



# Risk factors

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Physical inactivity

Tobacco smoking

Poor nutrition

High blood pressure

High blood cholesterol

Overweight and obesity

Diabetes

AUSTRALIAN INSTITUTE OF HEALTH AND WELFARE

*risk*

Risk factors are determinants, characteristics or exposures that are associated with a greater risk of ill health. For cardiovascular disease they include genetic, behavioural and physiological factors. Cardiovascular disease and its risk factors are strongly influenced by the circumstances in which people live and work.

## What are the risk factors for cardiovascular disease?

Increasing age and being male are risk factors for heart, stroke and vascular disease. That is, the risk for both males and females increases sharply with age. However, at any age the risk for males is greater than for females.

Behavioural risk factors can influence physiological risk factors (e.g. poor diet and physical inactivity promote overweight and obesity, high blood pressure and high blood cholesterol). Behavioural and physiological risk factors can be modified, unlike heredity, sex and age.

There is a growing body of evidence that the determinants of ill health go beyond the genetic, behavioural and physiological risk factors to the underlying social, economic and cultural factors that can contribute to disease.

Although this report presents sections on individual risk factors, the reality is that many people have more than one risk factor. Risk for a cardiovascular disease rises progressively with the number of risk factors.

## Burden of risk factors

Tobacco smoking is estimated to be the risk factor responsible for the greatest burden of disease in Australia (about 12% of the total burden of disease and injury in males and 7% in females). This is followed by physical inactivity, responsible for about 7% of the total burden (although it is responsible for the highest burden among women). High blood pressure accounts for over 5% of the total burden, and overweight and obesity around 4%.

## How many Australians have a modifiable cardiovascular disease risk factor?

In 1995, over 10 million adult Australians (over 80% of the adult population) had at least one of the following risk factors: tobacco smoking, physical inactivity, high blood pressure, or overweight and obesity. This information is from the 1995 National Health and Nutrition surveys. These surveys did not measure blood cholesterol and hence this risk factor is not included here. Data from 1995 is used here to assess multiple risk factor levels as the 1999–00 AusDiab data were not available for this type of analysis at time of printing.

### Trends

Between 1980 and 1989 there was a decrease in the proportion of men and women with two or more major risk factors.

Over the past decade it appears that there have been reductions in the number of Australians who smoke or have high blood pressure. The proportion of people undertaking physical activity remained relatively static during the 1980s but has declined during the latter part of the 1990s. The proportion of Australians who are overweight or obese has risen at an alarming rate over the past 20 years.

### Sex and age

In 1995, 85% of men and 75% of women (18+ years) had at least one major modifiable risk factor (i.e. tobacco smoking, high blood pressure, overweight and obesity, physical inactivity). Around 15% of men and 10% of women had three or more of these risk factors.

Prevalence of risk factors was low among younger Australians and generally increased with age, peaking around 'middle age', after which it remained relatively stable. Over 90% of men aged 45–79 years and almost 89% of women aged 55–79 years had at least one major modifiable risk factor.

### Socioeconomic groups

In 1995, 82% of women in the lowest socioeconomic group had a cardiovascular disease risk factor (i.e. tobacco smoking, high blood pressure, overweight and obesity, physical inactivity) compared with 69% in the highest group. Almost 13% of women in the lowest socioeconomic group had three or more risk factors, compared with 7% of women in the highest group.

Men in the lowest socioeconomic group were twice as likely to have three or more risk factors than were men in the highest group (18% and 9% respectively). However, for one or more risk factors, there was no significant difference between men in the lowest socioeconomic group (87%) and those in the highest group (82%).

### Aboriginal and Torres Strait Islander peoples

There are no age-standardised national data to directly compare multiple risk factor prevalence rates in Aboriginal and Torres Strait Islander peoples and other Australians. For individual risk factors, however, Indigenous Australians are more likely than other Australians to smoke tobacco, not participate in leisure-time physical activity and be obese.

### Urban, rural and remote areas

In 1995, there were no significant differences between prevalence of at least one risk factor (i.e. tobacco smoking, high blood pressure, overweight and obesity, physical inactivity) among people living in urban, rural or remote areas. Although there was no significant difference by area, almost 89% of men in remote areas of Australia had at least one risk factor, compared with 87% of men in rural areas and 84% of men in urban areas. Similarly, 78% of women in remote areas had at least one risk factor compared with 76% in rural areas and 74% in urban areas.

### States and Territories

In 1995, there were no significant differences in the prevalence of at least one risk factor (tobacco smoking, high blood pressure, overweight and obesity, physical inactivity) between the States and Territories. The highest rate was in Tasmania (84%) and the lowest was in the Northern Territory (73%).

### Further information

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### Detailed data

Refer to the **Statistical tables** section.

### Main data sources

1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) (International Diabetes Institute & Commonwealth Department of Health and Aged Care).

1995 National Health Survey (Australian Bureau of Statistics).

1995 National Nutrition Survey (Australian Bureau of Statistics and Commonwealth Department of Health and Aged Care).

1980, 1983, 1989 Risk Factor Prevalence Surveys (National Heart Foundation).

### Further reading

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## Physical inactivity

Physical activity reduces the risk of coronary heart disease. People who do not participate in regular physical activity are almost twice as likely to die from coronary heart disease as those who participate. Insufficient physical activity is recognised as being almost as important as smoking and as important as high blood pressure and high blood cholesterol in contributing to Australia's level of cardiovascular disease.

Evidence suggests that physical activity plays a protective role against ischaemic stroke. Leisure-time physical activity and vigorous work-related physical activity have been shown to lower the incidence of stroke.

Insufficient physical activity is likely to be associated with other risk factors for cardiovascular disease such as overweight and obesity, high blood pressure and high blood cholesterol. There is also evidence that people who increase their level of physical activity will reduce their levels of these risk factors.

The annual direct health care cost attributable to physical inactivity is around \$377 million. Costs have been estimated to be \$161 million for coronary heart disease, \$101 million for stroke and \$28 million for type 2 diabetes.

## Burden of physical inactivity

Physical inactivity ranks second only to tobacco smoking in terms of the burden of disease in Australia. It accounts for 6% (second highest burden for men) of the total burden of disease and injury among males and 8% among females (highest burden for women).

## What is physical activity?

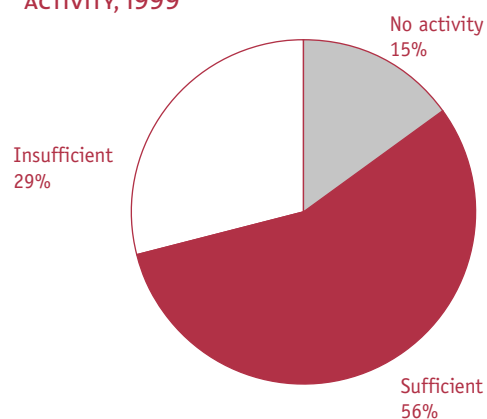
The National Physical Activity Guidelines for Australians released in 1999 recommend that at least 30 minutes of physical activity of at least a moderate intensity be accumulated on most, if not all, days of the week to obtain a health benefit. Moderate physical activities include, for example, brisk walking, swimming, doubles tennis and cycling.

Physical activity can be measured in different ways, so results from different surveys provide different estimates of the proportions of physically active or inactive Australians. Most of the information presented here is obtained from the 1999 National Physical Activity Survey and the 1997 Active Australia Baseline Survey. 'Sufficient' activity to obtain a health benefit is defined as the accrual of at least 150 minutes of at least moderate-intensity physical activity in the week before the interview. Other information presented here is from the 1995 National Health Survey. Information from the National Health Survey is not comparable with that of the National Physical Activity Survey as different collection methods were used.

## How many Australians are sufficiently physically active?

In 1999, around 5.8 million Australians aged 18–75 years (44% of that population) did not undertake physical activity at the levels recommended to achieve health benefits (called 'sufficient' physical activity here). Almost 15% of people did no physical activity at all in their leisure time and around 29% did some activity, but not enough to achieve a sufficient level to obtain health benefits (called 'insufficient' physical activity here).

PROPORTION OF PEOPLE UNDERTAKING 'SUFFICIENT', 'INSUFFICIENT' AND NO PHYSICAL ACTIVITY, 1999



Source: Armstrong et al. 2000.

## Trends

There was little change in physical activity patterns during the 1980s and much of the 1990s. However, between 1997 and 1999 there was a significant decline in the proportion of people doing recommended levels of physical activity (from 62% to 57%). The decline was seen for both men (from 63% to 60%) and women (from 61% to 54%). The fall was greatest for people aged 30–44 years (from 64% to 54%). There was no decrease in activity among people aged 60–75 years.

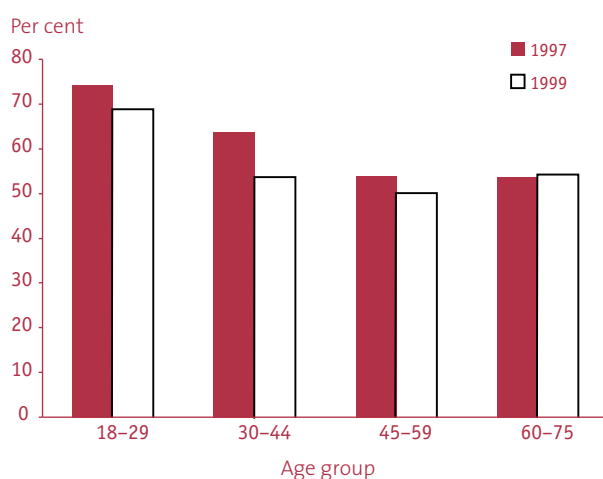
## Sex and age

In 1999, men (60%) were more likely than women (54%) to participate at sufficient levels of activity for health benefits.

Rates of sufficient physical activity were highest among 18–29-year-olds (69%) and lowest among 45–59-year-olds (50%).

For men, participation at a sufficient level was greatest for those aged 18–29 years (74%) and lowest among those aged 45–59 years (50%). Among women, participation at a 'sufficient' level decreased with age from 64% in those aged 18–29 to 48% in those 60–75 years of age. Men and women were similarly inactive (15%).

### PEOPLE ACHIEVING A 'SUFFICIENT' LEVEL OF PHYSICAL ACTIVITY, 1997 AND 1999



Source: Armstrong et al. 2000.

## Socioeconomic groups

Data collected in the 1995 National Health Survey showed men and women in the lowest socioeconomic group to be more likely to do no physical activity in their leisure time (37% and 40% respectively) than those in the highest group (27% and 29% respectively).

Data from 1999 showed that people with less than 12 years of education were almost twice as likely to be physically inactive as people with a Higher School Certificate or equivalent, or with tertiary qualifications.

## Aboriginal and Torres Strait Islander peoples<sup>26</sup>

Indigenous Australian adults are more likely than are other Australian adults to report no physical activity in their leisure time. In 1995, 40% of Indigenous Australians reported no leisure-time physical activity, compared with 34% of other Australians. Indigenous Australian women of all ages were more likely than their other Australian counterparts to be inactive in their leisure time. For men, however, this was true only for 18–44-year-olds.

## Urban, rural and remote areas

From data collected in 1995, rates of physical inactivity during leisure time were higher among people living in remote areas of Australia (37%) than for people living in urban (34%) or rural (32%) areas.

## States and Territories

In 1995, rates of physical inactivity were highest in the Northern Territory (40%), and lowest in the Australian Capital Territory (25%) and Western Australia (29%).

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# Australian Facts

## Detailed data

Refer to the **Statistical tables** section.

## Main data sources

1999 National Physical Activity Survey (Australian Institute of Health and Welfare & Commonwealth Department of Health and Aged Care).

1997 Active Australia Baseline Survey (Australian Institute of Health and Welfare & Commonwealth Department of Health and Aged Care).

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## Did you know?

- Physical inactivity is also a risk factor for some cancers, type 2 diabetes, injury, osteoporosis, and mental health problems.
- At least 30 minutes of at least moderate-intensity physical activity on most days of the week will benefit health.
- Moderate-intensity physical activities are activities that use the large muscle groups (examples include brisk walking, swimming, cycling, doubles tennis, and dancing).
- It has been estimated that 30–50% of new cases of type 2 diabetes could be prevented by participation in physical activity.

## Tobacco smoking

Tobacco smoking increases the risk of coronary heart disease, stroke and peripheral vascular disease, as well as a range of cancers (including lung, mouth, oesophagus, kidney, pancreas and cervix) and other diseases and conditions.

Tobacco use during pregnancy can lead to spontaneous abortion, low birth weight and sudden infant death syndrome. Passive exposure to smoke also has serious health consequences, including increased risk of heart disease among adults.

In 1998, an estimated 19,019 people died in Australia as a result of tobacco smoking. Around 13% of deaths from cardiovascular disease are due to smoking tobacco. In 1997–98, 142,525 hospital separations were attributable to tobacco smoking.

### What is tobacco smoking?

Smoking here refers to the smoking of tobacco products, including packet cigarettes, roll-your-own cigarettes, pipes and cigars. 'Current smokers' refers to those who smoke on either a regular (daily/most days) or occasional (less often than daily/most days) basis.

### Burden of tobacco smoking

Tobacco smoking is the risk factor responsible for the greatest burden of disease in Australia, accounting for 12% of the total burden of disease and injury in males and 7% in females.

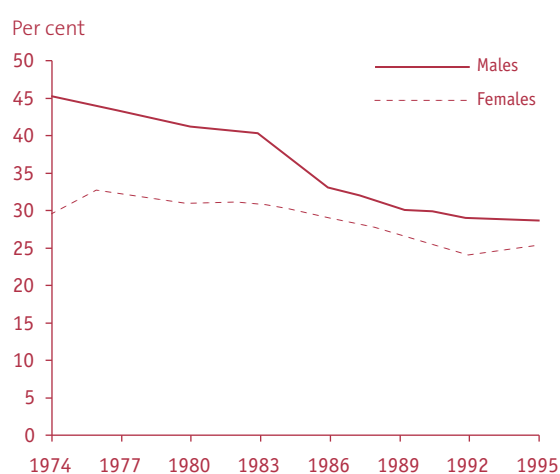
### How many Australians smoke?

In 1998, approximately 3.5 million (23%) Australians aged 18 years and over smoked on a regular basis. A further 3.6% (almost 550,000 persons) reported occasional smoking and were thus also at risk of developing heart disease and other chronic conditions associated with the smoking of tobacco products.

### Trends

Smoking rates among Australian adults have declined steadily since the early 1970s, and this trend has continued into the 1990s. However, research from the Anti-Cancer Council of Victoria has shown that this decline has slowed in more recent years.

#### PEOPLE SMOKING, 1974–95



Note: Age-standardised to the 1986 Australian population.

Sources: Hill 1988, Hill et al. 1991, Hill et al. 1995, Hill et al. 1998.

### Sex and age

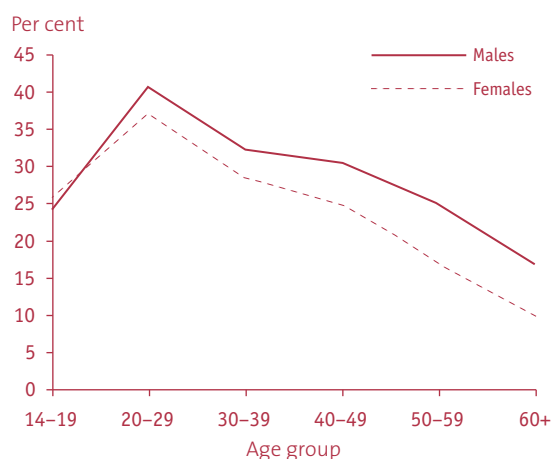
Approximately one in four males (26%) and around one in five females (21%) aged 18 years and over reported that they smoked on a regular basis in 1998. The highest rates of regular smoking occurred among males and females aged 18–34 years (32% and 29% respectively). From this age group, regular smoking declines with age, with those aged 75 years and over recording the lowest rates at 5% for males and 6% for females.

In 1998, around 44% of males and 37% of females aged 18 years and over reported that they were ex-smokers, while a further 26% and 39%, respectively, stated that they had never smoked.

Approximately 16% of males and females aged between 14 and 19 years smoked daily.



## PEOPLE WHO ARE CURRENT SMOKERS, 1998



Source: 1998 National Drug Strategy Household Survey.

### Socioeconomic groups

Smoking is more common among individuals from lower socioeconomic backgrounds, with around 27% of those from the lowest socioeconomic group reporting that they smoked daily. By comparison, approximately 18% of those from the highest socioeconomic group were daily smokers. Of those with tertiary qualifications, around 12% were daily smokers compared to 26% of those with no qualifications.

Unemployment was also associated with smoking status, with around 28% of unemployed persons indicating daily smoking status. By comparison, only 25% of employed persons smoked daily.

### Aboriginal and Torres Strait Islander peoples

Aboriginal and Torres Strait Islander peoples aged 18 years and over are almost twice as likely to smoke when compared with their non-Indigenous counterparts. Around 56% of Indigenous Australian men and 46% of Indigenous Australian women were defined as current smokers. This compares to 29% of non-Indigenous Australian males and 24% of non-Indigenous Australian females over 14 years of age being defined as current smokers.

### Urban, rural and remote areas

A slightly higher percentage of individuals living in rural and remote areas reported that they were daily smokers, compared to those living in urban communities. Of those living in urban areas, around one in five (21%) reported that they were daily smokers. This compared to 26% of those residing in rural and remote communities. Further, 35% of urban Australians aged over 14 years reported that they had never smoked, compared to 31% of Australians in rural and remote areas.

### States and Territories

In 1998, the Northern Territory recorded the highest smoking prevalence, with around 31% of those aged 14 years and over indicating that they smoked daily. In comparison, South Australia recorded the lowest rate at around 19%.

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### Main data sources

1998 National Drug Strategy Household Survey (AIHW).

1995 National Health Survey (Australian Bureau of Statistics).

Anti-Cancer Council of Victoria surveys.



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### Did you know?

- Around 29% of men and 25% of women are at a greater risk of heart attack, stroke and peripheral vascular disease due to tobacco smoking.
- The rate of decline in current smoking status has slowed in recent years.
- One in four teenagers were current smokers in 1998, compared to one in five in 1995.

## Poor nutrition

The effect of nutrition on the risk of coronary heart disease, stroke and peripheral vascular disease results from the combined effects of individual dietary factors. Cardiovascular disease cannot be attributed to any one dietary component alone. Nutrition affects several physiological conditions and other risk factors (e.g. blood pressure, blood cholesterol levels, antioxidant levels, overweight and obesity, diabetes).

Dietary guidelines for Australians recommend consumption of a wide variety of nutritious food. Essential nutrients for good health are found in varying amounts throughout many food groups. Variety in a diet maximises the possibility of obtaining enough of these essential nutrients. Food variety can be defined as the consumption of foods that are biologically diverse or nutritionally distinct from each other. Data from the 1995 National Nutrition Survey showed that the variety of food consumed in Australia had increased significantly since the previous survey 14 years ago.

## Dietary risk factors for cardiovascular disease

### Total intake of fat

High intakes of fat, especially saturated fats, are associated with elevated blood cholesterol levels, overweight and obesity, and increased death from cardiovascular disease in populations in which levels of physical activity are low. Total fat (e.g. saturated, monounsaturated, polyunsaturated) accounts for about 33% of the total energy intake of Australian adults. Although total dietary fat intake has reduced from around 37% in the 1980s, the current level is still above the National Health and Medical Research Council's recommended level of 30%.

## Intake of saturated fatty acids

There is good evidence to support an association between the consumption of saturated fat and an increased risk for coronary heart disease. Among Australian adults, the contribution of saturated fat as a proportion of total energy intake has declined over the past decade. However, saturated fat still accounts for around 13% of total energy intake, higher than the recommended maximum level of 10%. Consumption of saturated fat is slightly higher among younger Australians than among older Australians. The major sources of saturated fatty acids in the adult diet are cheese, butter and margarine, pastries, milk and meat.

### CONTRIBUTION OF SATURATED FAT AS A PROPORTION OF TOTAL ENERGY INTAKE, 1983 AND 1995

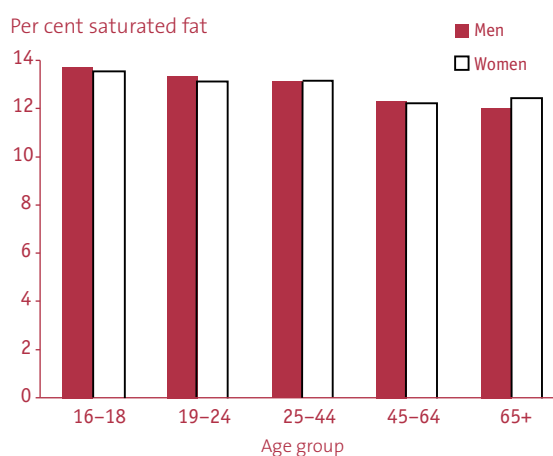
Sex	1983	1995
	Per cent	
Men	15.9	12.7
Women	16.3	12.8

#### Notes:

1. Age-standardised to the 1991 Australian population.
2. 1983 estimates are for State capital cities only.
3. Includes persons aged 25–64.

Sources: AIHW analysis of data from the 1995 National Nutrition Survey; 1983 National Dietary Survey of Adults.

### SATURATED FAT AS A PROPORTION OF TOTAL ENERGY INTAKE, 1995



Source: ABS & DHFS 1997.

### Intake of trans fatty acids

High intake of trans fatty acids increases blood cholesterol levels and risk of coronary heart disease. The major sources of trans fatty acids are fat spreads (e.g. some but not all margarines), meat and meat products. Currently there are no national data to assess trans fatty acid intake among Australians.

### Intake of dietary cholesterol

There is some evidence that dietary cholesterol contributes to an increased risk of coronary heart disease. The major sources of dietary cholesterol are eggs, meat, poultry and milk. In 1995, the average daily intake of dietary cholesterol among Australian men was 358 mg, and among women, 240 mg. The National Heart Foundation of Australia recommends that people at low risk of coronary heart disease can consume moderate quantities of cholesterol-rich foods. People with blood cholesterol levels  $>5.0$  mmol/L or with other cardiovascular risk factors should restrict their intake of cholesterol-rich foods.

### High consumption of alcohol

High intake of alcohol (and particularly binge drinking) is associated with higher blood pressure and death from stroke. Evidence shows that each increment of 10 g of alcohol consumed per day increases systolic blood pressure by an average of 1–2 mmHg and diastolic blood pressure by 1 mmHg. It has been estimated that the harm associated with alcohol consumption in 1996 was around 4.9% of the total burden of disease. However, low to moderate levels of alcohol consumption can provide some protection against high blood pressure, coronary heart disease and stroke. The net harm associated with alcohol consumption after taking these benefits into account is around 2.2% of the total disease burden. It is difficult to make recommendations about safe levels of alcohol consumption for cardiovascular disease because there is a curvilinear relationship between the levels of alcohol consumption and death rates due to cardiovascular disease.

In 1998, around 8% of adult male drinkers and about 4% of female drinkers usually drank at levels considered to be hazardous or harmful to their overall health.

### Abstinence from alcohol

Many studies indicate that non-drinkers have a greater risk of heart attack and death from coronary heart disease than do those with moderate alcohol intake. The reasons for this are not yet entirely clear and the issues surrounding the protective or harmful effects of alcohol consumption are somewhat controversial. The cardiovascular health benefit of low to moderate alcohol consumption (1–2 drinks per day) relates mainly to men over 40 years of age and post-menopausal women.

In 1995, 45% of Australian adults reported that they do not drink alcohol.

### Consumption of vegetables and fruit

There is increasing evidence that fresh vegetable and fruit consumption offers some protection against coronary heart disease and stroke. In 1995, the proportion of people aged over 25 years who consumed less than five serves of vegetables or fruit per day ranged from a low of 46% for women aged 55–64 years to a high of 70% for men aged 35–44. It has been estimated that inadequate vegetable and fruit consumption was responsible for 3% of the total burden of disease among Australians in 1996.

### High consumption of salt

For some people, high salt consumption is associated with an increase in blood pressure and possible risk of cardiovascular illness and death. No national data exist to assess levels of salt consumption among Australians. However, in one study conducted in Hobart, only 6% of men and 36% of women were below the recommended maximum intake of 100 mmol/day.

### Further information

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# Australian Facts

## Detailed data

Refer to the **Statistical tables** section.

## Main data sources

1995 National Health Survey (Australian Bureau of Statistics).

1995 National Nutrition Survey (Australian Bureau of Statistics & Commonwealth Department of Health and Aged Care).

1983 National Dietary Survey of Adults (Commonwealth Department of Health & National Heart Foundation).

## Further reading

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## Did you know?

- In 1995, only 37% of 19–24-year-old Australians reported eating fruit.
- Adults in rural and remote areas of Australia are more likely to consume fats and oils than those in urban areas.
- Heavy alcohol consumption increases risk of heart attack and stroke.

## High blood pressure

High blood pressure (often referred to as hypertension) is a major risk factor for coronary heart disease, stroke, heart failure and peripheral vascular disease. It increases overall cardiovascular risk by two to three times. The risk of disease increases as the level of blood pressure increases. When high blood pressure is controlled by medication, the risk of cardiovascular disease is reduced, but not to the levels of unaffected people.

Research has shown that people who are overweight or physically inactive, have high dietary salt intakes, or are under mental stress are more likely to develop high blood pressure.

### What is high blood pressure?

Blood pressure represents the forces exerted by blood on the walls of the arteries and is written as systolic/diastolic (e.g. 120/80 mmHg, stated as '120 over 80').

Although high blood pressure can be defined as above a particular level, there is in fact no threshold level of risk. Starting from quite low levels, as the pressure increases so does the risk of stroke, heart attack and heart failure.

The continuous relationship between blood pressure levels and cardiovascular disease risk, and the 'arbitrary' nature of the definition of high blood pressure, have contributed to the variation in the definitions issued by various national and international authorities for population surveys and clinical guidelines.

For the purposes of this report, high blood pressure is defined as:

- systolic blood pressure (SBP) greater than or equal to 140 mmHg; and/or
- diastolic blood pressure (DBP) greater than or equal to 90 mmHg; and/or
- receiving medication for high blood pressure.

This classification for the clinical management of high blood pressure has recently been released by the World

Health Organization. Previously, in Australia, high blood pressure was defined as an SBP of 160 mmHg or greater and/or a DBP of 95 mmHg or greater and/or receiving medication for high blood pressure.

A review of the classification of high blood pressure used in Australia will be undertaken to establish national standards for population surveys.

### Burden of high blood pressure

High blood pressure is estimated to account for over 5% of the total burden of disease and injury among men and almost 6% for women (note: this is for a high blood pressure classification of 160/95 mmHg).

### General practice consultations

Data from the 1999–00 study of general practice activity in Australia show that hypertension accounted for 8,821 of a total 153,857 problems. This equated to 6% of all problems managed.

### How many Australians have high blood pressure?

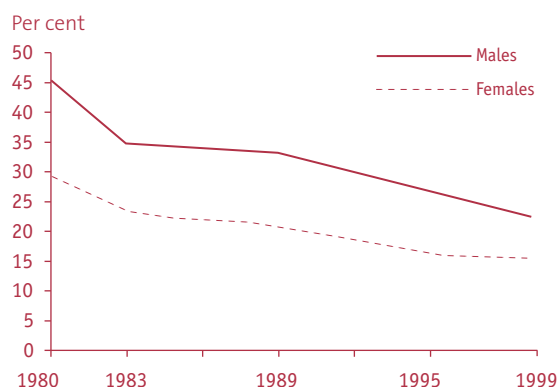
In 1999–00, almost three million Australians over the age of 25 had high blood pressure or were on medication for that condition.

### Trends

There have been significant declines in the proportion of people with high blood pressure and/or receiving treatment since the 1980s. The proportion of men (aged 25–64 years) with high blood pressure has fallen steadily from 45% in 1980 to 22% in 1999–00. The rate for women (aged 25–64 years) has fallen steadily from 29% in 1980 to 16% in 1995, and has not changed since.

# Australian Facts

## PEOPLE WITH HIGH BLOOD PRESSURE, 1980–99



### Notes

1. Age-standardised to the 1991 Australian population.
2. Includes only persons living in capital cities or urban areas, aged 25–64.

Sources: AIHW analysis of 1980, 1983, 1989 Risk Factor Prevalence Study, 1995 National Nutrition Survey, 1999 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

There has also been a significant decline in average blood pressure levels during the same period. This decline occurred equally among those not on medication for high blood pressure as among those on treatment.

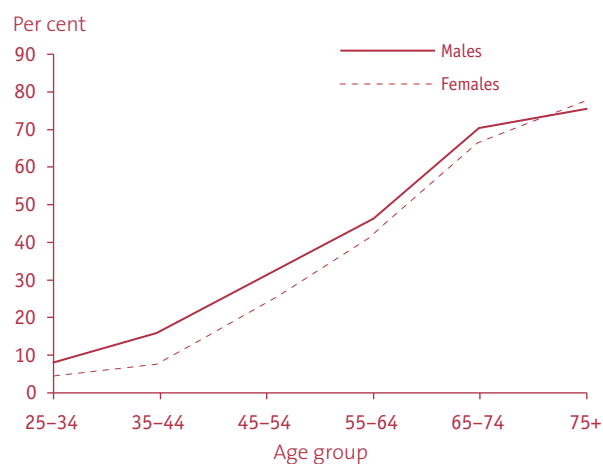
### Sex and age

In 1999–00, 31% of men and 26% of women aged 25 years and over had high blood pressure. The proportion of men and women with high blood pressure increases with age. Among men aged 65–74 years, 70% had high blood pressure or were on medication for treatment for high blood pressure. Almost 67% of women in that age group had high blood pressure.

### Socioeconomic groups

In 1995, the prevalence of high blood pressure among women increased with increasing socioeconomic disadvantage. Although not significantly different, 25% of women in the lowest socioeconomic group had high blood pressure compared with 17% of those in the highest group. There was no significant difference in the prevalence of high blood pressure among men in the lowest socioeconomic group (31%) and those in the highest group (29%).

## PEOPLE WITH HIGH BLOOD PRESSURE, 1999



Source: AIHW analyses of the 1999 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

Data from 1989 showed that high blood pressure was more common among people with low levels of education, and among single men living alone than among men with partners and/or dependent children.

### Aboriginal and Torres Strait Islander peoples

There are no measured national data to assess the rates of high blood pressure among Aboriginal and Torres Strait Islander peoples. Data from the Kimberley region suggest that high blood pressure is two to three times more common among Indigenous people than among other Australians.

### Urban, rural and remote areas

In 1995, there were no significant differences in the prevalence of high blood pressure between urban, rural and remote areas. Around 22% of urban, rural and remote women had high blood pressure. For men, estimated rates were 29–30% in urban, rural and remote regions.

### States and Territories

In 1995, there were no significant differences in the prevalence of high blood pressure between the States and Territories. The highest rates were in Tasmania and South Australia (around 30%), and the lowest were in the Northern Territory (22%).

## Further information

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## Detailed data

Refer to the **Statistical tables** section.

## Main data sources

1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) (International Diabetes Institute & Commonwealth Department of Health and Aged Care).

1995 National Nutrition Survey (Australian Bureau of Statistics & Commonwealth Department of Health and Aged Care).

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## Did you know?

- High blood pressure can increase the risk of cardiovascular disease by two to four times.
- Older people with high blood pressure have a greater absolute risk of cardiovascular disease than do younger people with the same blood pressure levels.
- Lifestyle interventions to reduce blood pressure may reduce or remove the need for drug treatment.
- Reducing excess weight, participating in 30 minutes of moderate-intensity physical activity each day, limiting alcohol intake to two standard drinks per day and reducing salt in the diet are lifestyle modifications that will reduce blood pressure.



## High blood cholesterol

High blood cholesterol is a major risk factor for coronary heart disease and probably for ischaemic stroke. It is the main cause of the process by which the blood vessels that supply the heart and other parts of the body become clogged. Risk of heart disease increases steadily in a curvilinear manner from a low base with increasing blood cholesterol levels.

For most people, saturated fat in the diet is the main factor that raises blood cholesterol levels. Cholesterol in foods can also raise blood cholesterol levels, but less than saturated fat does. Heredity affects blood cholesterol and a few people have high cholesterol levels regardless of their dietary intake of saturated fat and cholesterol.

Clinical trials have shown that lowering cholesterol in people with and without existing cardiovascular disease reduces rates of death and illness from coronary heart disease and even reduces rates of death from all causes. A large Australian and New Zealand study (LiPiD, conducted under the auspices of the National Heart Foundation) has shown that the cholesterol-lowering drug treatment pravastatin reduces death and illness from cardiovascular disease and the need for bypass surgery and angioplasty compared to coronary heart disease patients on a placebo treatment.

### What is high blood cholesterol?

Total blood cholesterol levels above 5.5 mmol/L are an indication of an increased risk of developing coronary heart disease. Levels above 6.5 mmol/L are considered to indicate high risk. However, these values are arbitrary and coronary heart disease risk increases continuously from very low cholesterol levels.

## Burden of high cholesterol

High blood cholesterol accounts for 3.2% of the total burden of disease and injury for males and 1.9% for females. However, it is likely that the total burden attributable to blood cholesterol is actually higher than this, because of the continuous gradient of risk associated with increasing blood cholesterol levels, not just for 'high' blood cholesterol.

### How many Australians have high blood cholesterol?

The 1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) assessed blood cholesterol levels in Australia. Preliminary findings show that over six million Australian adults (aged 25 years and over) had cholesterol levels higher than 5.5 mmol/L.

### Trends

Average blood cholesterol levels have declined only slightly for men and women during the period 1980 to 1999–00.

Although there was no clear change in the proportion of men (aged 25–64 years) with high blood cholesterol during the 1980s, there appears to have been a decline from 1989 (51%) to 1999–00 (47%). There has been no change for women (aged 25–64 years) over the same period.

### AVERAGE BLOOD CHOLESTEROL LEVELS, 1980 TO 1999–00

Sex	1980	1983	1989	1999–00
	mmol/L			
Men	5.55	5.61	5.66	5.50
Women	5.42	5.57	5.55	5.41

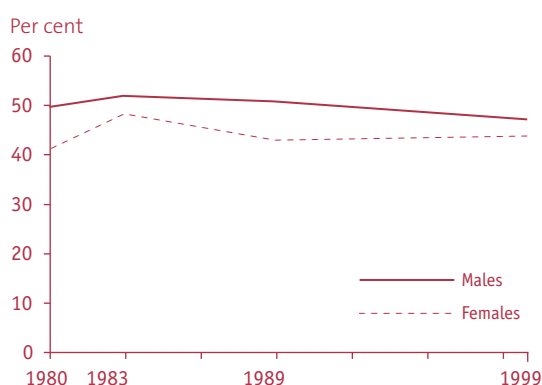
#### Notes

1. Estimates adjusted for age.

2. Includes persons aged 25–64.

Sources: AIHW analysis of the 1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab), Bennett & Magnus 1994.

### PEOPLE WITH HIGH BLOOD CHOLESTEROL, 1980–99



#### Notes

1. Age-standardised to the 1991 Australian population.
2. Includes only persons living in capital cities, aged 25–64.

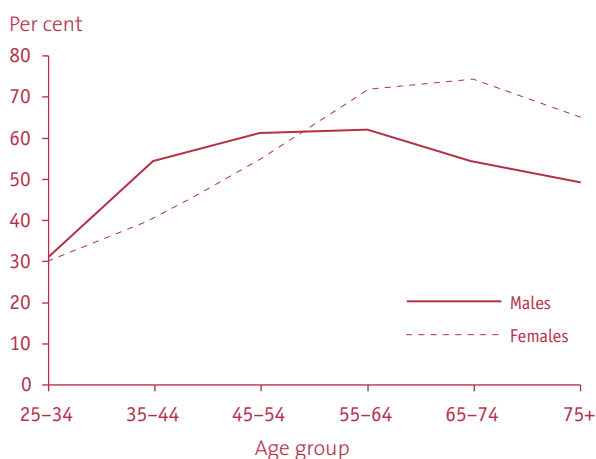
Sources: AIHW analysis of the 1980, 1983, 1989 Risk Factor Prevalence Surveys; 1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

### Sex and age

In 1999–00, around 50% of both men and women, aged 25 years and over, had blood cholesterol levels above 5.5 mmol/L.

In 1999–00, the prevalence of high blood cholesterol increased overall with age. In women there was a steady increase to age 75. For men, prevalence increased steadily with age until age 64, after which it declined.

### PEOPLE WITH HIGH BLOOD CHOLESTEROL, 1999



Source: AIHW analyses of the 1999 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

### Socioeconomic groups

In 1989, there were no strong associations between cholesterol levels and socioeconomic status. However, high blood cholesterol ( $\geq 6.5$  mmol/L) was more common among unemployed women (25–64 years) than among women in full-time employment. Among men aged 25–64 years, those living alone or previously married had around one and a half times higher rate of high blood cholesterol ( $\geq 6.5$  mmol/L) than those with partners or dependents.

### Aboriginal and Torres Strait Islander peoples

There are no national data on blood cholesterol levels among Aboriginal and Torres Strait Islander peoples. A New South Wales survey in 1987–88 on cardiovascular risk factors showed that a greater proportion of Indigenous women in Wilcannia had cholesterol levels above 6.5 mmol/L compared with other Australian women. However, other studies have shown no difference in cholesterol levels between Indigenous Australians and other Australians.

### Urban, rural and remote areas

There are no national data on blood cholesterol levels across urban, rural and remote areas of Australia.

### States and Territories

AusDiab collected data for each State and Territory. The results were not available in time for this publication.

### Further information

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### Detailed data

Refer to the **Statistical tables** section.

### Main data sources

1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) (International Diabetes Institute & Commonwealth Department of Health and Aged Care).

1980, 1983, 1989 Risk Factor Prevalence Surveys (National Heart Foundation).

# Australian Facts

## Further reading

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## Did you know?

- For children, high blood cholesterol is defined as a level of 4.5 mmol/L or greater.
- People with high blood cholesterol feel perfectly well and will usually have no warning signs that they are at risk of heart disease.
- Highly effective drugs to lower high blood cholesterol are now available.
- Prescriptions of pharmacy drugs dispensed to lower blood cholesterol increased over the period 1990–98 from 1.2 million to 7.6 million.
- Lifestyle changes that prevent or lower high blood cholesterol include eating a diet low in saturated fat and cholesterol, increasing physical activity, and reducing excess body weight.

## Overweight and obesity

There is a well-documented association between being overweight or obese and suffering from ill health. Diseases and conditions such as coronary heart disease, heart failure, stroke, type 2 diabetes, osteoarthritis, sleep apnoea, gallstones and reproductive problems are all more likely in overweight or obese individuals. Overweight and obesity are also associated with high blood pressure and high blood cholesterol. Life expectancy is reduced by obesity.

Among those who are overweight, weight loss reduces the incidence and severity of high blood pressure, high blood cholesterol, diabetes and osteoarthritis.

### What is overweight and obesity?

Health risks associated with overweight and obesity are part of a continuum and cut-offs provide a guide for assessment and comparison.

The body mass index (BMI) is the main classification used to estimate the prevalence of overweight and obesity in a population. BMI is calculated by weight (kg) divided by height squared (m<sup>2</sup>). A BMI of 25 or greater indicates overweight, and 30 or greater indicates obesity. Waist circumference is also a useful measure of increased disease risk due to overweight and obesity. The World Health Organization reports that waist circumferences greater than 94 cm in men and 80 cm in women indicate increased risk. Waist circumferences greater than 102 cm and 88 cm for men and women respectively indicate substantially increased risk. There are currently no national standard cut-offs for waist circumference.

### Burden of overweight and obesity

Overweight and obesity are responsible for about the same proportion of the total disease burden (4.3%) in both males and females.

### How many Australians are overweight?

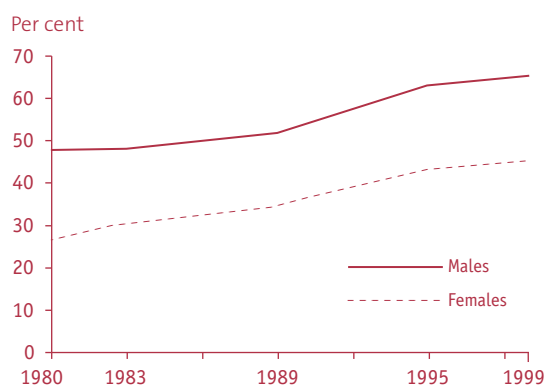
In 1999–00, over seven million adult Australians (aged 25 and over) (60%) were overweight (BMI ≥ 25). Of these, over two million (20% of the population aged 25 and over) were obese (BMI ≥ 30).

#### Trends

There have been significant increases in the proportions of overweight and obese Australians over the last 20 years. These data indicate that the proportion of overweight women aged between 25 and 64 years has increased from 27% in 1980 to 45% in 1999–00.

The proportion of overweight men in that age group increased from 48% to 65% over the same period. The proportion of obese men in that age group has increased dramatically from 8% in 1980 to 17% in 1999–00 and the proportion of obese women has increased from 7% to 19%.

#### RATE OF OVERWEIGHT PEOPLE, 1980–99



#### Notes

1. Age-standardised to the 1991 Australian population.
2. Includes only persons living in capital cities or urban areas, aged 25–64.

Sources: AIHW analysis of the 1980, 1983, 1989 Risk Factor Prevalence Surveys; 1995 National Nutrition Survey; 1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

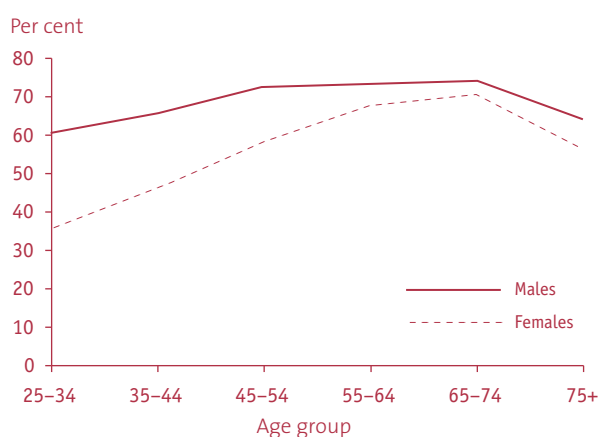
# Australian Facts

## Sex and age

Using BMI as a classification for overweight, in 1999–00, men were more likely to be overweight than were women. Around 67% of men and 52% of women aged 25 years and over were overweight. The proportion of overweight people increased with age and peaked at 55–74 years for men (74%) and 65–74 years for women (71%). Around 20% of adult Australians aged 25 and over were obese.

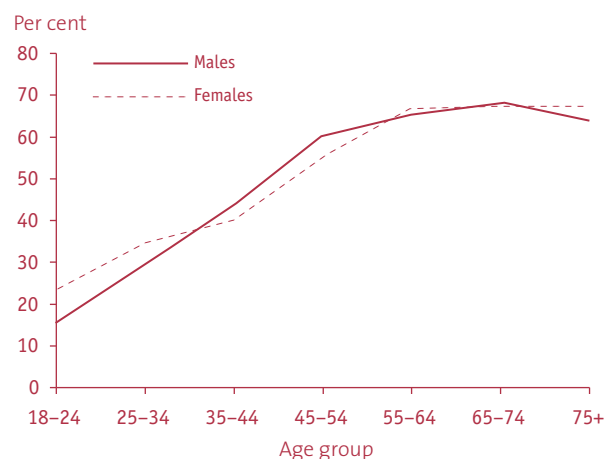
In 1995, 35% of men had a waist circumference greater than 94 cm and 37% of women had a waist circumference greater than 80 cm. Almost 19% of men had a waist circumference greater than 102 cm and 23% of women had a waist circumference greater than 88 cm. For both men and women, waist circumferences generally increased with age.

### OVERWEIGHT PEOPLE, 1999



Source: AIHW analyses of the 1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

### PROPORTION OF ADULTS WITH WAIST CIRCUMFERENCE GREATER THAN 94 CM FOR MEN AND GREATER THAN 80 CM FOR WOMEN, 1995



Source: AIHW analyses of the 1995 National Nutrition Survey.

## Socioeconomic groups

Being overweight and/or obese is more common among women in lower socioeconomic groups. In 1995, around 53% of women in the lowest socioeconomic group were overweight, compared with 44% of women in the highest socioeconomic group. Twenty-four per cent of women in the lowest socioeconomic group were obese compared with 14% of those in the highest group.

In 1995, there was no significant difference among the rate of overweight (around 61%) or obese men (around 18%) in the highest and lowest socioeconomic groups.

## Aboriginal and Torres Strait Islander peoples

From data collected in 1994 (Aboriginal and Torres Strait Islander peoples) and 1995 (all Australians), there was little difference between the age-adjusted proportion of overweight Indigenous Australian men (62%) and all Australian men (63%). However, almost 25% of those Indigenous Australian men were obese, a rate somewhat higher than that for all Australian men (18%).

Almost 60% of Indigenous Australian women were overweight, a rate much higher than that seen among all Australian women (49%). Rates of obesity among Indigenous Australian women were also much higher than among all Australian women (28% compared with 18%).

### Urban, rural and remote areas

In 1995, more than half (53%) of women living in remote areas were overweight. In comparison, around 47% of women living in urban and rural areas were overweight. Twenty-two per cent of women living in remote areas were obese, compared with around 18% living in urban or rural regions.

For men, there was no significant difference, with 65% of men in remote and rural areas being overweight, compared with 62% in urban areas. Twenty per cent of men living in rural and remote regions were obese compared with 18% living in urban areas.

### States and Territories

In 1995, there were no significant differences between the proportions of overweight and obese people in the States and Territories. The rate of overweight ranged from 61% in Tasmania to 49% in the Northern Territory.

### Children and adolescents

Although most of the cardiovascular effects of unhealthy weight do not manifest in childhood, a link has been demonstrated between childhood obesity and adult obesity. Type 2 diabetes is for the first time now being seen among overweight children. Furthermore, children with obese parents have more than double the risk of obesity in adulthood.

In 1995, the proportion of overweight and/or obese children and adolescents aged 2–17 years was 21% for boys and 23% for girls.

### Further information

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### Detailed data

Refer to the **Statistical tables** section.

### Main data sources

1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) (International Diabetes Institute & Commonwealth Department of Health and Aged Care).

1995 National Nutrition Survey (Australian Bureau of Statistics & Commonwealth Department Health and Aged Care).

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### Further reading

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# Australian Facts

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## Did you know?

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- Unhealthy body weight is due mainly to an imbalance between energy intake (diet) and energy expenditure (physical activity).
- Being significantly underweight is also associated with poor health, including conditions such as osteoporosis, ulcers, mental conditions such as depression and eating disorders.
- On average, women in 1995 weighed 4.8 kg more than their counterparts in 1980, and men 3.6 kg more.
- Overweight and obesity accounted for over 4% of the total burden of disease in Australia in 1996.
- A BMI of between 20 and 24.9 indicates a healthy weight range.



## Diabetes

Diabetes mellitus has a significant impact on the health of Australians, both as a disease in its own right and as a risk factor for cardiovascular disease. People with diabetes are at an increased risk of developing coronary heart disease, stroke and peripheral vascular disease. Diabetes is the seventh leading cause of death in Australia, and contributes to significant illness, disability, poor quality of life and premature death. However, death rates from diabetes have fallen substantially over the last half-century, particularly among females.

Diabetes is presented here as a risk factor for cardiovascular disease and also as a condition in its own right. This reflects the importance of diabetes in the development of cardiovascular disease and the emerging public health issue that diabetes itself presents.

Determining the prevalence of diabetes in the population is very difficult. Until this year it has been necessary to rely on self-reports of diabetes having been diagnosed by a health professional. This method is limited, as people may not know that they have diabetes and the criteria used by health professionals in making diagnoses vary. However, a recent survey carried out in 1999–00, the Australian Diabetes, Obesity and Lifestyle Study (AusDiab), collected objectively measured information on the prevalence of diabetes in Australia.

### What is diabetes?

Diabetes represents a collection of closely related metabolic conditions characterised by high blood glucose levels resulting from defects in secretion of the hormone insulin, insulin action, or both. The chronic high blood sugar levels (hyperglycaemia) of diabetes are associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels. There are three main types of diabetes: type 1, type 2 and gestational diabetes.

- Type 1 diabetes results from an autoimmune destruction of the cells in the pancreas, which produce insulin. People with type 1 diabetes must take daily injections of insulin for survival.
- Type 2 diabetes, which accounts for about 85–90% of all diabetes, is characterised by insulin resistance and/or abnormal insulin secretion. In many cases the actual metabolic causes for this condition are not yet understood. In rare cases it arises from specific genetic mutations. In most cases, type 2 diabetes can be prevented or at least delayed through the modification of its major risk factors including overweight and obesity and physical inactivity.
- Gestational diabetes occurs during pregnancy in about 4–6% of females not previously diagnosed with diabetes and is a marker of greater risk of developing type 2 diabetes later in life.

For the purposes of this report, 'diabetes' refers to all types of diabetes (ICD-9 code 250 and ICD-10 codes E10–E14) unless otherwise stated.

### Risk factors for diabetes

Both genetic and environmental factors contribute to the onset of diabetes. Diabetes shares several of the risk factors with, and is itself a risk factor for, cardiovascular disease. Type 1 diabetes is believed to be caused by exposure to environmental triggers, possibly certain viruses or food toxins. The development of type 2 diabetes is influenced largely by the presence of behavioural risk factors including physical inactivity and possibly poor nutrition in foetal and early infant life. The risk factors for gestational diabetes are similar to those for type 2 diabetes.

The existence of diabetes is also known to magnify the effect of conventional risk factors for cardiovascular disease such as abnormal cholesterol levels, central obesity, hypertension and smoking. Further, people with diabetes are more likely to have a clustering of risk factors, a condition called the metabolic syndrome. That is, an individual with a high level of one risk factor is likely to have high levels of other risk factors if they suffer from diabetes.

# Australian Facts

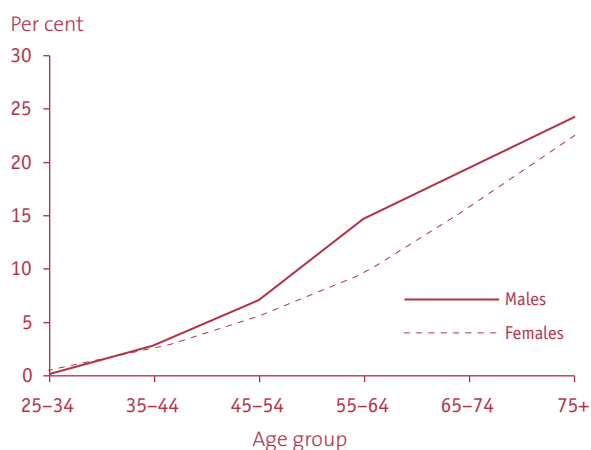
## How many Australians have diabetes?

In 1999–00, approximately 910,000 people aged 25 years and over (around 7% of that population) were affected by diabetes.

### Sex and age

For both men and women, the proportion of Australians with diabetes increases with age. Less than 1% of men aged 25–34 years had diabetes compared with around 20% of those aged 65 and over. This pattern was similar in women, although rates were slightly lower at each age than for men.

#### PEOPLE WITH DIABETES, 1999



Source: AIHW analyses of the 1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

### Trends

Although there are no national data to compare national trends of diabetes in Australia, a comparison of the 1981 Busselton study in Western Australia and the 1999–00 AusDiab results indicates that there has been a significant increase (nearly 300%) in prevalence of diabetes in Australia over that 20-year period.

### Socioeconomic groups

In 1995, the prevalence of self-reported type 2 diabetes was almost two and a half times as high among the lowest socioeconomic group of the Australian population as among the highest socioeconomic group.

### Aboriginal and Torres Strait Islander peoples

Aboriginal and Torres Strait Islander peoples have one of the highest rates of type 2 diabetes in the world. In 1995, the prevalence of self-reported diabetes among 25–55-year-olds was seven to eight times higher among Indigenous Australians than their non-Indigenous counterparts. For those aged 55 years or more, the proportion of Indigenous Australians with type 2 diabetes was more than twice as high as that of non-Indigenous Australians<sup>27</sup>. Other evidence suggests that the overall prevalence of diabetes among Indigenous Australian adults could be as high as two to four times greater than among non-Indigenous Australian adults.

### Urban, rural and remote areas

In 1995, there was no significant difference in reported rates of type 2 diabetes across urban, rural and remote areas of Australia.

### States and Territories

AusDiab collected data for each State and Territory. The results were not available in time for this publication.

### Non-English-speaking backgrounds

Certain migrant groups residing in Australia have a higher prevalence of diabetes than their Australian-born counterparts. In particular, diabetes is very common among Micronesians, Polynesians and Melanesian Islanders; migrant Asian Indians, Chinese and other Asian groups, and people from Southern Europe.

### Burden of disease

Diabetes accounted for 5% of the disease burden in Australia in 1996. This equated to 5.2% in terms of premature mortality and 4.6% in terms of equivalent 'healthy' life lost through disease, impairment and disability. These estimates are based on self-reported information and therefore underestimate the total burden. Overall, diabetes causes almost as much disability burden as mortality burden.

### General practice consultations

A survey of general practice activity during 1999–00 found that diabetes was managed at nearly 2% of all general practice encounters. Among people with diabetes, hypertension and lipid disorders were the most frequent conditions managed.

## Hospitalisation<sup>28</sup>

During 1998–99, there were 23,761 hospitalisations where diabetes was the principal diagnosis (nearly 0.5% of all hospitalisations). When hospitalisations for diabetes as the principal diagnosis and as an additional diagnosis are combined, the total number of such hospitalisations rises to 324,787 (almost 6% of all hospitalisations).

When diabetes is an additional diagnosis, cardiovascular disease is most likely to be listed as the principal diagnosis (22% of such cases). Diseases of the digestive and genito-urinary systems are also prominent principal diagnoses when diabetes is an additional diagnosis (10% and 6% respectively). This is not surprising, given that diabetes can lead to a range of complications such as coronary heart disease, stroke, peripheral vascular disease and kidney disease.

### Sex and age

Australian males are more likely to be hospitalised for diabetes (as the principal diagnosis) than Australian females. This holds true for almost all age groups.

Hospital use for diabetes increases steadily with age, with a seven-fold increase in hospitalisation rates between those aged less than 40 and those aged 70 years and over. Diabetes is more common among older Australians. During 1998–99 almost 50% of hospitalisations for diabetes occurred among those aged 60 and over.

### Length of stay in hospital

The average length of stay in hospital for diabetes (as the principal diagnosis) was seven days in 1998–99, a decline from 1993–94 when the average length of stay was nine days. The length of stay in hospital for diabetes was almost twice as long as for non-diabetic conditions in 1998–99. The average length of stay in hospital for diabetes was similar for males and females.

The average number of beds occupied on any day for diabetes (as the principal diagnosis) was 458 in 1998–99 (almost 1% of all beds occupied).

### Deaths in hospital

In 1998–99, there were 332 hospitalisations for diabetes (as the principal diagnosis) where the patient died in hospital (almost 1.5% of all hospitalisations for diabetes). The proportion of males and females dying in hospital where diabetes was the principal diagnosis was similar (about 1.5%).

## Deaths<sup>29</sup>

Diabetes was the seventh leading underlying cause of death among Australians in 1998, accounting for 2,751 deaths (over 2% of all deaths). However, when the number of deaths from diabetes as an associated cause as well as the underlying cause of death are combined, the number of deaths increases to 9,454 deaths (7.5% of all deaths). In other words, diabetes is twice as likely to be listed as an associated cause of death rather than the underlying cause (5% compared with 2% of all deaths).

### Causes of death commonly listed with diabetes

In the past, deaths from diabetes have been underestimated in Australian mortality reports. Diabetes is rarely listed alone as the underlying cause of death with no associated causes. It predominantly occurs with diseases of the circulatory system and, to a lesser extent, diseases of the genito-urinary system. Of the deaths where diabetes was recorded as the underlying cause, cardiovascular disease was listed as an associated cause in 83% of deaths in 1997 and 1998 combined. When diabetes was listed as an associated cause of death, cardiovascular disease was the underlying cause of death in 59% of these deaths.

### Trends

Death rates from diabetes fell substantially over the second half of last century, particularly among females where there has been a 69% decline since the early 1940s. The peak in death rates for Australian females occurred around this time. For Australian males, diabetes death rates peaked in the late 1960s and have since declined by around 26%. Between 1987 and 1998, death rates from diabetes (as the underlying cause of death) increased at a rate of more than 1% among males, while among females death rates have declined by almost 9%.

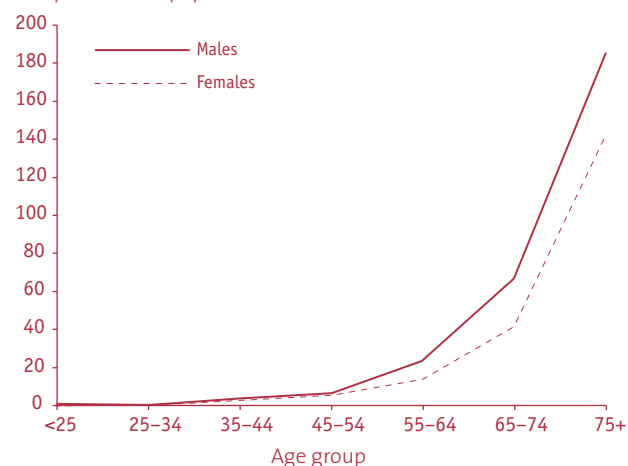
### Sex and age

Overall, during 1998, Australian males were one and a half times as likely to die from diabetes (as the underlying cause of death) as Australian females.

Diabetes death rates increase dramatically with age. In 1998, 82% of all deaths from diabetes occurred among those aged 65 and over.

## DEATH RATES FOR DIABETES, 1998

Rate per 100,000 population



Source: AIHW National Mortality Database.

### Socioeconomic groups

During 1997 and 1998, deaths from diabetes as the underlying cause of death were 44% higher among the lowest socioeconomic group of the Australian population than among the highest socioeconomic group.

### Aboriginal and Torres Strait Islander peoples<sup>30</sup>

Aboriginal and Torres Strait Islander peoples died from diabetes (as the underlying cause of death) at almost three times the rate of their non-Indigenous counterparts during 1997 and 1998. Indigenous Australian females were almost twice as likely as Indigenous Australian males to die from diabetes. Among non-Indigenous Australians, males and females were similar in their death rates from diabetes (as the underlying cause of death).

### Urban, rural and remote areas

Diabetes death rates (as the underlying cause of death) were higher in remote and rural areas than in urban areas of Australia (3.7%, 2.3% and 2.1% respectively) during 1997 and 1998. The magnitude of this regional difference was higher among females than males, with the proportion of diabetes deaths among females in remote areas twice that of those in urban and rural areas. This regional difference is predominantly influenced by the high concentration of Indigenous Australians in remote areas, with Indigenous Australians accounting for around 70% of diabetes deaths in remote areas.

### States and Territories

In 1998, death rates from diabetes (as the underlying cause of death) were highest in the Northern Territory and Victoria, and lowest in Tasmania and the Australian Capital Territory.

### Further information

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### Detailed data

Refer to the **Statistical tables** section.

### Main data sources

1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) (International Diabetes Institute & Commonwealth Department of Health and Aged Care).

1995 National Health Survey (Australian Bureau of Statistics).

National Hospital Morbidity Database (Australian Institute of Health and Welfare).

National Mortality Database (Australian Institute of Health and Welfare).

### Further reading

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### Did you know?

- Risk of death from coronary heart disease is two to four times higher among people with diabetes than among those without.
- Diabetes causes:
  - coronary heart disease
  - strokes
  - limb amputation
  - blindness
  - high blood pressure
  - impotence in men
  - kidney complications
  - congenital defects in babies of women with diabetes.
- Life expectancy of people with type 1 diabetes is reduced by at least 15 years, and is five to ten years lower for middle-aged persons with type 2 diabetes than for those without type 2 diabetes.
- The prevalence of diabetes worldwide is projected to double over the next 25 years from 135 million in 1995 to 300 million in 2025. The major increase will be in type 2 diabetes.
- The number of people with diabetes worldwide is projected to increase by 42% in developed countries and 170% in developing countries between 1995 and 2025.