



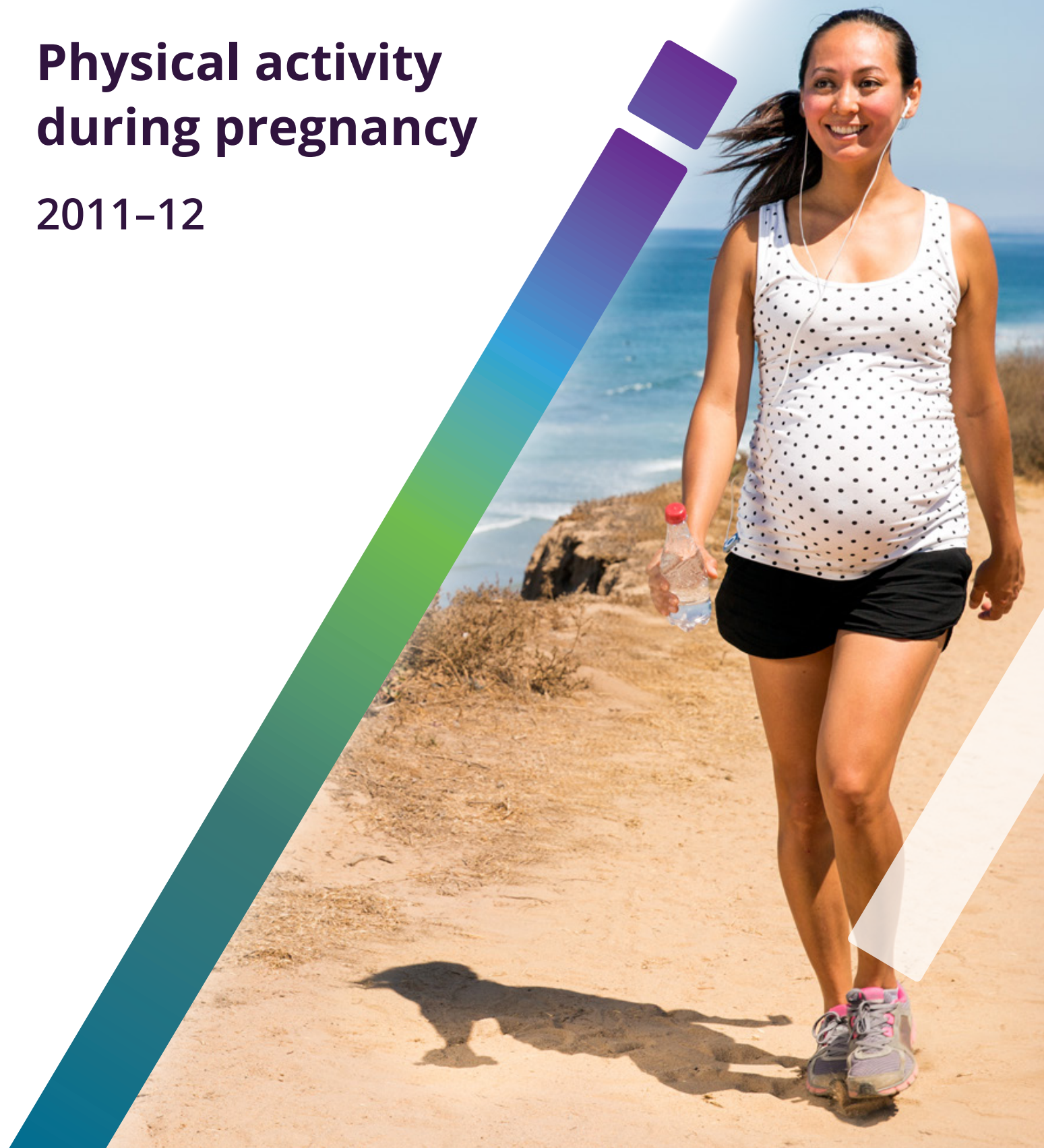
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Health and Welfare

AIHW

Physical activity during pregnancy

2011-12



Physical activity during pregnancy

2011-12



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Summary

Regular physical activity provides many benefits for the health and wellbeing of women during pregnancy, including fitness, weight management and psychological wellbeing. For a healthy woman with an uncomplicated pregnancy, physical activity is considered safe for both her and her unborn child.

This report looks at the types and amount of physical activity undertaken by women during pregnancy using the Australian Bureau of Statistics' Australian Health Survey 2011–12. It compares activity levels for pregnant and non-pregnant women of the same ages and assesses these levels against the Australian physical activity guideline for adults.

Only 3 in 10 pregnant women met the physical activity guideline

When assessed against the Australian physical activity guideline for adults, 30% of pregnant women were sufficiently active, 54% were insufficiently active and 16% were inactive.

In comparison, just under half (47%) of women in the same age group who were not pregnant met the physical activity guideline for sufficient activity.

Two-thirds of pregnant women were active for fewer than 150 minutes per week

The median length of time spent on physical activity in the last week by pregnant women was 90 minutes. This was much lower than the average (mean) time of 151 minutes due to skewness caused by a small proportion of very active pregnant women.

The average of 151 minutes for pregnant women was made up of just under an hour (54 minutes) of walking for fitness, 73 minutes of walking for transport and 24 minutes on moderate and vigorous activities.

In comparison, the median length of time spent on physical activity in the last week for women who were not pregnant was 149 minutes and the average (mean) was nearly 4 hours (224 minutes). These women spent a similar amount of time walking for fitness and transport, with an extra 50 minutes on moderate and vigorous activities.

Just over half of pregnant women exercised for fitness, usually walking

While only 30% of pregnant women met the physical activity guideline, more than half (56%) did undertake some exercise specifically for fitness, recreation or sport. Of the pregnant women who exercised, one-third (34%) walked as their only form of exercise, 14% undertook some moderate activity (apart from walking) and 7% participated in some vigorous activity.

In comparison, around two-thirds (66%) of women who were not pregnant exercised for fitness, recreation or sport. Women who were not pregnant were less likely than pregnant women to walk as their only form of exercise (21%), and much more likely to do some vigorous activity (31%).

Moving forward

While healthy pregnant women can generally exercise safely, they may not be physically active during pregnancy due to concerns about harm to their unborn child and/or the many physical changes that occur over this time. Understanding these barriers—and providing individualised information and support for pregnant women—can help to improve participation in physical activity, which may also lead to improved health and wellbeing for both women and their babies.

1 Introduction

Participating in regular physical activity and limiting sedentary behaviour can have significant health benefits—it reduces the risk of chronic conditions and other disease risk factors such as overweight and obesity and improves social and emotional health and wellbeing (AIHW 2018).

These same benefits apply to the health and wellbeing of women during pregnancy, including fitness, weight management and psychological wellbeing (RANZCOG 2016). There is also evidence that regular exercise during pregnancy can have additional benefits for labour and delivery and the postpartum period. These include reduced risk of excessive weight gain and of conditions such as gestational diabetes, pre-eclampsia, pre-term birth, varicose veins and deep vein thrombosis (Evenson et al. 2014). For healthy women with an uncomplicated pregnancy, physical activity is considered safe for both the mother and her unborn child (RANZCOG 2016).

Australia's Physical Activity and Sedentary Behaviour Guidelines recommend minimum levels of physical activity for health benefits (Box 1.1). For adults aged 18–64, this consists of:

- being active on most, preferably all, days every week
- accumulating 150 to 300 minutes (2½ to 5 hours) of moderate intensity physical activity or 75 to 150 minutes (1¼ to 2½ hours) of vigorous intensity physical activity, or an equivalent combination of both, each week
- muscle strengthening activities on at least 2 days each week (DoH 2017).

There are currently no physical activity guidelines for pregnant women that are specifically endorsed by the Australian Government. However, the Australian Government Pregnancy Care Guidelines do reference Australia's Physical Activity and Sedentary Behaviour Guidelines and recommend that pregnant women be advised of the benefits of physical activity and encouraged to be physically active (DoH 2017).

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) and Sports Medicine Australia (SMA) both released statements in 2016 on exercise during pregnancy, endorsing the relevance of the Australian adult Guidelines for pregnant women, in the absence of contraindications. The statements also provide guidance on considerations and modifications that may be required to accommodate physiological changes during pregnancy, and recommend exercises to strengthen the pelvic floor (RANZCOG 2016; SMA 2016).

Public health and clinical guidelines for physical activity during pregnancy are also available from several other countries. Most recently, the Society of Obstetricians and Gynaecologists of Canada and the Canadian Society for Exercise Physiology published the 2019 Canadian Guideline for Physical Activity throughout Pregnancy as a consensus statement (Mottola et al. 2018). These guidelines were informed by a systematic review of the literature on physical activity in pregnancy in the promotion of maternal, fetal and neonatal health. The Canadian recommendations are very similar to Australia's Physical Activity and Sedentary Behaviour Guidelines for adults, with the inclusion of a recommendation for pelvic floor muscle training and indications for modifying exercise position—and a list of contraindications.

Currently, little is known about how much, and what types of, physical activity pregnant women undertake in Australia. This short report builds on previous work presented in the Australian Institute of Health and Welfare report *Physical activity across the life stages* (AIHW 2018). It investigates the types and amount of physical activity undertaken by women during pregnancy, with comparisons made between pregnant and non-pregnant women of the same age, and against Australia's Physical Activity and Sedentary Behaviour Guidelines for adults (Box 1.1).

Box 1.1: Australia's Physical Activity and Sedentary Behaviour Guidelines for ages 18–64

- Doing any physical activity is better than doing none. If you currently do no physical activity, start by doing some, and gradually build up to the recommended amount.
- Be active on most, preferably all, days every week.
- Accumulate 150 to 300 minutes (2½ to 5 hours) of moderate intensity physical activity or 75 to 150 minutes (1¼ to 2½ hours) of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities, each week.
- Do muscle strengthening activities on at least 2 days each week.
- Minimise the amount of time spent in prolonged sitting.
- Break up long periods of sitting as often as possible.

Source: DoH 2017.

How we are reporting against the Guidelines

- The **physical activity guideline** is reported as the proportion of women aged 18–45 who completed at least 150 minutes of moderate or vigorous intensity (vigorous-intensity time is multiplied by 2) physical activity over 5 sessions in the 7 days before interview. Being active on most days is considered to be on 5 or more days. However, as the data source asks the number of *times* (sessions) people undertook physical activity in the last week, the number of sessions is used as a proxy for days. People meeting this guideline were referred to as being 'sufficiently active'; those not meeting this guideline were considered to be either 'inactive' (did no physical activity) or 'insufficiently active' (did some physical activity but did not meet the guideline).
- The **strength-based activity guideline** is reported as the proportion of women aged 18–45 who completed strength or toning activities at least 2 times in the 7 days before interview.
- In this report, there is no measurement against the sedentary behaviour guidelines.

Data source

The analyses in this report are based on data collected in the Australian Bureau of Statistics' (ABS's) 2011–12 Australian Health Survey (AHS). The AHS includes the National Health Survey and the National Nutrition and Physical Activity Survey (NNPAS)—a survey that includes more detailed information on nutrition and physical activity. Box 1 in the Appendix provides examples of the types of physical activity questions asked in the National Health Survey and the NNPAS.

All females in the AHS aged 10 and over were asked if any of the responses listed here currently applied to them (more than one response was allowed):

1. Have never menstruated
2. Currently pregnant
3. Currently breastfeeding
4. Currently experiencing menopause
5. Post menopause.

The number of females in the sample who responded that they were pregnant was quite small—around 280 in the AHS (age range 16–45), with around 120 of these also in the NNPAS. Some undercounting may have occurred in this category as it is possible that some women may have been unaware that they were pregnant at the time of the interview.

The AHS is not designed to be representative of pregnant women in Australia and does not capture stage of pregnancy, a factor that has been shown to influence physical activity levels (Juhl et al. 2012). However, the survey is nationally representative and does provide a useful point-in-time estimate of the physical activity undertaken by pregnant women, while allowing comparisons with the general population.

The age range analysed in this report is 18–45, which largely corresponds with the age range of females from the AHS who identified as pregnant. There were a small number of pregnant females in the survey aged under 18; however, these were excluded from the analyses as the physical activity and sedentary behaviour guidelines for this age group are substantially different from those for adults.

Terminology

The data source used in this report uses the terms ‘physical activity’ and ‘exercise’ somewhat interchangeably; however, there are differences. According to the World Health Organization:

Exercise is a subcategory of physical activity that is planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective. Physical activity includes exercise as well as other activities which involve bodily movement and are done as part of playing, working, active transportation, house chores and recreational activities (WHO 2018).

To gauge levels of physical activity/exercise and to measure participation against the Guidelines, the AHS collects information on:

- walking for fitness, recreation or sport for at least 10 minutes continuously
- walking for at least 10 minutes continuously to get from place to place
- moderate intensity physical activity/exercise (apart from walking)
- vigorous intensity physical activity/exercise.

The NNPAS also collected information on muscle strengthening and toning activities.

2 Are pregnant women meeting the physical activity guideline?

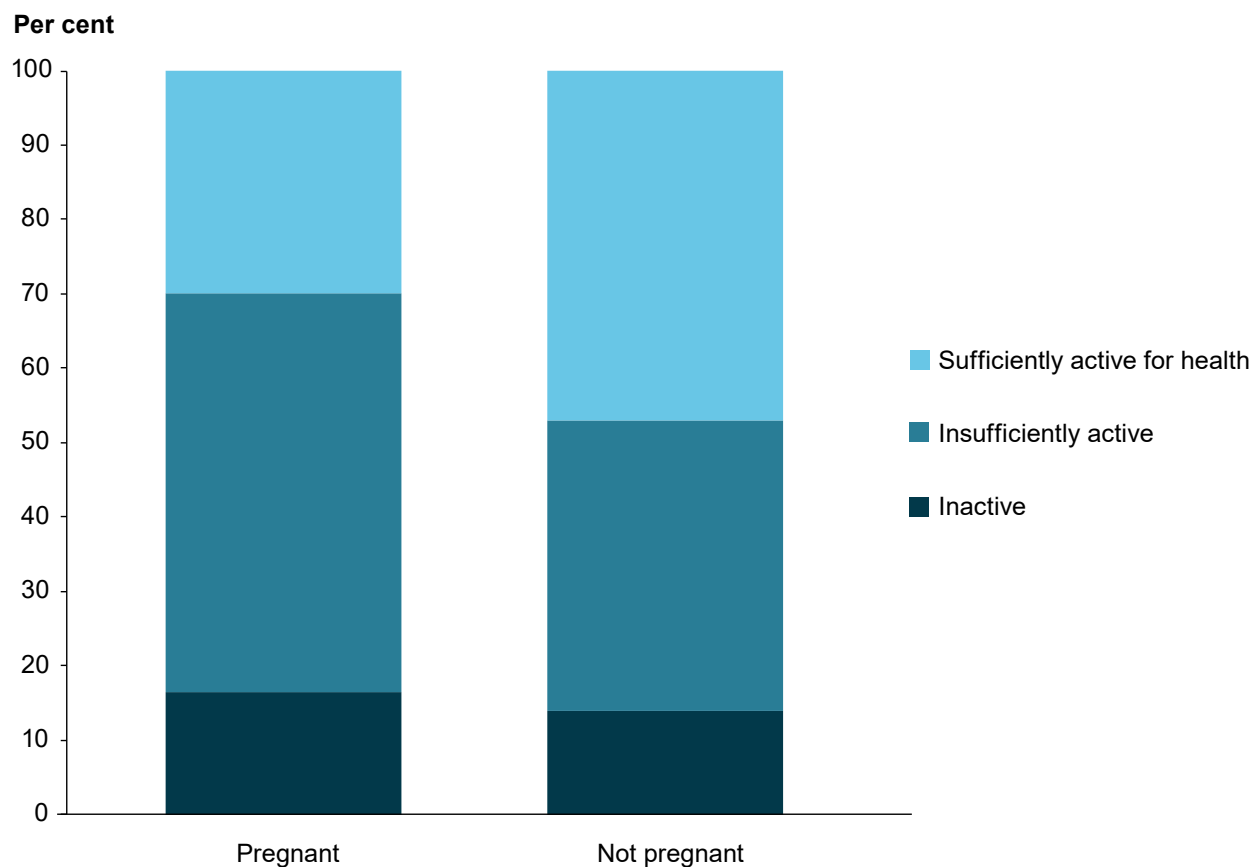
Box 1.1 presents Australia's Physical Activity and Sedentary Behaviour Guidelines for adults aged 18–64 and how we report against them. It is not possible to assess whether these Guidelines are being met in full for pregnant women, as data on muscle-strengthening activities are required. These data are collected in the NNPAS—a component of the AHS (see 'Data sources' section in Chapter 1)—and the number of pregnant women in the NNPAS was too small to provide estimates.

It is possible, however, to assess whether pregnant women were meeting the *physical activity guideline* in Box 1.1 from the AHS. In 2011–12, it is estimated that around one-third (30%) of pregnant women aged 18–45 met the physical activity guideline (Figure 2.1; Table S1). The majority of pregnant women (70%) did not meet this guideline, with just over half (54%) being insufficiently active and 16% inactive.

Women aged 18–45 who were not pregnant were more likely to be sufficiently active than pregnant women, with nearly half (47%) meeting the physical activity guideline. They were also less likely to be insufficiently active (39%). There were similar levels of inactivity between the groups of women (Figure 2.1; Table S1).

The proportion of all women aged 18–45 (pregnant and not pregnant) meeting both the physical activity and strength-based guidelines in the AHS 2011–12 was small (14%), with around one-quarter (25%) of women undertaking any strength or toning activities in the last week (AIHW analysis of ABS 2013a; Table S2). Based on these results—and the smaller proportion of pregnant women meeting the physical activity guideline—it is expected that very few pregnant women would be meeting both guidelines.

Figure 2.1: Proportion of women aged 18–45 who participated in sufficient physical activity in the last week, by pregnancy status, 2011–12



Notes

1. See Box 1.1 for detail on physical activity categories.
2. Does not include women for whom this measure was not known or not applicable.

Source: AIHW analysis of ABS 2014 (Table S1).

3 How much time are pregnant women spending on physical activity?

Based on the 2011–12 AHS, two-thirds (66%) of pregnant women spent fewer than 150 minutes on physical activity for fitness, recreation, sport or transport in the last week.

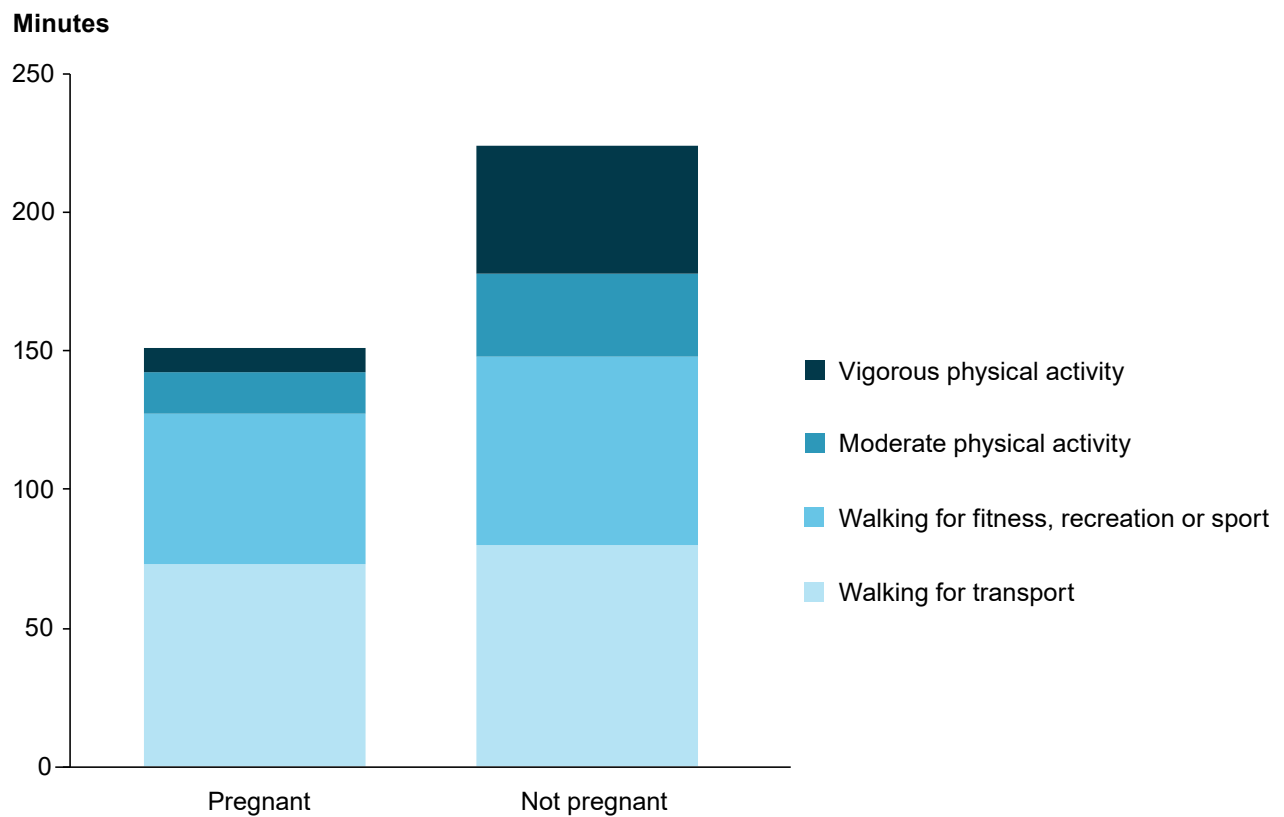
The median time spent on physical activity by pregnant women was 90 minutes in the last week, which was much lower than the average (mean) time of 151 minutes. The mean can be influenced by extreme values and has been skewed upwards by a small proportion of pregnant women performing a large amount of physical activity. For example, 10% of pregnant women spent over 350 minutes on physical activity in the last week.

The average of 151 minutes of physical activity in the last week among pregnant women was made up of:

- 54 minutes of walking for fitness
- 73 minutes of walking for transport
- 15 minutes on moderate physical activity
- 9 minutes on vigorous physical activity (Figure 3.1).

Women who were not pregnant spent significantly more time on physical activity for fitness, recreation, sport or transport than pregnant women in the last week (average 224 minutes compared with 151 minutes, and a median 149 minutes compared with 90 minutes). Women who were not pregnant spent similar amounts of time walking for fitness and transport as pregnant women but spent around twice as much time on moderate activity and five times as much on vigorous activity.

Figure 3.1: Average amount of time (minutes) spent on physical activity for fitness, recreation, sport or transport in the last week for women aged 18–45, by pregnancy status, 2011–12



Notes

1. Time spent on vigorous physical activity for pregnant women has a relative standard error of between 25% and 50% and should be used with caution.
2. Does not include women for whom this measure was not known or not applicable.

Source: AIHW analysis of ABS 2014 (Table S3).

4 What types of activity are pregnant women doing?

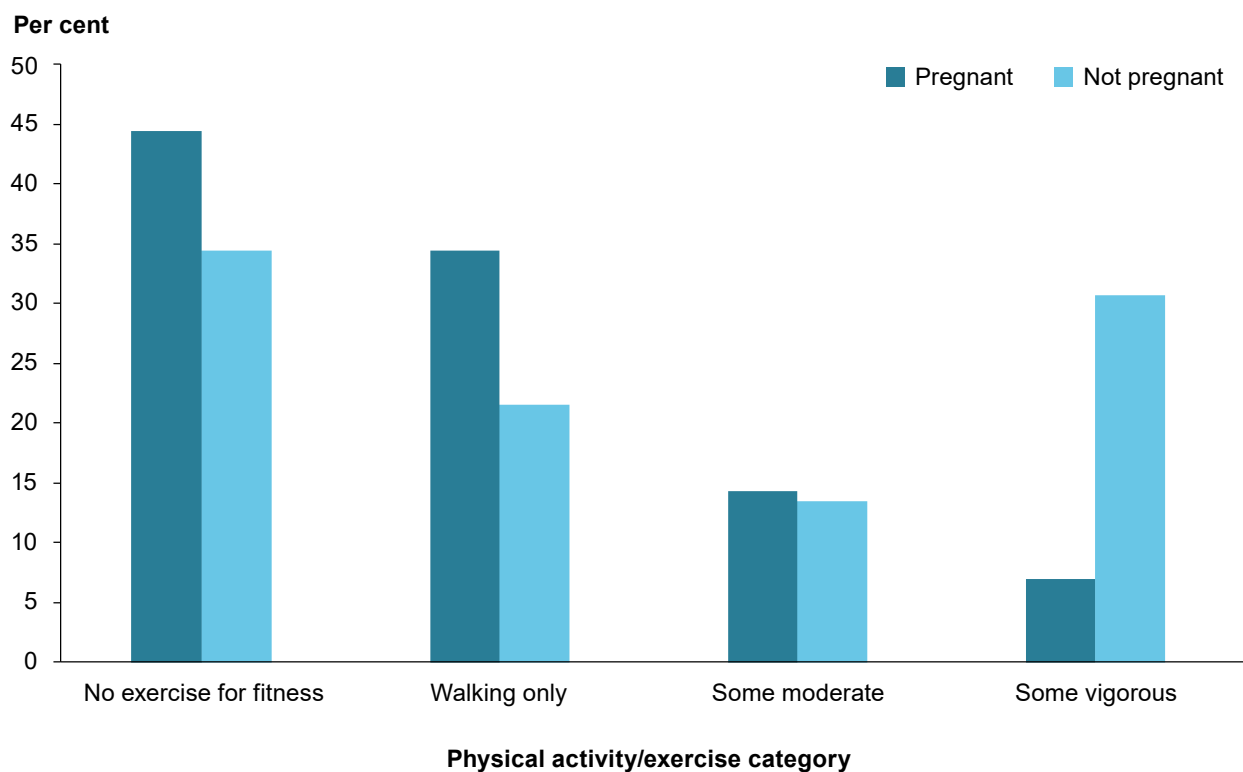
This Chapter refers to physical activity undertaken specifically for fitness, recreation or sport. It does not refer to incidental activity, such as walking for transport, which is included in calculations of total time spent on physical activity in chapters 2 and 3.

Based on the 2011–12 AHS, just under half (44%) of pregnant women aged 18–45 did not undertake any physical activity specifically for fitness, recreation or sport in the last week (Figure 4.1; Table S4). Around one-third (34%) of pregnant women walked as their only form of physical activity, while 14% undertook some moderate activity (apart from walking) and 7% participated in some kind of vigorous activity.

Compared with women who were not pregnant, women who were pregnant were:

- less likely to undertake some form of exercise for fitness, recreation or sport (56% compared with 66%)
- more likely to walk as their only form of exercise (34% compared with 21%)
- less likely to include some vigorous activity (7% compared with 31%).

Figure 4.1: Proportion of women aged 18–45 undertaking each category of physical activity/exercise undertaken for fitness, recreation or sport in the last week, by pregnancy status, 2011–12



Notes

1. Excludes walking for transport.
2. Does not include women for whom this measure was not known or not applicable.

Source: AIHW analysis of ABS 2014 (Table S4).

5 Discussion

The benefits of regular physical activity during pregnancy are well established; however, from this study, it is estimated that under one-third (30%) of pregnant women were considered sufficiently active for health according to Australia's physical activity guideline for adults (Box 1.1). The majority (70%) of pregnant women were either inactive or insufficiently active; however, more than half (56%) did exercise specifically for fitness, recreation or sport.

These findings mirror those of a 2012 study from the Australian Longitudinal Study on Women's Health, which assessed women's adherence to national preventive guidelines (Dobson et al. 2012). The study pooled the results from the 1973–1978 cohort who were pregnant and who answered any of their surveys between 1996 and 2009. Physical activity was assessed against the 2005 Australian guidelines for adults, which recommended at least 30 minutes of moderate activity on most days. The study found that the proportion of pregnant women meeting the 2005 guidelines decreased from 40% of those aged 18–23 in the first survey to 30% of older women in subsequent surveys (Dobson et al. 2012). A limitation of the data source used in this study is that disaggregation by age was not possible due to the small number of pregnant survey respondents.

As well as specific contraindications for exercise during pregnancy, there are substantial physiological and emotional changes that occur throughout pregnancy that can have an impact on the type and amount of physical activity undertaken. These changes can affect each woman to a greater or lesser extent; they include an increase in body weight and changes in weight distribution, an increase in the looseness of ligaments and heart rate, and a decrease in blood pressure (RANZCOG 2016). Many guidelines on exercise during pregnancy suggest precautions and modifications that can overcome these changes and allow physical activity to be undertaken. However, for women with severe pregnancy-related symptoms, such as nausea or fatigue, these modifications may not be sufficient.

Published literature reports a number of other barriers to women participating in physical activity during pregnancy. These include:

- perceived lack of time
- physical discomfort
- lack of motivation/energy
- uncertainty around how to exercise safely during pregnancy (RANZCOG 2016).

Physical activity also generally reduces as pregnancy advances. Coll and others (2017) found that leisure time physical activity declined significantly between the second and third trimester of pregnancy among Brazilian women. While a large Danish study found that, of women who exercised in early pregnancy (around 16 weeks), nearly half had stopped exercising by mid pregnancy (around 30 weeks) (Juhl et al. 2012). The study also found many other factors that were associated with little or no leisure-time physical activity during pregnancy. These included:

- high maternal age
- low education
- low income
- not being married
- having older children at home
- poor general health
- high body mass index
- smoking.

Conversely, pregnant women have reported motivating factors for participation in physical activity, such as:

- the desire to stay in shape and control weight gain
- perceived easier labour and birth
- increased energy and mood improvement (Cioffi et al. 2010).

Unfortunately, it was not possible from the data source used in this study to assess the impact of these factors on the amount of physical activity undertaken by pregnant women in Australia.

However, another Australian study found that misconceptions around physical activity during pregnancy were common, and that information provided to pregnant women by health and exercise professionals and other sources was not consistent—and, at times, contradictory (Cioffi et al. 2010). This is supported by a study of medical practitioners in a regional area of Australia that found, while 42% of practitioners felt confident in providing exercise advice to pregnant patients, most (96%) had not received any formal training, only 8% were aware of any guidelines for exercise during pregnancy and none were familiar with any pre-exercise screening tools (Hayman et al. 2017).

Australian studies have shown that the provision of dietary, physical activity and behavioural information and strategies can increase total physical activity (Dodd et al. 2014; Wilkinson & McIntyre 2012). Promoting regular physical activity in pregnancy through access to information and supervised group sessions can also reduce perceived barriers and facilitate physical activity participation (Cioffi et al. 2010; Haakstad et al. 2018; Leiferman et al. 2011).

Moving forward

A limitation of this study is that, while it provides an insight into the physical activity profile of pregnant women, it does not identify possible contributing factors. Our review of the literature identified a number of contraindications, considerations and barriers that pregnant women may experience that may affect the amount and types of physical activity they undertake. The small sample size of pregnant women in the AHS prevented exploring how these factors affected the physical activity levels reported.

It was also not possible from the data source used in this study to assess whether the physical activity levels of pregnant women vary across population groups. A previous report by the Australian Institute of Health and Welfare found that Aboriginal and Torres Strait Islander women and women from lower socioeconomic groups were less likely to meet Australia's physical activity guideline. International studies have found that low income and education are also related to a reduction in leisure-time physical activity during pregnancy. Little published literature was available on the physical activity of Aboriginal and Torres Strait Islander women during pregnancy. Further research is required to understand the barriers and facilitators to physical activity among specific population groups.

This report highlights that pregnant women are less likely to participate in sufficient physical activity for health than their non-pregnant counterparts. From the wider literature, it appears that misconceptions and concerns about physical activity are still common among pregnant women, and that health professionals are unaware of specific guidelines for pregnant women. Encouraging pregnant women to participate in regular physical activity and providing individualised information and support that deal with specific barriers to participation may help to increase physical activity levels during this important life stage.

Appendix: Data Quality Statement

The primary data source for this report was the Australian Bureau of Statistics' (ABS's) Australian Health Survey (AHS) 2011–13. Data presented in this report were extracted from the Detailed Microdata available in the ABS DataLab.

The data quality declaration for the AHS 2011–13 can be found in the ABS publication *Australian Health Survey: users' guide, 2011–13* (ABS cat. no. 4363.0.55.001) <<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/5209F2553DE3B084CA257BBB0014D160?opendocument>>.

Data source and limitations

The analyses presented in this report are based on data collected in the 2011–12 AHS and the National Nutrition and Physical Activity Survey (NNPAS—a component survey of the AHS). The core content survey of the AHS was completed by 32,000 people, and included a collection of measures relating to physical activity. A subset of 12,000 people from the AHS also completed the NNPAS, which included more detailed information on nutrition and physical activity. Box 1 provides examples of the questions asked of respondents on physical activity.

While the 2011–12 AHS and NNPAS are useful in obtaining characteristics of a population, limitations do exist:

- The surveys were designed to provide relatively detailed estimates at various geographical levels and for relatively common characteristics and subpopulations that are relatively large and evenly spread geographically. They were not designed to be representative of pregnant women in Australia.
- As information is self-reported, it is possible that some women may have been unaware that they were pregnant at the time of the interview; therefore, undercounting in this category may have occurred.
- The surveys do not capture stage of pregnancy, which has been shown to influence physical activity levels (Juhl et al. 2012; Coll et al. 2017).
- Responses are self-reported, which can introduce bias to physical activity estimates, such as overestimations or underestimations of the amount of activity completed (Prince et al. 2008).
- The surveys rely on participants' remembering their physical activity levels and are therefore prone to recall bias. Consequently, errors may be introduced due to the inaccuracies or incompleteness of the recollections.
- The surveys do not capture incidental or occupational physical activity completed and therefore activity levels are likely to be under-represented.

- Methods used to approximate the survey data to the total population are relatively robust, but can be subject to errors (for example, sampling error, where an error in the estimate may arise from the unrepresentativeness of the sample taken).
- These surveys do not capture all population groups—for example, individuals in residential aged care, hospitals, prisons, *Very remote* areas and on defence bases. Consequently, these population groups are unable to be reported.
- Interpretation of survey questions may differ between individuals; as a result, not all related activities may have been captured, which could affect estimates.

Box 1: Physical activity and sedentary behaviour survey questions

Survey questions can be general when referring to physical activity; this may lead to different interpretations of what types of activities constitute 'physical activity'. In turn, this may lead to omissions of certain types of activities that contribute to the total amount of physical activity a person completes (for example, walking around the shops). On the other hand, some survey questions provide examples of particular activities, serving to prompt respondents to consider these when answering the question. However, these examples provided by the interviewer do not exhaustively capture all types of physical activities.

The following are examples of survey questions asked about physical activity:

- What was the total time that [you/(selected person name)] spent walking for fitness, recreation or sport in the last week?
- Excluding any walking [you/he/she] [have/has] done for fitness, recreation or sport in the last week how many times did [you/he/she] walk continuously, for at least 10 minutes, to get to or from places?
- In the last week, how many times did [you/(selected person name)] do any vigorous physical activity which made [you/him/her] breathe harder or puff and pant? (for example, jogging, cycling, aerobics, competitive tennis).
- In the last week, how many times did [you/(selected person name)] do any other more moderate physical activity that you have not already mentioned? (for example, gentle swimming, social tennis, golf).
- Some activities are designed to increase muscle strength or tone, such as lifting weights, resistance training, pull-ups, push-ups, or sit-ups. Including any activities already mentioned, in the last week did [you/(first name)] do any strength or toning activities?

Source: ABS 2013b.

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Abbreviations

ABS	Australian Bureau of Statistics
AHS	Australian Health Survey
NNPAS	National Nutrition and Physical Activity Survey

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Related publications

For those requiring further detail, complete data tables are available in *Physical activity during pregnancy 2011–12 supplementary tables*. These can also be downloaded for free from the Australian Institute of Health and Welfare website. See <<https://www.aihw.gov.au/reports-data/behaviours-risk-factors/physical-activity/overview>>.

This report, *Physical activity during pregnancy 2011–12*, builds on previous work presented in the Australian Institute of Health and Welfare report *Physical activity across the life stages*. See <<https://www.aihw.gov.au/reports/physical-activity/physical-activity-across-the-life-stages/contents/table-of-contents>>.



Currently, little is known about how much, and what types of, physical activity pregnant women undertake in Australia. This short report investigates the types and amount of physical activity undertaken by women during pregnancy, with comparisons made between pregnant and non-pregnant women of the same age, and against Australia's Physical Activity and Sedentary Behaviour Guidelines for adults.

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