



Australian Government

Australian Institute of
Health and Welfare

Obesity trends in older Australians

Summary

- Older Australians—people aged 55 years and over—are being strongly caught up in the national obesity epidemic.
- The number of obese older Australians is now approaching 1 million, which represents more than one in five of our senior people.
- Their number has trebled over the past 20 years, due to the combined effect of an ageing population and the obesity epidemic.
- These older Australians are about 6–7 kg heavier on average than their counterparts were 20 years ago.
- Even Australians in their 50s and 60s are gaining weight as they gain years, at least into their mid-70s.
- Obese older Australians are at greater risk of ill health from chronic diseases, disability and social impairment. Their increasing number has implications for health care costs, for carers and their wellbeing, and for aged care services.

Introduction: obesity in an ageing population

Australians have put on a lot of weight during the past 20 years. As a result, like many other industrialised nations (OECD 2003, WHO 2000), Australia is now in the grip of an obesity epidemic. There is now more than a 20% chance that an adult in Australia is obese, and this percentage has increased dramatically in recent decades (AIHW 2003a). The epidemic is also affecting children and adolescents (Magarey et al. 2001).

Although the increase in the prevalence of obesity among Australians generally is well documented, little information has been published specifically about the situation among older Australians. Population trends for adults can mask considerable differences across age groups, which could be important for planning and evaluating preventive and management strategies.

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This situation is potentially serious for the health of older Australians because of the strong association between excess body weight and various chronic health problems that continue into older age (AIHW 2002a). Excess body weight can place undue strain on the heart, joints and spine; increase the risk of high blood pressure, diabetes, respiratory diseases, osteoarthritis and other conditions; and exacerbate these conditions where they already exist.

Other things being equal, the obesity epidemic has increased the likelihood of these and related health conditions among middle aged and older Australians, and the serious negative economic and social outcomes that follow. People who are obese are less likely to remain in the workforce, their health care costs are higher and their social participation is often impaired (WHO 2002).

At the same time Australia is experiencing a rapid and sustained ageing of the population that will continue for several decades (AIHW 2002b). Life expectancy has been increasing and Australians can now expect to live to an average age of 80 years. The number of older Australians aged 55 years or older is increasing, as is their representation in the total population. Their number is projected to increase from 4.2 million in 2001 to 7.2 million in 2021, which is an increase from 22% to 31% of the population (ABS 2000). This trend, in combination with the obesity epidemic, is likely to result in an increase in the number of older, obese Australians, with implications for health status, medical and health care resources, and the national health budget.

This bulletin examines levels and trends in the prevalence of obesity in the context of an ageing population and the likely health and economic consequences. The focus is confined to obesity rather than lesser degrees of overweight because obesity has significant health consequences at all ages. The findings will inform policy makers and program deliverers who have the task of tackling the obesity problem, particularly among older Australians.

The data and how they are analysed

The trend analyses presented here are based on data collected in cross-sectional surveys conducted in Australia since the 1980s. Each survey provides an independent snapshot of the Australian population at the time of the survey, and together they enable an examination of trends over time. Brief descriptions of the surveys and their methods are covered in a related bulletin (AIHW 2003a).

What data are available

The survey data available are for height and weight as reported by participants or as actually measured according to a standard protocol.

The National Health Surveys conducted by the Australian Bureau of Statistics in 1989–90, 1995 and 2001 provide estimates of the prevalence of obesity based on self-reported height and weight. Prevalence estimates from this series are national, are based on a high response rate, and cover a wide age range. Although prevalence estimates of obesity based on self-reported data are known to underestimate the true prevalence (ABS 1998), they can be useful for assessing patterns and trends over time using repeat surveys and standardised methods.

Measured height and weight data are available from the series of Risk Factor Prevalence Surveys conducted during the 1980s by the National Heart Foundation, from the 1995 National Nutrition Survey and the 1999–2000 Australian Diabetes, Obesity and

Lifestyle Study (AusDiab). These surveys provide estimates that are not subject to the biases of self-reporting where weight tends to be under-reported and height over-reported. However, they did not all use common survey methods, they covered different age ranges, and they generally achieved lower participation rates than the surveys collecting self-reported data.

For all surveys, sample weights have been applied to produce representative estimates by five-year age groups, for men and women separately. The trend estimates for self-reported data are national, whereas trend estimates for the objectively measured data relate to capital cities, since this was the geographical area that was common to these surveys.

How 'obesity' and 'older Australians' are defined

Body mass index is the most common way of estimating the prevalence of obesity. BMI is calculated as a person's weight (kg) divided by their height squared (m²). A BMI of 18.5 to less than 25 is defined as a normal (that is, healthy) weight; obesity is defined as a BMI of 30 or more (WHO 2000).

Although BMI provides a useful indicator of the prevalence of obese people, it does not distinguish between weight associated with muscle and weight associated with fat. A complementary measure is waist circumference: it can indicate excess fat in the abdominal region, which is associated with an increased risk of ill health. Some studies suggest that abdominal obesity is a more important indicator of health risk among older people than BMI (Rossner 2001). Both measures are used in this analysis.

Waist circumference was measured in the 1989 Risk Factor Prevalence Survey, the 1995 National Nutrition Survey and AusDiab. Trends in excess abdominal fat are examined using the standard indicators of abdominal obesity—namely, a waist circumference greater than or equal to 102 cm in men and 88 cm in women (WHO 2000).

The term 'older Australians' is used in this bulletin to describe people aged 55 years or over. This is also the age when there is a significant increase in the prevalence of a number of chronic conditions (AIHW 2002a).

Combining the data to show trends and 'cohort' changes

It is preferable to use measured data for the reasons already given. Unfortunately, surveys in the 1980s, which measured weight, did not include people aged 65 years or older. It is, however, possible to fill in this gap by adapting data from later surveys that included self-reported or measured weight for people aged 65 years or older. These surveys showed a consistent pattern in average weight between these age groups (Figures 1, 2 and 3) and it is reasonable to assume that this pattern would also have applied to the 1980s.

Assuming this, 1980 estimates for age groups 65 years and older can be extrapolated from the data observed in 1980, based on the pattern observed in the 1990s. This makes it possible to estimate the increase in weight among older Australians over the two decades.

Further insight into weight change as people age can be obtained by constructing age 'cohorts'. This approach treats, for example, survey participants aged 30–34 in 1980 and survey participants aged 50–54 in 2000 as representative of the same group of people as they age 20 years. Unlike cross-sectional analysis, this approach makes it possible to analyse the change in average weight for a group of people of the same age as they become older.

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How the data are presented

The graphs presented show how average weight and the prevalence of obesity have changed over time across the adult years. Results are given separately for men and women, by five-year age groups and across as much of the adult lifespan as each data source permits. Age-specific prevalence estimates for a particular survey are connected to indicate that those estimates were made at the same time.

For estimates based on measured and self-reported data, a three-point moving average is used to smooth across five-year age groups to better show the underlying age pattern and to improve reliability. Approximate sample sizes for each data source are shown in Appendix Table 1.

Older Australians have gained weight

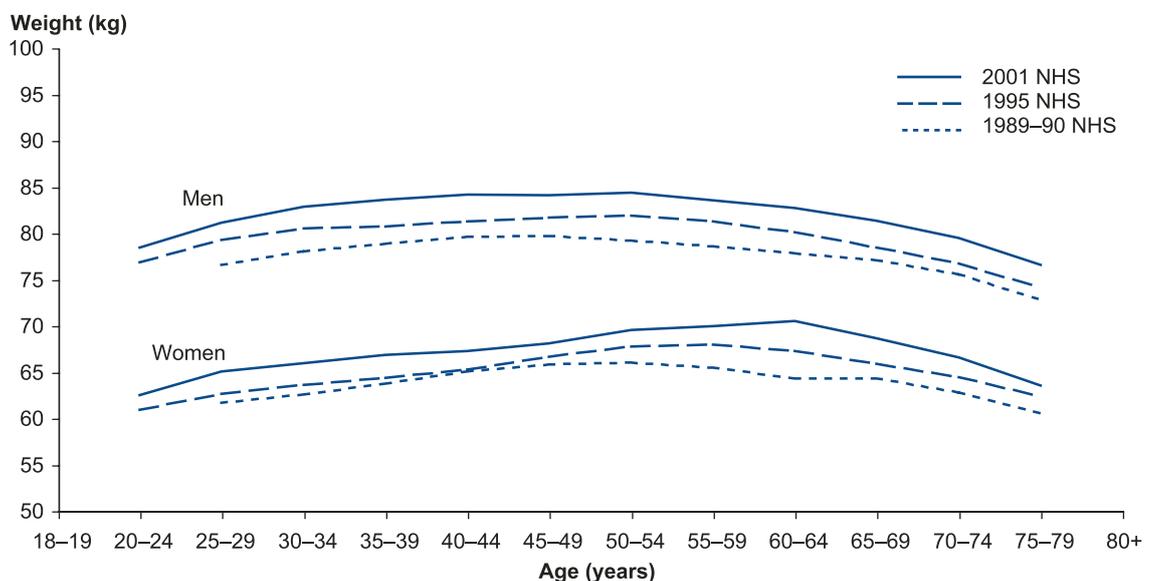
Data on self-reported and measured weight show that older Australians now are heavier than older Australians were a generation ago and that the gain has been substantial.

The increase in weight has occurred equally across all age groups: the average self-reported weight for every age group was higher in 2001 than for the same age group in 1995, which was in turn higher than its counterpart in 1989 (Figure 1).

Using the 25–64 years age range common to surveys that measured weight, the average measured weight increased during the 1980s and 1990s by around 6.5 kg for men and 7.1 kg for women (about one stone in imperial measure). This increase in average measured weight occurred in each five-year age group (Figures 2 and 3).

The most recent surveys that measured weight show that older age groups are progressively lighter, from around age 50 in men and age 60 in women (Figures 2 and 3). This is consistent with the pattern shown using self-reported data (Figure 1). Assuming the 1990s pattern of prevalence also applied to the 1980s, then it can be shown that weight gains among older Australians are likely to have been similar in extent to those in other age groups—that is, about 6–7 kgs.

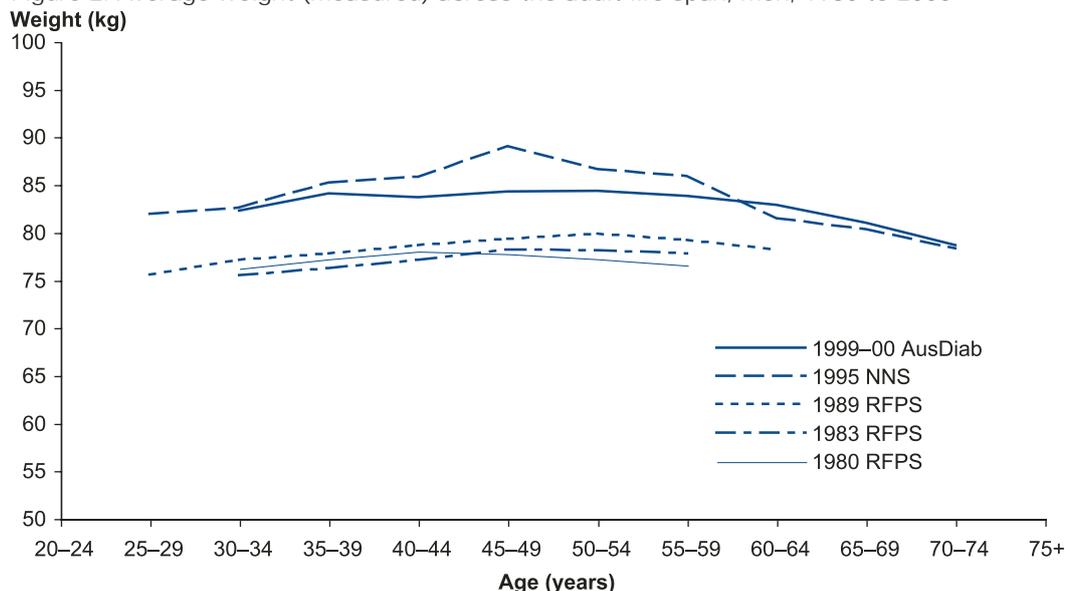
Figure 1: Average weight (self-report) across the adult life span, 1989 to 2001



Sources: AIHW analysis of the 1989–90, 1995 and 2001 National Health Surveys.

Using the cohort approach, as previously discussed, and measured weight, men aged 30–34 in 1980 gained over 8 kg as they aged to 50–54 years in 2000 (Figure 4). Similarly, women aged 30–34 in 1980 gained over 12 kg as they aged to 50–54 years. Weight gain has been so great that, rather than losing weight as they became older, men and women now aged 70–74 weigh more on average than they did when they were 20 years younger (Figure 4).

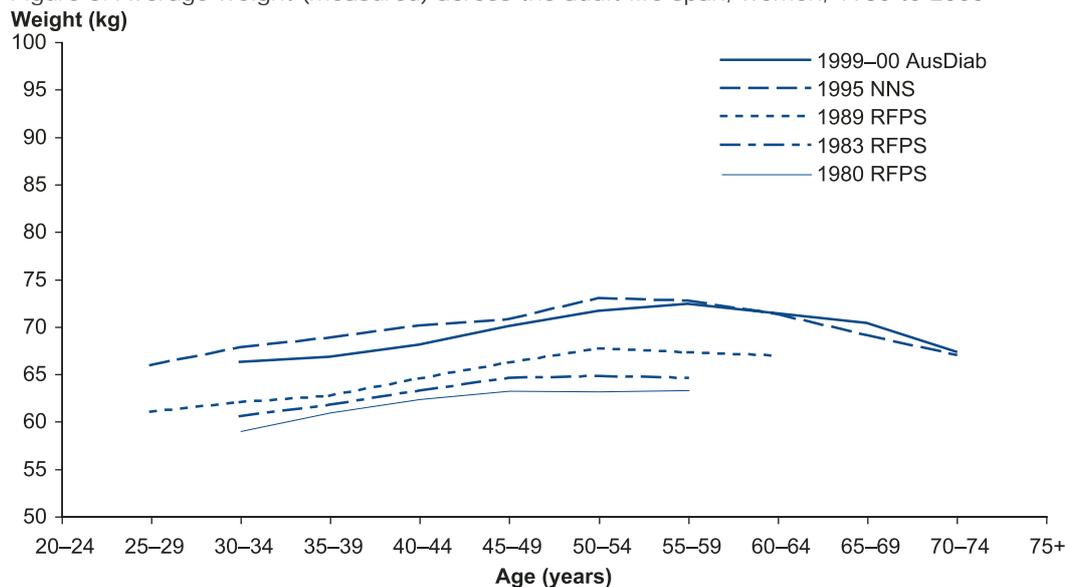
Figure 2: Average weight (measured) across the adult life span, men, 1980 to 2000



Note: Capital cities only.

Sources: AIHW analysis of the 1980, 1983 and 1989 Risk Factor Prevalence Surveys; 1995 National Nutrition Survey; 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

Figure 3: Average weight (measured) across the adult life span, women, 1980 to 2000



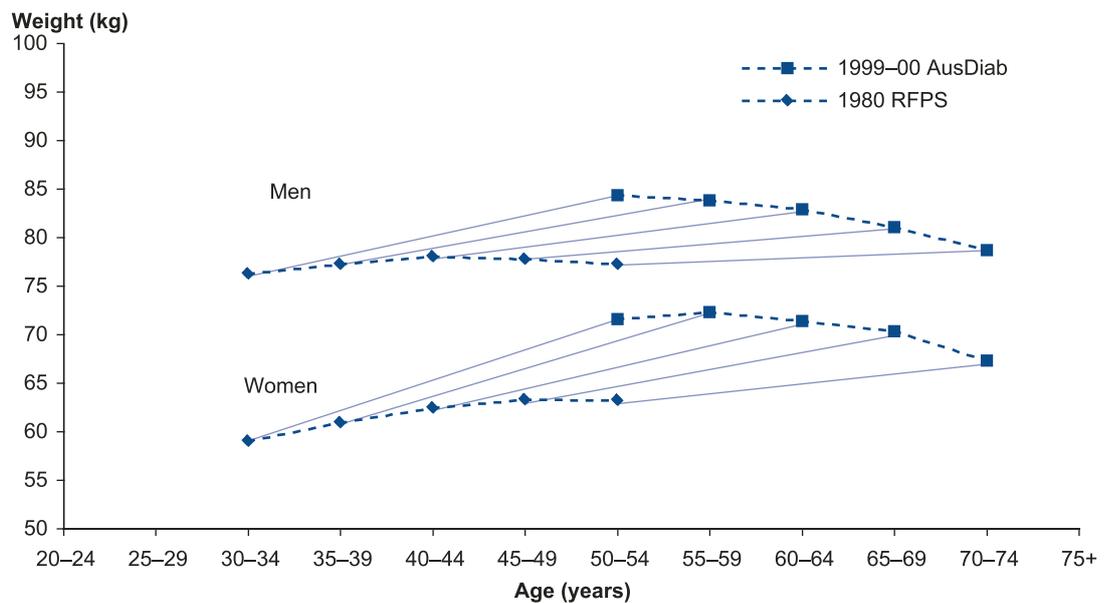
Note: Capital cities only.

Sources: AIHW analysis of the 1980, 1983 and 1989 Risk Factor Prevalence Surveys; 1995 National Nutrition Survey; 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

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Hence, while cross-sectional data show that, at a point in time, average weight is highest among people of late middle age (Figures 1, 2 and 3), this does not mean that individuals tend to lose weight as they grow older than this. In fact, the cohort approach suggests that in recent times a typical individual has continued to gain weight at least to age 75 years (Figure 4).

Figure 4: Trends in weight (measured) by age cohort, 1980 to 2000



Note: Capital cities only

Sources: AIHW analysis of the 1980 Risk Factor Prevalence Survey; 1999-2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

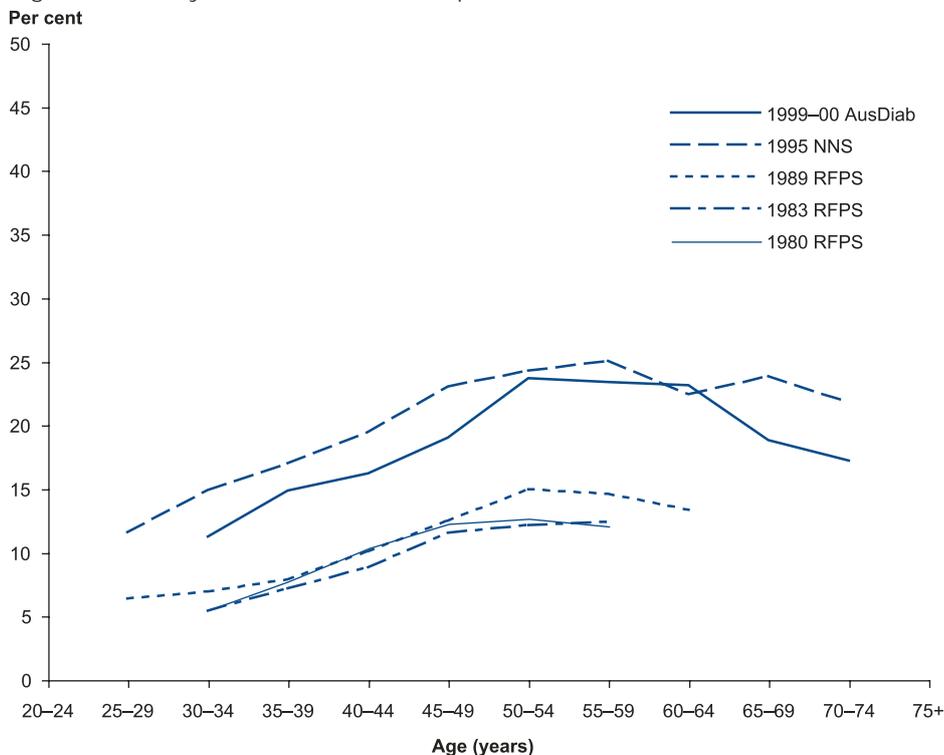
More older Australians are obese

The prevalence of Australian adults who are obese has increased as a consequence of the increase in average weight. The most recent (cross-sectional) data show that the prevalence of obesity is greater in successive age groups and is most common around ages 50-59 years at about 24% for men and 30% for women, and less common in older age groups (Figures 5 and 6).

Although the prevalence of obesity among older Australians during the 1980s was not assessed, estimates can be made by assuming that the prevalence during this period for age groups 65 years and older would have formed a pattern similar to those observed in 1995 and 2000. This assumption that, at a point in time, older age groups weigh progressively less is consistent with ABS self-reported data, which cover a wider age range, and with overseas data. By applying estimates of the age-specific prevalence of obesity to national population estimates, it can be calculated that there has been a steady and substantial increase in the number of older Australians who are obese, from 310,000 in 1980 to 940,000 in 2000 (Figure 7). This represents an increase from 11% to 23% of older Australians who are obese. About one-third of the increase in number has been as a result of the ageing of the population and two-thirds a result of the increased obesity rates.

Self-report estimates, which are based on larger sample numbers at older ages (Appendix Table 1), confirm that the prevalence of obesity among older Australians has increased over time.

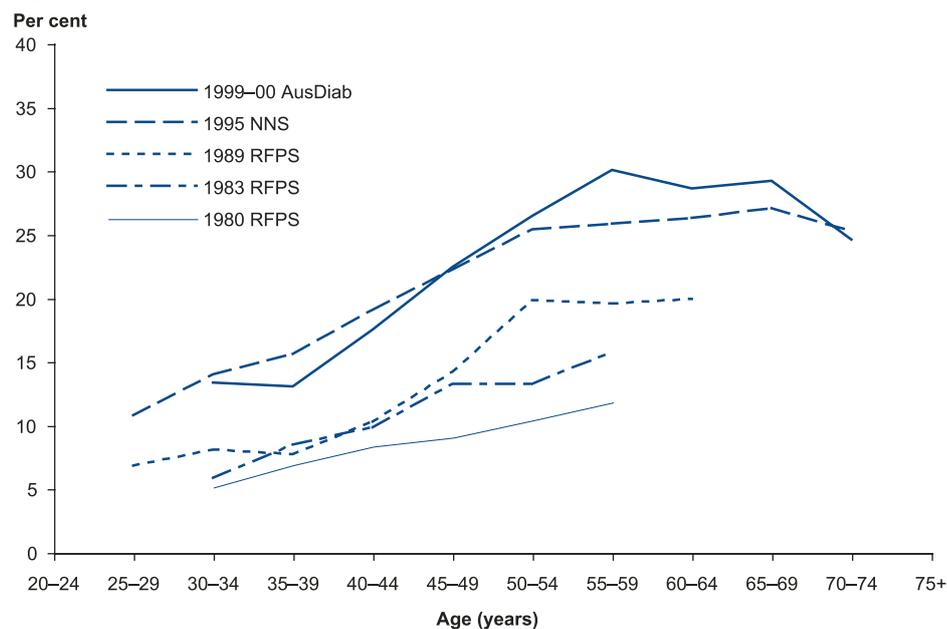
Figure 5: Obesity across the adult life span, men, 1980 to 2000



Note: Capital cities only.

Sources: AIHW analysis of the 1980, 1983 and 1989 Risk Factor Prevalence Surveys; 1995 National Nutrition Survey; 1999-2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

Figure 6: Obesity across the adult life span, women, 1980 to 2000

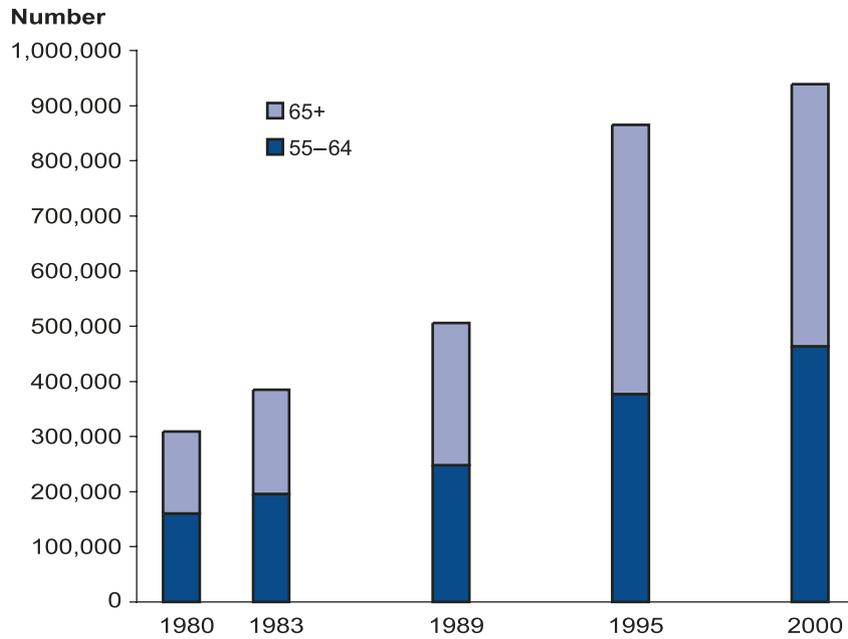


Note: Capital cities only.

Sources: AIHW analysis of the 1980, 1983 and 1989 Risk Factor Prevalence Surveys; 1995 National Nutrition Survey; 1999-2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

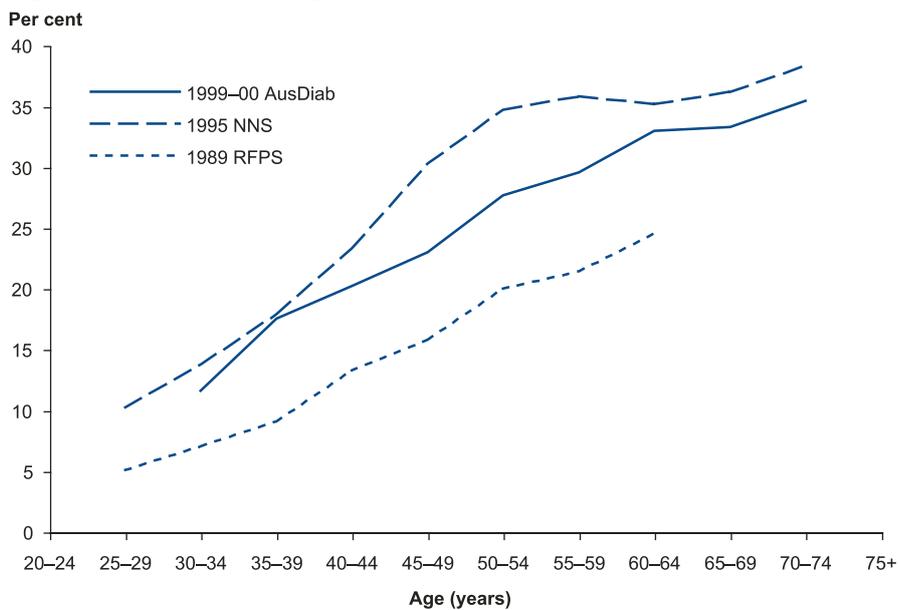
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Figure 7: Number of obese older Australians, 1980 to 2000



Sources: AIHW analysis of the 1980, 1983 and 1989 Risk Factor Prevalence Surveys; 1995 National Nutrition Survey; 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab); ABS Australian Demographic Statistics 3101.0.

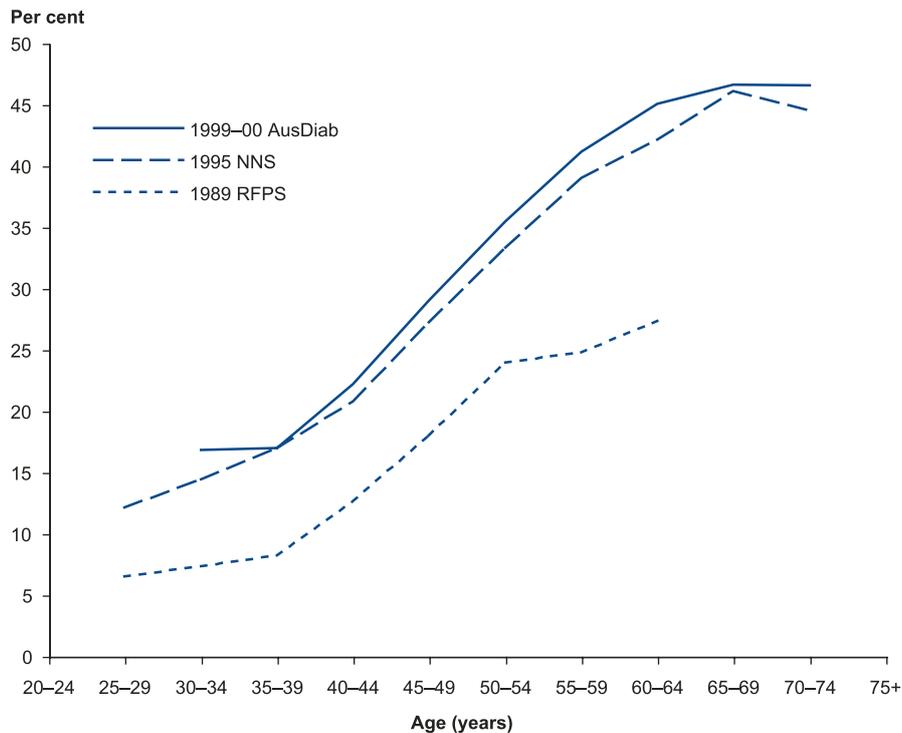
Figure 8: Abdominal obesity across the adult life span, men, 1989 to 2000



Note: Capital cities only.

Sources: AIHW analysis of the 1989 Risk Factor Prevalence Survey; 1995 National Nutrition Survey; 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

Figure 9: Abdominal obesity across the adult life span, women, 1989 to 2000



Note: Capital cities only.

Sources: AIHW analysis of the 1989 Risk Factor Prevalence Survey; 1995 National Nutrition Survey; 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

Older Australians are bigger around the waist

The data show that abdominal fatness increased markedly during the 1990s including among older Australians. Based on waist circumference, over 30% of older men and 44% of older women are currently at substantially increased risk of disease because of abdominal obesity (Figures 8 and 9). These proportions increase steadily over the adult lifespan, with rates highest during older age. Unlike body weight and obesity, the cross-sectional prevalence of abdominal obesity continues to increase past late middle age. This is consistent with a redistribution of body fat more into the abdominal area as age increases (Seidell & Visscher 2000).

Discussion

The trend towards excess body weight

The data reveal a dramatic increase in the weight of Australians in all age groups. Adults at every age now carry around 6–7 kg more than their same-age counterparts 20 years ago, which is equivalent in weight to 12–14 medium-sized tubs of butter or margarine, and represents an increase of about a gram a day.

This increase in average weight has resulted in marked increases during the same period in the prevalence of Australians who are obese—reaching around 25–30% among people approaching retirement. The prevalence of abdominal obesity, as indicated by

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waist circumference, also increased during the 1990s for all ages. It is common among those in their early 50s, but it becomes even more common among older age groups.

These trends based on measured data are supported by data collected through self-reporting. Although lower, estimates based on self-reported data show the same pattern of increasing weight in the past decade at all ages, with average weight greatest among people in their late 40s and early 50s and progressively lower at older ages. Similar trends over the life span and over time have been reported recently for other developed countries (OECD 2003)—for example, the United States (Flegal et al. 2002) and the United Kingdom (National Audit Office 2001).

Increasing weight in an ageing population has resulted in a tripling within 20 years of the number of older Australians who are obese—to a figure approaching 1 million.

Perhaps surprisingly, even Australians of 'retiring age' are continuing to gain weight as they gain years, at least into their mid-70s. The effect of the obesity epidemic has far exceeded any 'natural' tendency that may exist for older Australians to lose weight as they age. Based on these data it cannot necessarily be expected that the problem of obesity among older people will solve itself as they age further .

The likely causes

A number of possible causes for the dramatic increase in the prevalence of obesity can be considered. Several seem unlikely. First, the increase has been much too rapid to be a result of genetic factors. Second, there has been no significant change in average height during the period under study (Bennett & Magnus 1994; Cook et al. 2001). Third, although smoking rates have fallen in Australia, and smoking cessation has been linked to an increase in body weight at the individual level, the decrease in the smoking rate has made little or no contribution to the increase in body weight at the population level (Simmons et al. 1996; Boyle et al. 1994).

The most plausible explanations are dietary over-consumption of energy or a decrease in physical activity, or both, over a considerable period. Dietary intake and physical activity are, however, difficult to measure and trend data are limited.

On the dietary side, a comparison of dietary intake surveys in 1983 and 1995 found an increase in average daily energy intake for adults. Overall, there was a statistically significant increase of around 350 kJ in average 24-hour energy intake among Australians aged 25-64 years. In food terms, this difference represents the equivalent of about a slice of bread a day. In the absence of compensatory increases in energy expenditure, this could be expected to result in significant increases in body weight over time (Cook et al. 2001).

Analysis of long-term trends in physical activity is made difficult by changes in definitions and methods. Broadly, the data suggest that physical activity patterns changed little during the 1980s and much of the 1990s, but that there was a significant decline during the late 1990s in the proportion of people doing the recommended levels of physical activity (AIHW 2002c). The data collected relate to leisure-time physical activity, however, and do not take into account physical activity throughout most of the day in contexts such as work, home and daily travelling—areas in which energy expenditure is thought to have declined (WHO 2000).

The overall picture is one of a persistent increase in energy intake combined with, at best, no increase in recreational physical activity and an increasingly sedentary lifestyle. Behind these trends lies a range of social, economic and cultural factors. In an affluent

country such as Australia, food is plentiful, easily accessible, often energy dense and heavily promoted, and daily tasks and recreation depend less and less on physical activity (NHMRC 1999). Other probable influences include trends in eating out, increases in recreational computer use and television viewing, numerous advances in labour-saving technology, less outdoor activity because of time pressures and fear of crime, greater reliance on motor vehicles for transport, and reductions in physical activity at work (NHMRC 1997; WHO 2000; Crawford 2002; Flegal et al. 2002).

The likely health consequences

Among the likely health consequences for individual adults, and older people in particular, of this marked trend towards increasing body fatness are premature death from life-threatening diseases and debilitating conditions that impair quality of life (WHO 2000). People with excess weight have a greater chance of developing chronic diseases such as type 2 diabetes, coronary heart disease, stroke, some cancers, osteoarthritis and kidney disease. They are also more likely to have high levels of blood pressure, cholesterol and triglycerides, and they have a greater chance of developing gall bladder disease, respiratory difficulties and musculoskeletal problems (AIHW 2002c). The particular health effects and outcomes are influenced by the degree of excess weight, the location of the excess weight, the extent of weight gain during adulthood, and a sedentary lifestyle (Rossner 2001).

Excess weight in older people can have negative effects on their daily functioning, their social lives and their mental health (Jensen & Rogers 1998). High BMI is associated with a greater risk of functional limitation, especially mobility, among older people. Many older people already have limited mobility, and obesity is likely to aggravate the problem. Functional impairment in older people can result in their withdrawal from social activities and dependence on others for assistance with activities of daily living. Depression is common in both obese and older people.

Because excess weight is associated with chronic disease, personal and national health care costs are increased for older obese people (Thompson et al. 2001; National Audit Office 2001). Nationally, the direct costs of obesity represent a significant proportion of the health care budget and potential savings from reducing the problem are great (NHMRC 1997; Wolf & Colditz 1998; National Audit Office 2001). International studies on the economic costs of excess body weight, including data from Australia (NHMRC 1997), have shown that, conservatively, between 2% and 7% of total health care costs may be directly attributable to overweight and/or obesity (WHO 2000). In Australia today this equates to about \$1.2 billion (John Goss, Head, Summary Measures Unit, AIHW: pers. comm., 21 October 2003). Workforce participation studies of indirect costs have shown increased rates of long-term sick leave and premature disability leading to loss of productivity (WHO 2000; National Audit Office 2001).

The growing number of obese older Australians suggests there could be a greater need for carers and an increased demand on aged care services. This is occurring at a time when there is an acute shortage of nursing staff in the aged care sector (Senate Community Affairs Committee 2002). The nursing workforce is itself ageing, but a decline in nursing resources per head of population over recent years may have levelled off (AIHW 2003b).

There is also an important health and safety concern. Nurses—especially those engaged in aged care nursing—already experience high rates of occupational injury (Senate Community Affairs Committee 2002). Rates of workers compensation claims are

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highest for staff of residential aged care services and are predominantly related to manual handling such as lifting and transferring. Manual handling has been reported as a common cause of physical problems experienced by long-term carers (CAA 2000; Schofield et al. 1998). Thus the increasing number of obese older people raises health and safety concerns for all who care for them, both formally and informally.

What needs to be done?

The combination of population ageing and growing obesity raises important questions for those who formulate policy and programs on ageing. Among their aims are helping people to remain independent and active as they age and improving quality of life in older age. However, the increasing number of older Australians who are obese carry with them an increased risk of chronic disease and disability, and this works against these aims.

The National Strategy for an Ageing Australia (Commonwealth of Australia 2002) discusses strategies for supporting and encouraging good health throughout a person's life, as well as better health in older age. This perspective echoes the importance the World Health Organization places on reducing the risks of chronic diseases throughout the life course. It advocates a healthy lifestyle at all stages of life and argues against the myth that it is too late to adopt a healthy lifestyle in the later years: 'On the contrary, engaging in appropriate physical activity and healthy eating ... can prevent disease and functional decline, extend longevity and enhance one's quality of life' (WHO 2002).

The WHO recommends that policies and programs should encourage inactive people to become more active as they age and give them opportunities to do so. The benefits of regular physical activity for men and women of all age groups are well recognised (Rossner 2001). Apart from helping to reduce the likelihood of obesity, physical activity can delay functional decline and the onset of chronic disease. It can also reduce the severity of disability associated with chronic diseases, improve mental health, promote social contacts, prolong independent living, and reduce the risk of falls. Physical activity plays an important role in sustaining the health of muscles, bones and joints. Medical costs are substantially lower for older people who are active (WHO 2002).

Healthy eating includes not over-eating. Prolonged excess energy intake greatly increases the risk of obesity, chronic disease and disability as people age (WHO 2002). For older people, healthy eating also means eating foods that are rich in nutrients in order to counteract the decline in the amount of muscle in the body. Although older people can be encouraged to control their weight, it is important that weight loss does not adversely affect muscle mass, bone health or other aspects of nutritional status. Good nutrition for older Australians is important for minimising sickness and premature death and maintaining an independent lifestyle for as long as possible (NHMRC 1999).

From a public health perspective, the solution lies in helping people to maintain a healthy weight and not to become obese, as much as helping those who are already obese (National Audit Office 2001). From a life-course perspective, the stages when the risk of weight gain is greatest are childhood, early adolescence, pregnancy and menopause in women, and middle age in both men and women (NHMRC 2002). A successful prevention strategy will combine a life-course approach with the knowledge that most excess body weight is a consequence of lifestyle and environmental factors. Tackling the behavioural and environmental factors that make it difficult for people to maintain a healthy weight will require close cooperation and collaboration between social and health scientists.

At the clinical level, there is no single, effective treatment for obesity and the problem tends to recur after weight loss (NHMRC 2002). The answer might seem simple—eat less and move more—but in practice this is one of the most complex and difficult medical problems in modern disease management (NHMRC 2002, Crawford 2002). However the rewards are such that even modest weight loss, of 5–10 % can result in significant health benefits (NHMRC 2002).

Conclusion

The health of older Australians is one of the most important medical and economic challenges facing Australia. There will be an increasing number of older Australians in the coming decades, and there will be personal and national benefits if these people are healthy. Slimmer, physically active older Australians are less likely to leave the workforce for health reasons, and are likely to enjoy retirement more, have fewer health care needs, have less chronic disease and disability, and cost the national health budget less.

Taking action to prevent people becoming overweight or obese in the first place will most effectively reverse the current trend in older Australians. This requires long-term strategies that promote lifelong healthy eating and physical activity in early and mid-life as well as older age, along with changes to the environment that make it less conducive to weight gain.

During 2003, the National Obesity Taskforce was established to develop a national approach for tackling overweight and obesity. Its report to Health Ministers in November 2003 *Healthy Weight 2008 – Australia's Future* outlines a national action agenda for children and young people and their families. Ministers charged the Taskforce with leading and coordinating the implementation of the national action agenda to tackle obesity and developing further advice on strategies to reduce obesity in adults and older Australians. Their reports, along with the national dietary guidelines covering Australians of all ages, including older Australians (NHMRC 1999), will have an important part to play in combating the compounding effects of an obesity epidemic in an ageing population.

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References

- ABS (Australian Bureau of Statistics) 2000. Population projections Australia. Cat. no. 3222.0. Canberra: ABS.
- ABS 1998. How Australians measure up. Cat. no. 4359.0. Canberra: ABS.
- AIHW (Australian Institute of Health and Welfare) 2003a. A growing problem. Trends and patterns in overweight and obesity among adults in Australia, 1980–2001. Canberra: AIHW.
- AIHW 2003b. Nursing labour force 2002. AIHW cat. no. HWL 29. Canberra: AIHW.
- AIHW 2002a. Chronic diseases and associated risk factors in Australia, 2001. Canberra: AIHW.
- AIHW 2002b. Older Australia at a glance 2002. AIHW cat. no. AGE 25. Canberra: AIHW & Commonwealth Department of Health and Ageing.
- AIHW 2002c. Australia's health 2002. Canberra: AIHW.
- Bennett SA & Magnus P 1994. Trends in cardiovascular risk factors in Australia. Results from the National Heart Foundation's Risk Factor Prevalence Study, 1980–1989. *Medical Journal of Australia* 161:519–27.
- Boyle CA, Dobson AJ, Egger G & Magnus P 1994. Can the increasing weight of Australians be explained by the decreasing prevalence of cigarette smoking? *International Journal of Obesity* 18:55–60.
- CAA (Carers Association of Australia) 2000. Results of the 1999 National Survey of Carer Health and Wellbeing. Canberra: CAA & Commonwealth Department of Health and Aged Care.
- Commonwealth of Australia 2002. National Strategy for an Ageing Australia: an older Australia, challenges and opportunities for all. Canberra: Commonwealth of Australia.
- Cook T, Rutishauser I & Seelig M 2001. Comparable data on food and nutrient intake and physical measurements from the 1983, 1985 and 1995 national surveys. Canberra: Commonwealth Department of Health and Ageing, University of Queensland & University of Sydney.
- Crawford D 2002. Population strategies to prevent obesity. *British Medical Journal* 325:728–9.
- Flegal KM, Carroll MD, Ogden CL & Johnson CL 2002. Prevalence and trends in obesity among US adults, 1999–2000. *Journal of the American Medical Association* 288:1723–7.
- Jensen GL & Rogers J 1998. Obesity in older persons. *Journal of the American Dietetic Association* 1998:1308–11.
- Magarey AM, Daniel LA & Boulton TJC 2001. Prevalence of overweight and obesity in Australian children and adolescents: reassessment of 1985 and 1995 data against new standard international definitions. *Medical Journal of Australia* 174:561–4.
- National Audit Office 2001. Tackling obesity in England. London: Stationery Office.
- NHMRC (National Health & Medical Research Council) 2002. Draft clinical guidelines for weight control and obesity management in adults. Canberra: NHMRC.
- NHMRC 1999. Dietary guidelines for older Australians. Canberra: NHMRC.
- NHMRC 1997. Acting on Australia's weight. A strategic plan for the prevention of overweight and obesity. Canberra: NHMRC.
- OECD (Organisation for Economic Co-operation and Development) 2003. Health at a glance. OECD indicators 2003. Paris: OECD.
- Rosner S 2001. Obesity in the elderly—a future matter of concern. *Obesity Reviews* 2:183–8.

Schofield H, Bloch S, Herrman H et al. (eds) 1998. Family caregivers: disability, illness and ageing. Allen & Unwin & Victorian Health Promotion Foundation.

Seidell JC & Visscher TLS 2000. Body weight and weight change and their health implications for the elderly. *European Journal of Clinical Nutrition* 54:S33–9.

Senate Community Affairs Committee 2002. The patient profession: time for action. Report on the inquiry into nursing. Canberra: Commonwealth of Australia.

Simmons G, Jackson R, Swinburn B & Lay Yee R 1996. The increasing prevalence of obesity in New Zealand: is it related to recent trends in smoking and physical activity? *New Zealand Medical Journal* 109:90–2.

Thompson D, Brown JB, Nichols GA, Elmer PJ & Oster G 2001. Body mass index and future healthcare costs: a retrospective cohort study. *Obesity Research* 9:210–18.

WHO (World Health Organization) 2002. Active ageing: a policy framework. Geneva: WHO.

WHO 2000. Obesity: preventing and managing the global epidemic. Report of a WHO consultation. WHO Technical Report Series 894. Geneva: WHO.

Wolf AM & Colditz GA 1998. Current estimates of the economic costs of obesity in the United States. *Obesity Research* 6:97–106.

Appendix

Appendix Table 1: Approximate sample numbers for measured and self-reported data

Survey	Sex	Age (years)													
		18–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80+
Measured															
1980 RFPS	Men			380	390	340	330	320	380	370	260				
	Women			330	410	340	340	340	380	370	290				
1983 RFPS	Men			470	530	570	460	430	450	450	380				
	Women			470	540	570	480	450	440	480	410				
1989 RFPS	Men		380	480	510	580	610	480	400	360	390	320			
	Women		380	470	520	600	630	480	410	360	380	340			
1995 NNS	Men		280	350	350	380	280	280	260	210	200	230	170	170*	
	Women		320	350	390	350	330	340	260	240	230	230	190	220*	
1999–00 AusDiab	Men			170	210	310	350	400	480	330	280	250	170	180*	
	Women			200	270	380	480	510	510	380	310	230	210	210*	
Self-reported															
1989 NHS	Men		1880	2180	2190	2120	1940	1540	1250	1180	1120	980	700	450	310
	Women		1900	2310	2260	2050	1960	1480	1190	1060	1160	1160	840	600	540
1995 NHS	Men	640	1800	1850	2000	2030	1920	1770	1400	1130	930	930	710	420	330
	Women	670	1840	1960	2150	2080	1910	1720	1320	1060	920	930	820	560	460
2001 NHS	Men	230	510	690	800	900	910	740	710	530	460	390	390	300	200
	Women	210	580	840	950	1010	960	820	680	560	550	440	470	400	400

* Sample numbers are for ages 75 and above.



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