



# Overweight and obesity: an interactive insight

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## Citation

### AIHW

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Overweight and obesity is a major public health issue and a leading risk factor for ill-health in Australia. This web report provides interactive graphs showing the prevalence of overweight and obesity, differences in the prevalence between population groups and what is happening over time.

Cat. no: PHE 251

## Findings from this report:

- In 2017-18, 38% of adults in the lowest socioeconomic areas were obese, compared with 24% in the highest
- 2 in 3 (67%) adults were overweight or obese in 2017-18—36% were overweight but not obese and 31% were obese
- Australia had the 6th highest proportion of overweight or obese people aged 15+ among 22 OECD member countries in 2019
- 60% of men and 66% of women in 2017-18 had a waist circumference that indicated a high risk of metabolic complications

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## Causes

### On this page

- [Food and nutrition](#)
- [Physical activity](#)
- [Obesogenic environments](#)

Overweight and obesity occurs mainly because of an imbalance between energy intake (from the diet) and energy expenditure (through physical activities and bodily functions). Genetic and environmental factors also play a role.

Healthy eating and physical activity are important for a healthy, active life. Maintaining your weight means balancing the energy going into your body and the energy being used for growth and repair, for physical activity, and to keep your bodily functions working.

### **Food and nutrition**

The total amount of food that your body needs depends on your age, sex, body size, level of physical activity and whether you are pregnant or breastfeeding. Children and adolescents need enough nutritious food to grow and develop normally. Older people need to eat nutritious foods to help maintain a healthy weight.

The body converts the protein, fat and carbohydrate in food to energy. Excess energy intake, even a small amount over a long period, will cause weight gain. Visit [eatforhealth.gov.au](http://eatforhealth.gov.au) to calculate your individual energy requirements.

The [Australian Guide to Healthy Eating](#) is a food selection guide that visually represents the proportion of the five food groups recommended for consumption each day. Following these recommendations and limiting the number of energy-dense, nutrient-poor discretionary foods and drinks is the best way to maintain a healthy weight.

For more information see [Food & nutrition](#).

### **Physical activity**

The human body expends energy in 3 ways:

- basal metabolism (the energy used to maintain vital body processes)
- thermic processes (the energy taken to digest and absorb food)
- physical activity (the energy used to move around).

Physical activity is the component a person has the most control over. Being physically active throughout life helps to promote health and wellbeing and prevent chronic disease. Not expending enough energy can contribute to weight gain and overweight and obesity (AIHW 2018).

Too much sedentary behaviour (sitting or lying down, except when sleeping) can also contribute to overweight and obesity (AIHW 2018). [Australia's Physical Activity and Sedentary Behaviour Guidelines](#) recommend the type, duration, intensity and frequency of physical activity, and practices for sedentary behaviour, for people during different life stages.

For more information see [Physical activity](#).

### **Obesogenic environments**

The term 'obesogenic environment' is used to describe an environment that promotes obesity (Swinburn et al. 1999). Schools, workplaces, homes and neighbourhoods, the media, availability of convenience foods, and portion sizes can all influence a person's body weight. See [A picture of overweight and obesity in Australia](#) for more information on obesogenic environments.

## References

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## Prevalence

### On this page

- [Children and adolescents](#)
- [Adults](#)
- [Aboriginal and Torres Strait Islander Australians](#)

The interactive graphs below allow you to explore the prevalence of overweight and obesity in Australia, based on nationally representative measured height and weight data.

### **Children and adolescents**

In 2017-18, one in four (25%) children and adolescents aged 2-17 were overweight or obese. That's around 1.2 million children and adolescents. About 1 in 6 (17%) children and adolescents were overweight but not obese while 1 in 12 (8.2%) were obese (ABS 2018b).

Results were similar for boys and girls across the age groups.

This bar chart shows the prevalence of 3 measures of overweight and obesity for children and adolescents in 2017-18: overweight and obesity combined, obesity alone, and overweight but not obese. Data are shown for boys, girls and all children in the following age groups: 2-4, 5-9, 10-14 and 15-17. The chart shows similar rates of overweight and obesity across age groups for boys and girls.

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See [Overweight and obesity among Australian children and adolescents](#) for more information on this age group.

### **Adults**

In 2017-18, 2 in 3 (67%) of Australians aged 18 and over were overweight or obese. Put another way, approximately 12.5 million adults were overweight or obese. About 1 in 3 (36%) adults were overweight but not obese, and about 1 in 3 (31%) were obese. About 1 in 9 (12%) adults were severely obese, which is defined in this report as having a BMI of 35 or more (Table S4).

For all measures of overweight and obesity, men had higher rates than women did:

- 75% of men and 60% of women were overweight or obese
- 33% of men and 30% of women were obese
- 42% of men and 30% of women were overweight but not obese (Table S2).

Overweight and obesity is distributed differently among men and women, as shown in the [BMI calculator](#).

Across age groups for men, the proportion who were overweight or obese increased with age from 52% at 18-24 to 83% at 45-54, plateaued until 65-74, and then decreased to 65% at age 85 years and over.

Across age groups for women, the proportion who were overweight or obese increased with age from 40% at 18-24 to 73% at 65-74, and decreased to 61% at age 85 years and over.

Obesity is more common in older age groups—about 1 in 6 men (18%) and 1 in 7 women (14%) aged 18-24 year were obese, compared with 2 in 5 men (42%) and women (39%) aged 65-74.

This bar chart shows the prevalence of 3 measures of overweight and obesity for adults aged 18 and over in 2017-18: overweight and obesity combined, obesity alone, and overweight but not obese. Data are shown for men and women in 8 age groups, from 18 to 85 and over. Across age groups for men, overweight and obesity increased with age from 52% at 18-24 to 83% at 45-54, plateaued until 65-74, and then decreased to 65% at age 85 years and over. Across age groups for women, the proportion who were overweight or obese increased with age from 40% at 18-24 to 73% at 65-74, and decreased to 61% at age 85 years and over.

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### **Waist circumference**

In 2017-18, 60% of men and 66% of women aged 18 and over had a waist circumference that indicated an increased or substantially increased risk of metabolic complications. The proportion of adults with a waist circumference that indicated a substantially increased risk of metabolic complications tended to increase with age, up until about age 65-74 for men and 75-84 for women.

This stacked bar chart shows the proportion of men and women who had a waist circumference indicating an increased or a substantially increased risk of metabolic complication, in 8 age groups, from 18 to 85 and over. It shows that the proportion with a substantially increased risk tended to increase with age, up until about age 65-74 for men and 75-84 for women.

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## Aboriginal and Torres Strait Islander Australians

According to the latest data from the 2018-19 National Aboriginal and Torres Strait Islander Health Survey, 38% of Aboriginal and Torres Strait Islander children and adolescents aged 2-17 were overweight or obese. This was an increase from the 31% estimated from the previous Australian Aboriginal and Torres Strait Islander Health Survey in 2012-13 (ABS 2015, 2019a). It was also higher than the 24% of non-Indigenous children and adolescents estimated from the latest National Health Survey in 2017-18 (ABS 2019c).

There was little difference in the prevalence of overweight and obesity between Indigenous boys and girls aged 2-17 in 2018-19 (36% of boys and 40% of girls). However, there was some variation across age groups for boys, with overweight and obesity increasing between ages 2-4 (21%), 5-9 (33%) and 10-14 (45%). For girls, there were no significant differences in the prevalence of overweight and obesity across age groups (Figure 4).

See [Overweight and obesity among Australian children and adolescents](#) for more information.

This bar chart shows the prevalence of 3 measures of overweight and obesity for Indigenous children and adolescents in 2018-19: overweight and obesity combined, obesity alone, and overweight but not obese. Data are shown for boys, girls and all children in the following age groups: 2-4, 5-9, 10-14 and 15-17. The chart shows more variation across age groups for boys than for girls, with overweight and obesity increasing from 21% at 2-4, to 45% at 10-14 for boys, and ranging between 37% and 42% for girls.

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In 2018-19, 3 in 4 (74%) Aboriginal and Torres Strait Islander Australians aged 18 and over were overweight or obese, and 45% were obese. This was an increase from 2012-13, when 69% of Indigenous adults were overweight or obese, and 40% were obese (ABS 2014, 2019a).

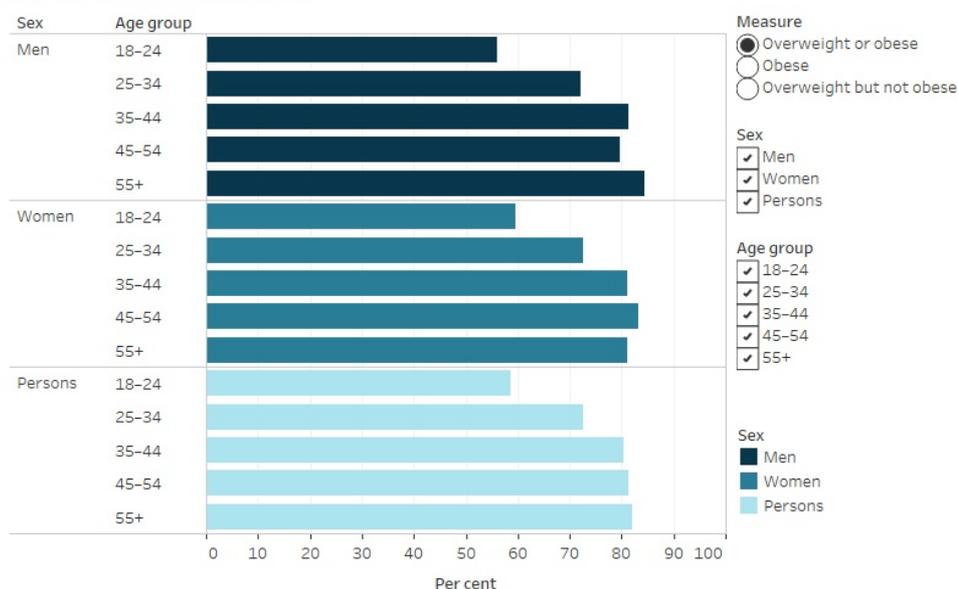
In 2018-19, the obesity rate for younger Indigenous adults aged 18-24 was lower than the obesity rate for those aged 55 and over (32% compared with 51%). At age 55 and over, 4 in 5 (82%) adults were overweight or obese.

There was some variation between men and women across age groups, but no statistically significant differences (Figure 5).

After adjusting for differences in the age structure of Indigenous and non-Indigenous populations, Indigenous adults were 1.2 times as likely to be overweight or obese as non-Indigenous adults (77% compared with 66%), and 1.5 times as likely to be obese (47% compared with 31%) (ABS 2019a).

This bar chart shows the prevalence of 3 measures of overweight and obesity for Indigenous adults aged 18 and over in 2018-19: overweight and obesity combined, obesity alone, and overweight but not obese. Data are shown for men and women in 5 age groups, from 18 to 55 and over. For both men and women, the prevalence of overweight and obesity was lower for younger Indigenous adults aged 18-24 (59% overall) compared with those aged 55 and over (82% overall).

**Figure 5: Proportion of overweight and obese Indigenous persons aged 18 and over, by age group and sex, 2018-19**



Source: ABS 2019a; See Table S6 for data and footnotes.  
<https://www.aihw.gov.au>

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## Differences between groups

### On this page

- [Remoteness areas](#)
- [Socioeconomic areas](#)
- [Primary Health Networks](#)

The interactive graphs below allow you to explore the prevalence of overweight and obesity in different geographical areas and among different population groups. Overweight and obesity measures are based on measured height and weight data.

### **Remoteness areas**

An important factor associated with overweight and obesity is the area in which an individual lives, including its remoteness (which is measured by the area's road distance from goods and services such as hospitals and doctors) (AIHW 2018). People living outside metropolitan areas often have poorer health outcomes than people living in metropolitan areas, including higher rates of overweight and obesity.

In 2017-18, a higher proportion of Australian children and adolescents aged 2-17 living in *Inner regional* areas were overweight or obese compared with those living in *Major cities* (29% and 23%, respectively) (Figure 1). For children and adolescents living in *Outer regional and remote* areas, the proportion was 27%. This pattern was similar for boys and girls (ABS 2019).

This bar chart shows that, in 2017-18, for both boys and girls, the proportion of children and adolescents aged 2-17 who were overweight or obese was generally highest in Inner regional areas (29% overall), followed by Outer regional and remote areas, and lowest in Major cities (23% overall). However, not all of these differences were statistically significant.

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In 2017-18, Australians aged 18 or over living in *Outer regional and remote* and *Inner regional* areas were more likely to be overweight or obese than those living in *Major cities*. After adjusting for differences in the age structure of these populations, 70% of those living in *Outer regional and remote* areas and 71% in *Inner regional* areas were overweight or obese, compared with 65% of those living in *Major cities*.

A similar pattern was observed for women, with those living in regional areas more likely to be overweight or obese than those in *Major cities*—65% of those living in *Outer regional and remote* areas, 64% in *Inner regional* areas, and 57% of those living in *Major cities* (after adjusting for age).

Among men, those living in *Inner regional* areas were more likely to be overweight or obese than those living in *Major cities* (78% compared with 73%), with a non-significant difference found for those living in *Outer regional and remote* areas (75%) (after adjusting for age). This bar chart shows that after adjusting for age, in 2017-18, women living in Outer regional and remote areas, or Inner regional areas, were more likely to be overweight or obese than those living in Major cities. Men living in Inner regional areas were more likely to be overweight or obese than men living in Major cities.

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### **Socioeconomic areas**

Socioeconomic factors (such as a person's education, income and occupation) are important determinants of health (AIHW 2018). Results in this section use the overall socioeconomic index of the area in which people live as a measure of their socioeconomic disadvantage. People living in lower socioeconomic (that is, more disadvantaged) areas are generally at a greater risk of poor health. In Australia, there is evidence of a pattern of higher rates of overweight and obesity as the level of disadvantage increases (AIHW 2018).

In 2017-18, children and adolescents aged 2-17 living in the lowest socioeconomic areas were more likely to be overweight or obese (28%) than those in the highest socioeconomic areas (21%) (Figure 3). Similarly, the obesity rate in this age group was 2.4 times as high for those in the lowest socioeconomic areas (11%) compared with the highest (4.4%) (ABS 2019).

When comparing boys and girls, there was some variation across socioeconomic areas, but the prevalence of overweight and obesity was not significantly different in the lowest socioeconomic areas (26% of boys and 31% of girls), or the highest (21% for both boys and girls). This bar chart shows the prevalence of overweight and obesity across 5 socioeconomic areas (with area 1 representing the most disadvantaged areas, and area 5 representing the least disadvantaged areas). It shows that, in 2017-18, for boys and girls, the most disadvantaged areas had a higher prevalence of overweight and obesity than the least disadvantaged areas (although the differences weren't statistically significant).

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In 2017-18, Australians aged 18 or over in the lowest socioeconomic areas were more likely to be overweight or obese than those in the highest socioeconomic areas—72% compared with 62% (after adjusting for differences in age structure).

Among men, the age-adjusted prevalence of overweight and obesity for those in the lowest socioeconomic areas (77%) was significantly higher than for those in the highest socioeconomic areas (73%).

Among women, there was an even greater difference in overweight and obesity between the lowest socioeconomic areas and the highest—66% for those in the lowest socioeconomic areas and 50% for those in the highest socioeconomic areas (after adjusting for age).

For both men and women, rates of obesity were the underlying reason for the difference by socioeconomic areas. Among men, the age-adjusted prevalence of obesity was 37% in the lowest socioeconomic areas, compared with 26% in the highest areas. Among women, 38% were obese in the lowest socioeconomic areas, compared with 22% in the highest areas, after adjusting for age.

This bar chart shows the prevalence of overweight and obesity, after adjusting for age, across 5 socioeconomic areas (with area 1 representing the most disadvantaged areas, and area 5 representing the least disadvantaged areas). It shows that, in 2017-18, for men and women, the most disadvantaged areas had a higher prevalence of overweight and obesity than the least disadvantaged areas, with a larger difference observed for women.

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### **Primary Health Networks**

In 2017-18, of measured Primary Health Network (PHN) areas, after adjusting for age, the Western New South Wales PHN area had the highest prevalence of overweight and obesity, with 4 in 5 adults overweight or obese (83%). The Gold Coast PHN area had the lowest prevalence, with about 3 in 5 adults overweight or obese (59%).

This figure shows a map of Australia with the proportion of overweight and obese adults displayed for each Primary Health Network (PHN) area. It also shows a list of PHNs with their prevalence of overweight and obese adults shown in relation to the Australian average. It shows that of 31 PHN areas, the Western NSW PHN area had the highest prevalence of overweight and obesity (83%), while the Gold Coast PHN area had the lowest (59%).

Visualisation not available for printing

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## Time trends

### On this page

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- [Adults](#)
- [Birth cohorts](#)
- [International comparisons](#)

The interactive graphs below allow you to explore how the prevalence of overweight and obesity has changed over time in different populations, using nationally representative measured height and weight data.

### **Children and adolescents**

National data on overweight and obesity among 5-17 year olds are available from national health surveys conducted by the ABS, dating back to 1995.

The proportion of children and adolescents who were overweight or obese increased between 1995 and 2007-08 (from 20% to 25%), then remained relatively stable from 2007-08 to 2017-18 (ABS 2009b, 2013a, 2013b, 2015, 2019b) (Figure 1).

Similarly, the prevalence of obesity increased from 4.9% in 1995 to 7.5% in 2007-08, then remained relatively stable to 2017-18 (8.1%). Rates of overweight but not obese children rose between 1995 and 2014-15 (from 15% to 20%), then declined to 17% in 2017-18.

This line chart shows 3 separate lines for the proportion of children and adolescents who were overweight or obese, overweight but not obese, and obese in 1995, 2007-08, 2011-12, 2014-15 and 2017-18. Overweight and obesity increased between 1995 and 2007-08 (from 20% to 25%), then remained relatively stable from 2007-08 to 2017-18.

Visualisation not available for printing

### **Adults**

After adjusting for different population age structures over time, the prevalence of overweight and obesity among Australians aged 18 and over increased from 57% in 1995 to 67% in 2017-18. Over this time period, the prevalence of obesity increased substantially, from 1 in 5 (19%) in 1995 to 1 in 3 (31%) in 2017-18. The prevalence of overweight but not obese declined from 38% to 36%.

This line chart shows 3 separate lines for the age-standardised proportion of adults who were overweight or obese, overweight but not obese, and obese in 1995, 2007-08, 2011-12, 2014-15 and 2017-18. The prevalence of overweight and obesity increased from 57% in 1995 to 67% in 2017-18, while the prevalence of obesity increased from 19% to 31% over this period.

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The distribution of BMI in adults shifted towards higher BMIs from 1995 to 2017-18, due to an increase in obesity in the population over time.

This chart shows the smoothed distributions of BMI among adults in 1995 and 2017-18, with the BMI cut-off points for underweight, normal weight, overweight and obese also shown on the chart. Compared with 1995, the 2017-18 distribution has shifted to the right, indicating an increase in obesity over time.

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### **Birth cohorts**

The prevalence of overweight and obesity differs by birth cohort (that is, a group of people born in the same year or years).

A recent AIHW report (AIHW 2020a) compared children, adolescents and young people in 2017-18 with those of the same ages 10 years earlier in 2007-08 and 22 years earlier in 1995. Those born most recently (in 2003-2012) were more likely to be overweight or obese at age 5-14 (24%) than those born in 1981-1990 at the same age (20%). They were also more likely to be obese (7.7% compared with 5.1%). However, the 2003-2012 birth cohort was not significantly more likely to be overweight or obese at age 5-14 than those born in 1993-2002.

For adolescents and young people aged 15-24, those born most recently (in 1993-2002) were more likely to be overweight or obese (41%) than those born in 1983-1992 at the same age (36%) and those born in 1971-1980 at the same age (28%). The 1993-2002 birth cohort was also more likely to be obese at age 15-24 (14%) than those born in 1971-1980 at the same age (8.4%).

When comparing the 1993-2002 birth cohort as they aged from 5-14 to 15-24, the prevalence of overweight and obesity increased with age (from 23% to 41%). Obesity also increased, from 6.4% to 14%.

This bar chart shows the prevalence of overweight and obesity for different birth cohorts at age 5-14 and age 15-24, separately for males and females. It shows that at age 5-14, boys born in 2003-2012 were more likely to be overweight or obese than boys born in 1981-1990 at the same age (25% compared with 19%). At age 15-24, males born in 1993-2002 were more likely to be overweight or obese than males born

in 1971-1980 at the same age (46% compared with 32%), as were females (35% of females born in 1993-2002, compared with 24% of females born in 1971-1980). However, only males had a significant increase in overweight and obesity between the 1983-1992 and 1993-2002 cohorts (increasing from 38% to 46%). When comparing the 1993-2002 birth cohort as they aged from 5-14 to 15-24, the prevalence of overweight and obesity increased with age for males (from 24% to 46%) and females (from 22% to 35%).

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In most adult age groups assessed in a recent AIHW report (AIHW 2020b), adults born most recently were significantly more likely to be obese than those born 10 years earlier. The largest absolute difference was at age 75-84, where an additional 11 in every 100 adults were obese at age 75-84 in 2017-18 compared with 2007-08.

Between 1995, 2007-08 and 2017-18, the prevalence of obesity increased significantly for almost all birth cohorts. The largest absolute change in the prevalence of obesity over the 22 years was among the 1973-1982 birth cohort. The prevalence of obesity in this birth cohort nearly tripled from 6.5% when they were aged 13-22 (in 1995) to 19% when they were aged 25-34 (in 2007-08), then increased to 31% when they were aged 35-44 (in 2017-18).

This line chart shows the prevalence of overweight and obesity and obesity for 9 birth cohorts, with data for each cohort shown at the midpoint of the cohort's age group at up to 3 time points (1995, 2007-08 and 2017-18). For most birth cohorts, the prevalence of overweight and obesity generally increased with age over time, and the group with the highest prevalence is 65-74 year olds in 2017-18 with 40% having obesity and 78% being overweight or obese.

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For more details on these birth cohort analyses, see [Overweight and obesity in Australia: an updated birth cohort analysis](#) and [Overweight and obesity among Australian children and adolescents](#).

### **International comparisons**

International comparisons of the prevalence of overweight and obesity can be made for OECD member countries with data available for measured BMI, based on data from 2019 or the latest available year (OECD 2020a).

Australia ranked 5th out of 23 countries with available data for the proportion of people aged 15 and over who are obese (30%)—this was greater than the OECD average of 24%.

Australia ranked 6th out of 22 countries with available data for the proportion of people aged 15 and over who were overweight or obese (65%)—this was greater than the OECD average of 59%.

When comparing the proportion of obese men and women across OECD countries, Australia had the 2nd highest proportion of obese men (32%), behind the United States (38%). The proportion of obese women in Australia was 8th highest out of 23 countries (29%)—higher than the OECD average of 25% for women.

This bar chart shows the proportion of people aged 15 and over who were overweight or obese in OECD countries in 2019 or the nearest year data were available, for males, females and persons. It shows Australia had the 6<sup>th</sup> highest proportion for overweight and obesity combined (65%), and the 5<sup>th</sup> highest proportion for obesity (30%). These were higher than the OECD averages of 59% and 24% respectively.

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Australia is among a number of OECD member countries in which the prevalence of overweight and obesity has increased over recent decades, and in Australia as well as most other countries, this increase has been driven by the increased proportion of people who are obese (OECD 2020a). This upward trend is expected to continue—OECD projections show a steady increase in obesity rates until at least 2030 (OECD 2017).

This line chart shows the proportion of people aged 15 and over who were overweight or obese in OECD countries each year from 2000 to 2019 (or the nearest year data were available). It shows that Japan and Korea had much lower rates of overweight and obesity than other countries, with Japan having the lowest prevalence across all years of data (ranging from about 24% to 27%). The country with the highest prevalence of overweight and obesity is Mexico at 75% in 2018.

Visualisation not available for printing

For more information, see [International health data comparisons, 2020](#).

### **References**

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## Technical notes

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### **Australian Bureau of Statistics data**

This report uses data from the following surveys conducted by the Australian Bureau of Statistics (ABS):

- 2018-19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)
- 2017-18 National Health Survey (NHS)
- 2014-15 NHS
- 2012-13 Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS)
- 2011-12 Australian Health Survey (AHS)
- 2007-08 NHS
- 1995 National Nutrition Survey (NNS).

These data sources were chosen because they provide nationally representative measured height and weight data.

Information about the surveys, including data quality statements, is available on the [ABS website](#).

The scope of these surveys was restricted to residents of private dwellings, and excluded residents of non-private dwellings such as hospitals, nursing homes, hotels, motels, boarding schools, and prisons.

The 2017-18 NHS, 2014-15 NHS, 2011-12 AHS, 2007-08 NHS and 1995 NNS excluded people living in very remote areas of Australia and discrete Aboriginal and Torres Strait Islander communities.

The 2018-19 NATSIHS and 2012-13 AATSIHS only collected information from people who identified as Aboriginal or Torres Strait Islander. These surveys included people living in non-remote and remote areas, including discrete Aboriginal and Torres Strait Islander communities.

All of these surveys (except the 2007-08 NHS) included measured height and weight data for people aged 2 and over. The 2007-08 NHS included these data for people aged 5 and over.

Each survey included the collection of measured height and weight by trained interviewers. The tools used for measuring height and weight varied over time, and in particular this changed the maximum weight that could be measured. For example, the 1995 NNS used scales that could weigh a maximum weight of 140 kg. However, the 2007-08 NHS used scales that could weigh a maximum weight of 150 kg, and the 2017-18 NHS used scales that could weigh a maximum weight of 200 kg.

The response rates for physical measures varied between surveys with decreasing response rates over time. The ABS imputed BMI for those people for whom BMI was not measured in the 2014-15 NHS, 2017-18 NHS and 2018-19 NATSIHS. In this method, participants with a missing response were given the response of similar participants.

A very similar imputation method was used for the 2017-18 NHS and the 2018-19 NATSIHS, but this method was different for adults and children. For adults, the similarity of participants was based on age group, sex, part of state, self-perceived body mass, level of exercise, whether or not a participant had high cholesterol as a long-term health condition, and self-reported BMI category (calculated from self-reported height and weight) (ABS 2018c, 2019). For 2-14 year olds, the similarity was based on age group, sex, self-reported BMI and part of state, while for 15-17 year olds, level of exercise and self-perceived body mass (only if a person answered for themselves) were also used.

The imputation method for the 2014-15 NHS was similar to the 2017-18 NHS and 2018-19 NATSIHS, except it did not use self-reported BMI (ABS 2015).

There was no imputation of BMI in the 1995 NNS, 2007-08 NHS, 2011-12 AHS and 2012-13 AATSIHS and participants without a measured BMI were excluded from analysis.

### **Primary Health Networks**

This report includes the number of adults aged 18 years and over who were classified as overweight or obese, by Primary Health Network (PHN). PHNs are local organisations that connect health services across a specific geographic area, with the boundaries defined by the Australian Government Department of Health.

Proportions have been age standardised to the 2001 Australian population to account for differences in the age structure of the population in different areas. Results are presented in Table S8 as both crude and age-standardised rates.

The quality of estimates from the NHS can vary across PHN areas, as the survey was not specifically designed to produce estimates at this level of geography. Table S8 includes 95% confidence intervals, as an indication of the reliability of the proportions.

Proportions that have a margin of error that is 10 percentage points or greater have been indicated and these should be used with caution due to the wide confidence interval.

Data for the Northern Territory should be interpreted with caution as the 2017-18 NHS excluded *Very Remote* areas which comprises of 20% of the estimated resident population of the Northern Territory (ABS 2018c).

### **Remoteness areas**

This report uses the remoteness areas from the 2016 Australian Statistical Geography Standard (ABS 2018a). The national health surveys exclude *Very Remote Australia* so these are not included in results in this publication.

Due to low sample size, *Remote Australia* has been combined with *Outer Regional Australia* for results presented by remoteness areas.

### **Socioeconomic areas**

Information on socioeconomic areas in this report is based on Socio-Economic Indexes for Areas (SEIFA), a product developed by the ABS that ranks areas in Australia according to relative socioeconomic advantage and disadvantage. The indexes are based on information from the five-yearly Census. Each index is a summary of a different subset of Census variables and focuses on a different aspect of socioeconomic advantage and disadvantage (ABS 2018b).

This report uses the Index of Relative Socio-economic Disadvantage (IRSD) from 2016, based on the Statistical Area Level 1 (SA1) that each household was within. Areas were ranked and put into 5 equally sized groups based on the IRSD score of these SA1s and these form the socioeconomic areas used in this report. The 20% of areas living with the greatest overall level of disadvantage are described as living in the lowest socioeconomic areas. The 20% of areas at the other end of the scale—those living in areas with the least overall level of disadvantage—are described as living in the highest socioeconomic areas.

### **Methods**

#### **Prevalence estimates**

Crude and age-standardised prevalence estimates are presented as percentages in this report. Crude prevalence, as a percentage, is defined as the number of people with a particular characteristic, divided by the number of people in the population of interest, multiplied by 100.

In calculating crude prevalence estimates, those people for whom BMI was not available were excluded from the denominator. For the 2014-15 NHS, 2017-18 NHS and the 2018-19 NATSIHS, imputed data were used for those people for whom BMI had not been measured.

All prevalence estimates in this report are weighted estimates that use person weights allocated to each survey participant by the ABS.

The jack-knife weight replication method was used to derive the standard error (SE) for each estimate, using replicate weights provided by the ABS.

The statistical significance of any difference in prevalence (percentage) estimates between people across time or population groups (e.g. between age groups, socioeconomic quintile, or sex) was assessed using z scores or 95% confidence intervals.

#### **Age-standardised estimates**

Age-standardised prevalence estimates are presented to remove the influence of age when comparing populations with different age structures. This is necessary because rates of overweight and obesity vary (usually increasing) with age.

The age-standardised proportions in this report have been directly age-standardised to the 2001 Australian standard population.

#### **Measuring overweight and obesity**

For children and adolescents, age- and sex-specific half-year BMI cut-off points were used to classify overweight and obesity (Cole et al. 2000).

For adults:

- overweight and obesity was classified as a BMI of 25.00 kg/m<sup>2</sup> or more
- obesity was classified as a BMI of 30.00 kg/m<sup>2</sup> or more (WHO 2000).

#### **Relative standard error, margin of error and confidence intervals**

The relative standard error (RSE) of an estimate is a measure of the error likely to have occurred due to sampling. The RSEs of the estimates were calculated using the standard errors (SEs):

$$RSE\% = \frac{SE(\text{estimate})}{\text{estimate}} \times 100$$

The margin of error (MoE) at the 95% confidence level for each estimate was calculated using 1.96 as the critical value:

$$\text{MoE} = 1.96 \times \text{SE}(\text{estimate})$$

The MoE was then used to calculate the 95% confidence interval (CI) around each estimate:

$$95\% \text{ CI} = \text{estimate} \pm \text{MoE}(\text{estimate})$$

The 95% CI is a range of values determined by the variability in data, within which there is a 95% chance that the confidence interval will contain the true value of the population quantity being estimated.

### Significance testing

Variation or difference in observed values or rates may be due to a number of causes including, among other things, actual differences in the study's populations and sampling error. A statistical test of significance indicates how incompatible the observed data are with a specified statistical model. To assess whether differences between estimates are incompatible with a null hypothesis that the survey estimates are normally distributed and that there is no difference between the groups being compared, 95% CIs were used.

A difference between estimates was considered statistically significant if the 95% CIs around the estimates did not overlap. Where there was an overlap between 95% CIs, a 95% CI for the difference between estimates was calculated. To do this, the SE of the difference was approximated by:

$$\text{SE} = \sqrt{\text{SE}(\text{estimate}_1)^2 + \text{SE}(\text{estimate}_2)^2}$$

The 95% CI for the difference between estimates was then calculated as:

$$95\% \text{ CI} = (\text{estimate}_1 - \text{estimate}_2) \pm (1.96 \times \text{SE}(\text{estimate}_1 - \text{estimate}_2))$$

If the 95% CI for the difference between estimates included 0, then the difference was not statistically significant. If it excluded 0, then the difference was considered to be statistically significant.

### References

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ABS (Australian Bureau of Statistics) 2015. [Appendix 2: Physical measurements in the 2014-15 National Health Survey](#). National Health Survey: First Results, 2014-15. Canberra: ABS. Viewed 21 October 2020.

ABS 2018a. [Australian Statistical Geography Standard \(ASGS\): Volume 5 - Remoteness structure, July 2016](#). Canberra: ABS. Viewed 8 October 2020.

ABS 2018b. [Census of Population and Housing: Socio-Economic Indexes for Areas \(SEIFA\), Australia, 2016](#). Canberra: ABS. Viewed 8 October 2020.

ABS 2018c. [National Health Survey: First Results methodology, 2017-18](#). Canberra: ABS. Viewed 9 November 2020.

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WHO (World Health Organization) 2000. [Obesity: preventing and managing the global epidemic](#). Report of a WHO consultation. World Health Organization Technical Report Series 894. Geneva: WHO. Viewed 9 November 2020.

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## Notes

### Amendments

**27 Nov 2020** - The following updates and changes were made:

#### Prevalence

- Data from the 2012-13 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) on the prevalence of overweight and obesity among Indigenous Australians have been updated with data from the 2018-19 NATSIHS. Data on the change in prevalence between 2012-13 and 2018-19 have been added, as well as new comparisons of overweight and obesity prevalence in Indigenous and non-Indigenous Australians, based on the latest ABS survey data.
- Estimates of the prevalence of overweight and obesity in children and adolescents by sex and age have been updated to use different age groups (previously 2-4, 5-7, 8-11, 12-15 and 16-17; now 2-4, 5-9, 10-14 and 15-17).
- Corrected proportion of severely obese adults in 2017-18 (from 1 in 10 (11%) to 1 in 9 (12%)).

#### Time trends

- The data on the prevalence of overweight and obesity by birth cohort (summarised from the report [Overweight and obesity in Australia: a birth cohort analysis](#)) have been updated based on the results of more recent AIHW analyses from the reports [Overweight and obesity in Australia: an updated birth cohort analysis](#) and [Overweight and obesity among Australian children and adolescents](#).
- Data on international comparisons have been updated with the latest available OECD data (from 2019 or the nearest year data were available).

#### Technical notes

- The content has been restructured and updated, and additional details on data sources and methods have been added.

#### General updates

- The format of some of the interactive graphs has been updated, where previously stacked graphs were used.
- Minor updates to wording have been made.
- Sources and references have been updated.

#### Supplementary tables

- Data tables have been updated with new data where available.
- Extra data have been added to some tables to supplement the figures in the web report.
- Crude rates and confidence intervals have been added to appear with age-standardised rates.
- Error has been corrected, to show age-standardised confidence intervals instead of crude confidence intervals in table S5.
- Sources, references and formatting have been updated.

**20 Aug 2019** - The following changes were made:

- Text in the *Prevalence* section of the report regarding obesity in men (42%) and women (39%) age 65-74 incorrectly stated 1 in 4 and has been revised to correctly state 2 in 5.
- The data for 1995 in the tableau visualisation *Figure 1: Proportion of overweight and obese children and adolescents aged 5-17 years, 1995 to 2017-18* were incorrect and have been updated to correctly reflect the data in text and the supplementary tables.
- Text in the *Time trends* section, under the heading *Children and adolescents* incorrectly stated the prevalence of obesity in 2017-18 is 8.2%. This has been corrected to 8.1%.
- Table S3 incorrectly presented the proportion of overweight or obese children in the lowest socioeconomic group (group 1) as 10.7%, this has been corrected to 28.1%.
- Text in the *Differences between groups* section of the report incorrectly stated that rates of overweight and obesity for children in the highest socioeconomic areas was 25%. This has been corrected to 21% to reflect the data in the tables.

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## Data

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Data tables: [Overweight and obesity: an interactive insight, 2020](#)

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## Related material

### Resources

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[Overweight and obesity among Australian children and adolescents](#)

[View](#)

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[Overweight and obesity in Australia: an updated birth cohort analysis](#)

[View](#)

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[A picture of overweight and obesity in Australia](#)

[View](#)

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[Overweight and obesity in Australia: a birth cohort analysis](#)

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### Related topics

- [Children & youth](#)
  - [Men & women](#)
  - [Risk factors](#)
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