be assumed to be equivalent to children meeting the Australian national physical activity standards.

Specific requirements for physical activity are that children should be (Department of Health, 2019):

- Ⓢ Accumulating 60 minutes or more of Moderate to Vigorous physical activity per day involving mainly aerobic activities
- Ⓢ Several hours of a variety of light physical activities
- Ⓢ Activities that are vigorous, as well as those that strengthen muscle and bone should be incorporated at least 3 days per week
- Ⓢ To achieve greater health benefits, replace sedentary time with additional Moderate to Vigorous physical activity, while preserving sufficient sleep.

Error in parent/carer reporting should also be considered in the interpretation of results. Parent/carer error in physical activity reporting has been established in prior research, which is why many studies use accelerometers to measure the time children spend on physical activity per day (e.g., Wilks et al, 2011; Sallis et al, 2000).

Measurement error is also likely because children's activity patterns (e.g., Active play) are less structured than those of adults and may include short bouts of spontaneous or intense physical activity (Must et al, 2009).

As such, this implies that estimates in this section of the report should ONLY be considered estimates.

As part of developing the estimate of minutes per day per respondent, a number of steps were undertaken:

- Ⓢ Session minutes for each of eight major activity types were transferred into eight major activity variables (Active play, Active transport, Walking, Cycling and scootering, Sport, General exercise and fitness, Recreational activities and Chores or work involving physical activity).
- Ⓢ Where respondents had taken part in an activity, but lacked session minutes, minutes were imputed (based on the average session length per activity for the entire sample).
- Ⓢ Average session length per respondent (imputed or reported) was then multiplied by total frequency per annum for each of the eight major activity types (comprising the total minutes of physical activity by major activity type per annum).
- Ⓢ All annual activity minutes were then summed across the eight major activities to form an overall estimate of physical activity minutes per annum.
- Ⓢ Minutes of physical activity per day were then calculated for each respondent.

- ☉ Children's total activity minutes per day were then recoded into children participating in a minimum of 60 minutes per day or children participating in less than 60 minutes per day.

Imputations of average minutes for each of the eight major physical activity variables were as follows – each using the population average session minutes for the eight major physical activities:

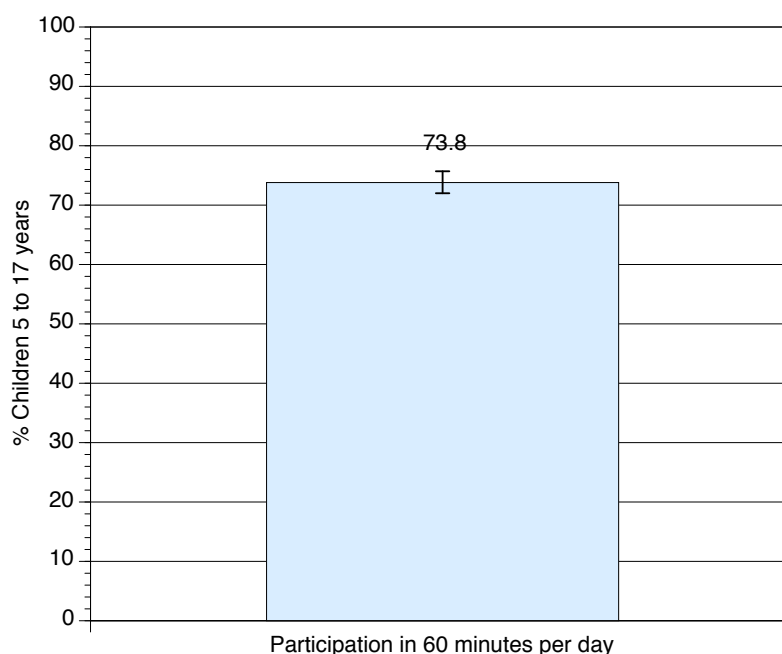
- ☉ 682 imputations for Active play
- ☉ 702 imputations for Active transport
- ☉ 1191 imputations for Walking
- ☉ 1808 imputations for Cycling and scootering
- ☉ 1972 imputations for Sport
- ☉ 2159 for General exercise and fitness
- ☉ 1966 for Recreational activities
- ☉ 1634 for Chores or work involving physical activity

This illustrates that imputations were by necessity quite extensive. This again further emphasises that estimates should be interpreted with caution and may contain error due to both the proportion of imputations required and also due to respondent reporting error (implying general measurement error). In addition, it should once again also be remembered that the estimates of physical activity per day do not indicate the proportion of physical activity that is moderate or vigorous.

Percentage of children participating in 60 minutes of physical activity per day – overall results

An estimate of the percentage of children participating in 60 minutes of physical activity per day is in Figure 66 and Table 75. Estimates suggest that a total of 73.8% of children may have participated in at least 60 minutes of physical activity per day during the past 12 months.

Figure 66. Percentage of children participating in 60 minutes of physical activity per day (based on all children 5 to 17 years including non-participants) – Overall results (December 2018–April 2019)
ESTIMATE ONLY INTERPRET WITH CAUTION



Question: In relation to the activity, how many minutes per session did (Child) do the activity on average? (e.g., twice per week for 60 minutes > write 60 minutes) (Base: All parents/carers with a child aged 5 to 17 years reporting the activity in the top 3 most frequent activities). As minutes per session was available only for the three highest participation physical activities, the mean session length was imputed for participants without session length data.

Table 75. Percentage of children participating in 60 minutes of physical activity per day (based on all children 5 to 17 years including non-participants) – Overall results (December 2018–April 2019)
ESTIMATE ONLY INTERPRET WITH CAUTION

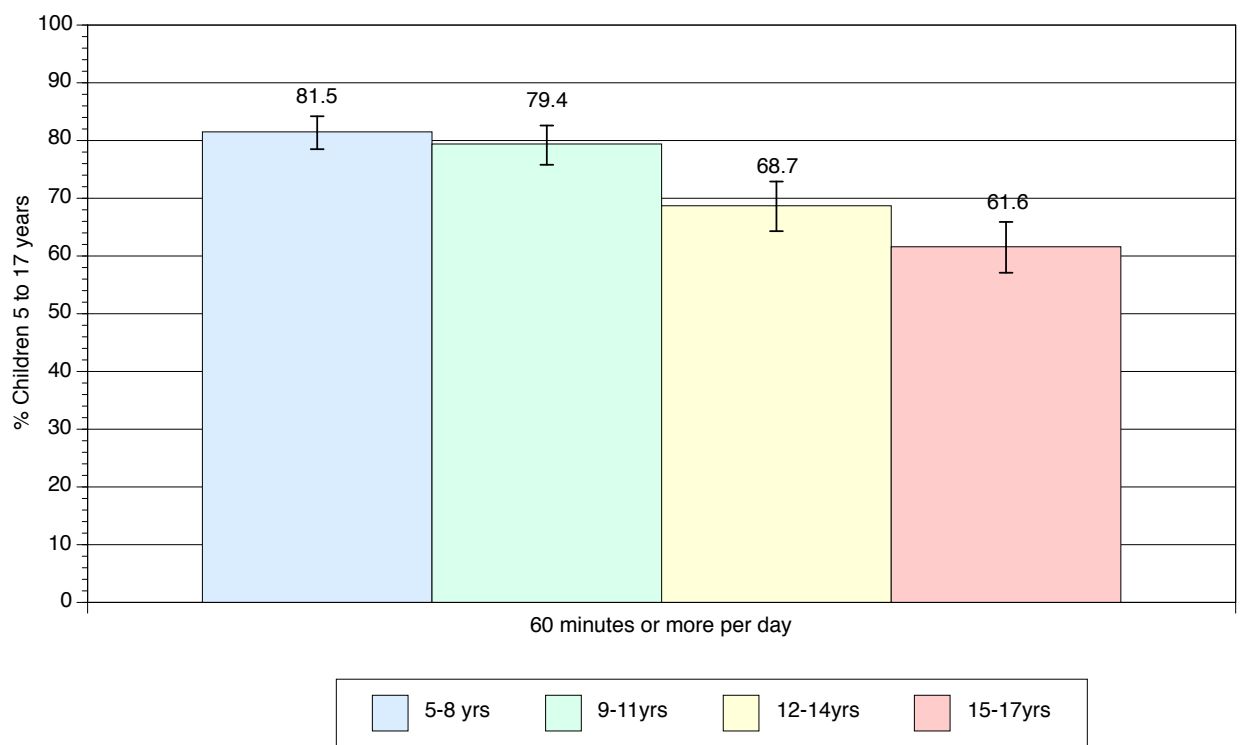
Participation in 60 minutes per day	%	SE	LCL	UCL
Less than 60 minutes per day	26.2	1.0	24.4	28.1
60 minutes or more per day	73.8	1.0	71.9	75.6

Question: In relation to the activity, how many minutes per session did (Child) do the activity on average? (e.g., twice per week for 60 minutes > write 60 minutes) (Base: All parents/carers with a child aged 5 to 17 years reporting the activity in the top 3 most frequent activities). As minutes per session was available only for the three highest participation physical activities, the mean session length was imputed for participants without session length data.

Percentage of children participating in 60 minutes of physical activity per day – results by age

An estimate of the percentage of children by age participating in 60 minutes of physical activity per day is in Figure 67 and Table 76. Estimates suggest that a total of 81.5% of children 5–8 years, 79.4% of children 9–11 years, 68.7% of children 12–14 years and 61.6% of children 15–17 years may have participated in at least 60 minutes of physical activity per day during the past 12 months.

Figure 67. Percentage of children participating in 60 minutes of physical activity per day (based on all children 5 to 17 years including non-participants) – Results by age (December 2018–April 2019)
ESTIMATE ONLY INTERPRET WITH CAUTION



Question: In relation to the activity, how many minutes per session did (Child) do the activity on average? (e.g., twice per week for 60 minutes > write 60 minutes) (Base: All parents/carers with a child aged 5 to 17 years reporting the activity in the top 3 most frequent activities). As minutes per session was available only for the three highest participation physical activities, the mean session length was imputed for participants without session length data.

Table 76. Percentage of children participating in 60 minutes of physical activity per day
(based on all children 5 to 17 years including non-participants) – Results by age (December 2018–April 2019)

ESTIMATE ONLY INTERPRET WITH CAUTION

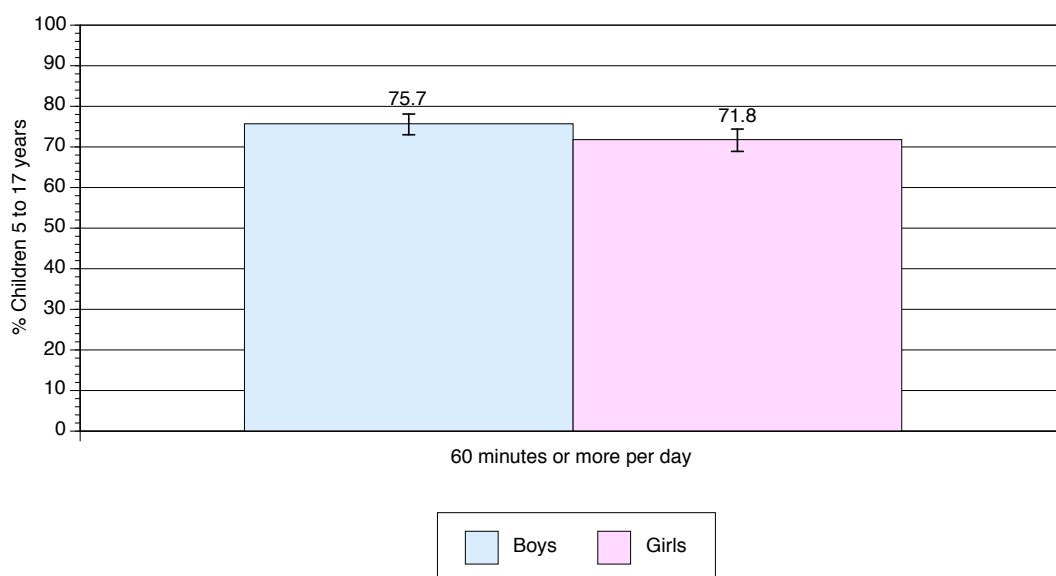
Participation in 60 minutes per day	5–8yrs				9–11yrs				12–14yrs				15–17yrs			
	%	SE	LCL	UCL	%	SE	LCL	UCL	%	SE	LCL	UCL	%	SE	LCL	UCL
Less than 60 minutes per day	18.5	1.5	15.8	21.5	20.6	1.7	17.4	24.2	31.3	2.2	27.1	35.7	38.4	2.3	34.1	42.9
60 minutes or more per day	81.5	1.5	78.5	84.2	79.4	1.7	75.8	82.6	68.7	2.2	64.3	72.9	61.6	2.3	57.1	65.9

Question: In relation to the activity, how many minutes per session did (Child) do the activity on average? (e.g., twice per week for 60 minutes > write 60 minutes) (Base: All parents/carers with a child aged 5 to 17 years reporting the activity in the top 3 most frequent activities). As minutes per session was available only for the three highest participation physical activities, the mean session length was imputed for participants without session length data.

Percentage of children participating in 60 minutes of physical activity per day – results by gender

An estimate of the percentage of children by gender participating in 60 minutes of physical activity per day is in Figure 67 and Table 76. Estimates suggest that a total of 75.7% of boys and 71.8% of girls may have participated in at least 60 minutes of physical activity per day during the past 12 months.

Figure 68. Percentage of children participating in 60 minutes of physical activity per day (based on all children 5 to 17 years including non-participants) – Results by gender (December 2018–April 2019)
ESTIMATE ONLY INTERPRET WITH CAUTION



Question: In relation to the activity, how many minutes per session did (Child) do the activity on average? (e.g., twice per week for 60 minutes > write 60 minutes) (Base: All parents/carers with a child aged 5 to 17 years reporting the activity in the top 3 most frequent activities). As minutes per session was available only for the three highest participation physical activities, the mean session length was imputed for participants without session length data.

Table 77. Percentage of children participating in 60 minutes of physical activity per day (based on all children 5 to 17 years including non-participants) – Results by gender (December 2018–April 2019)
ESTIMATE ONLY INTERPRET WITH CAUTION

Participation in 60 minutes per day	Boys				Girls			
	%	SE	LCL	UCL	%	SE	LCL	UCL
Less than 60 minutes per day	24.3	1.3	21.9	27	28.2	1.4	25.6	31.1
60 minutes or more per day	75.7	1.3	73	78.1	71.8	1.4	68.9	74.4

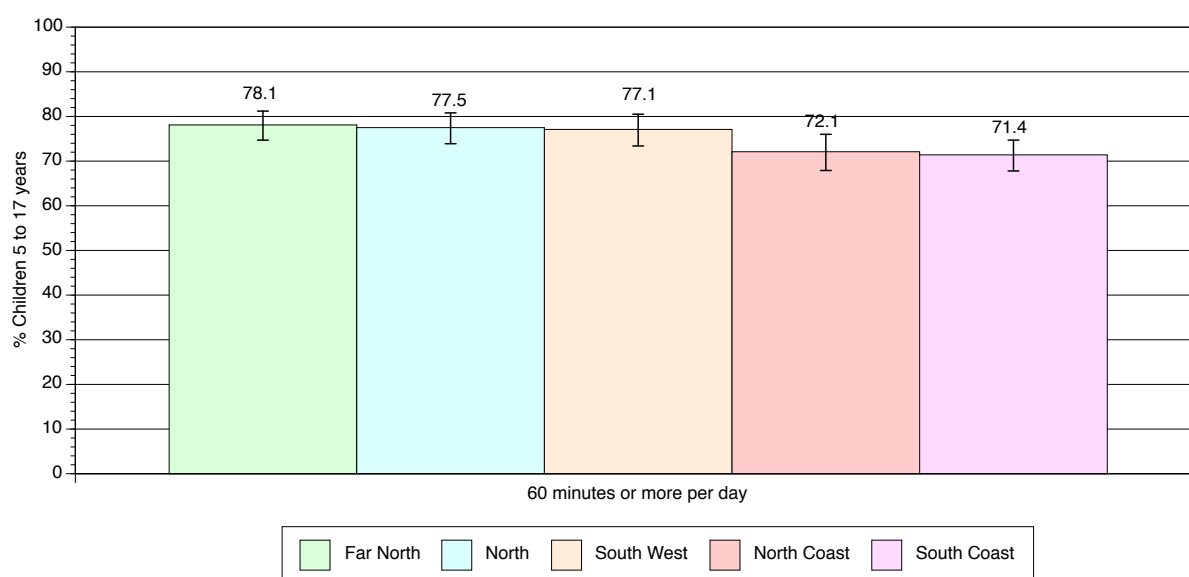
Question: In relation to the activity, how many minutes per session did (Child) do the activity on average? (e.g., twice per week for 60 minutes > write 60 minutes) (Base: All parents/carers with a child aged 5 to 17 years reporting the activity in the top 3 most frequent activities). As minutes per session was available only for the three highest participation physical activities, the mean session length was imputed for participants without session length data.

Percentage of children participating in 60 minutes of physical activity per day – results by region

An estimate of the percentage of children by region participating in 60 minutes of physical activity per day is in Figure 69 and Table 78. Estimates suggest that a total of 78.1% in Far North region, 77.5% in North region, 77.1% in South West region, 72.1% in North Coast region and 71.4% in South Coast region may have participated in at least 60 minutes of physical activity per day during the past 12 months.

For reference, results by age and region are in Table 120 and Table 121 in Appendix F.

Figure 69. Percentage of children participating in 60 minutes of physical activity per day (based on all children 5 to 17 years including non-participants) – Results by region (December 2018–April 2019)
ESTIMATE ONLY INTERPRET WITH CAUTION



Question: In relation to the activity, how many minutes per session did (Child) do the activity on average? (e.g., twice per week for 60 minutes > write 60 minutes) (Base: All parents/carers with a child aged 5 to 17 years reporting the activity in the top 3 most frequent activities). As minutes per session was available only for the three highest participation physical activities, the mean session length was imputed for participants without session length data.

Table 78. Percentage of children participating in 60 minutes of physical activity per day
(based on all children 5 to 17 years including non-participants) – Results by region (December 2018–April 2019)

ESTIMATE ONLY INTERPRET WITH CAUTION

Participation in 60 minutes per day	Far North				North				South West			
	%	SE	LCL	UCL	%	SE	LCL	UCL	%	SE	LCL	UCL
Less than 60 minutes per day	21.9	1.7	18.8	25.3	22.5	1.8	19.2	26.1	22.9	1.8	19.5	26.6
60 minutes or more per day	78.1	1.7	74.7	81.2	77.5	1.8	73.9	80.8	77.1	1.8	73.4	80.5

Participation in 60 minutes per day	North Coast				South Coast							
	%	SE	LCL	UCL	%	SE	LCL	UCL				
Less than 60 minutes per day	27.9	2.1	24	32.1	28.6	1.8	25.3	32.2				
60 minutes or more per day	72.1	2.1	67.9	76	71.4	1.8	67.8	74.7				

Question: In relation to the activity, how many minutes per session did (Child) do the activity on average? (e.g., twice per week for 60 minutes > write 60 minutes) (Base: All parents/carers with a child aged 5 to 17 years reporting the activity in the top 3 most frequent activities). As minutes per session was available only for the three highest participation physical activities, the mean session length was imputed for participants without session length data.