

## 6. Physical activity patterns of Australian adults

The purpose of this section is to profile the physical activity patterns of Australians adults aged 18–75 years in 1999 and show trend comparisons with the 1997 survey where relevant. Statistically significance (at least  $p < 0.05$ ) is reported as a significant change in the following sections.

### Total sessions spent in activities

Table 6.1 shows the percentage of sessions of each category of physical activity that respondents participated in during the previous week. Thirty-five per cent of people reported that they walked (for recreation/exercise or to get to or from places) on at least five occasions during the previous week. Lower rates were noted for regular moderate-intensity or vigorous-intensity activities, with 9% reporting they participated in vigorous-intensity activity at least five times, and only 5% reporting that they participated in moderate-intensity physical activity on at least five occasions during the week.

Participation in regular vigorous-intensity physical activity was more common among men (11%) than women (6%).

Forty per cent of people aged 18–29 years reported walking five or more times during the previous week, and 33% of people in this age group reported doing vigorous-intensity activity on at least three occasions during the previous week (Table 6.2).

Thirty-seven per cent of people aged 60–75 years reported walking five or more times during the previous week, and 7% of people in this age group reported doing vigorous-intensity activity on at least three occasions during the previous week. Vigorous-intensity gardening and yardwork on at least three occasions was more common among older age groups.

Between 1997 and 1999, there has been a significant decline in the number of sessions of physical activity that people reported during the previous week. Fifty-eight per cent of respondents walked at least three times during the week in 1997 compared with 54% in 1999. The proportion of people reporting three or more sessions of vigorous-intensity activity during the week also declined from 24% in 1997 to 19% in 1999. The proportion of people doing moderate-intensity physical activity three or more times per week remained constant between 1997 (11%) and 1999 (10%). Similarly, participation in vigorous-intensity gardening or yardwork on at least three occasions per week remained constant between 1997 (10%) and 1999 (11%).

**Table 6.1: Sessions of physical activity in the previous week by sex (per cent), 1999**

Physical activity	Men	Women	Persons
<b>Walking</b>			
Nil	31.5	24.1	27.8
1-2	17.7	19.3	18.5
3-4	16.6	20.5	18.6
5 or more	34.2	36.0	35.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Moderate-intensity<sup>(a)</sup></b>			
Nil	67.2	75.6	71.4
1-2	22.0	14.9	18.4
3-4	6.1	5.2	5.7
5 or more	4.7	4.3	4.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Vigorous-intensity<sup>(b)</sup></b>			
Nil	59.1	65.4	62.3
1-2	19.1	19.0	19.1
3-4	10.6	9.2	9.9
5 or more	11.1	6.4	8.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Vigorous-intensity gardening/yardwork</b>			
Nil	54.0	60.5	57.3
1-2	32.8	30.0	31.4
3-4	7.3	5.4	6.3
5 or more	5.9	4.1	5.0
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Examples of moderate-intensity activities are gentle swimming, social tennis.

(b) Examples of vigorous-intensity activities are jogging, cycling, aerobics, competitive tennis.

Note: Components may not add to totals due to rounding.

**Table 6.2: Sessions of physical activity in the previous week by age group (per cent), 1999**

Physical activity	Age group (years)			
	18–29	30–44	45–59	60–75
<b>Walking</b>				
Nil	20.0	31.6	29.3	30.2
1–2	20.5	19.8	18.0	13.6
3–4	19.3	17.9	18.4	19.1
5 or more	40.2	30.8	34.4	37.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Moderate-intensity<sup>(a)</sup></b>				
Nil	69.9	72.7	75.4	65.3
1–2	21.3	19.2	15.7	16.6
3–4	4.8	4.8	3.9	11.3
5 or more	4.0	3.3	4.9	6.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Vigorous-intensity<sup>(b)</sup></b>				
Nil	40.9	60.6	72.0	84.4
1–2	26.4	21.7	14.8	8.7
3–4	17.3	9.2	7.3	3.8
5 or more	15.5	8.5	5.8	3.0
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Vigorous-intensity gardening/yardwork</b>				
Nil	68.5	52.2	52.1	57.9
1–2	26.7	37.5	33.6	23.3
3–4	2.9	6.3	8.0	9.1
5 or more	1.9	4.0	6.2	9.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Examples of moderate-intensity activities are gentle swimming, social tennis.

(b) Examples of vigorous-intensity activities are jogging, cycling, aerobics, competitive tennis.

Note: Components may not add to totals due to rounding.

## Total time spent in activities

Table 6.3 shows the total time (in minutes) people reported spending in each category of physical activity in the previous week. The inclusion of the 75th percentile and 95th percentiles in Table 6.3 is necessary because the distribution of activity is skewed, indicating that some caution is needed in interpreting the mean values. However, for illustrative purposes (and because the medians are often zero), mean values are shown for each category of activity, by each age group and sex (Table 6.4).

Table 6.3 shows that walking was the most common activity, followed by vigorous-intensity gardening and yardwork, other vigorous-intensity activities and moderate-intensity activities other than walking.

Between 1997 and 1999, the total time spent participating in physical activity declined significantly. The mean time spent walking declined (137 to 114 minutes per week, Table 6.3) between 1997 and 1999. Similarly, the mean time people spent participating in vigorous-intensity activities declined, from 91 to 65 minutes; and moderate-intensity activities declined, from 62 to 54 minutes. Mean time spent in physical activity declined for all age groups except for those aged 60–75 years (ASC 1998). For this age group the mean time spent in each of walking, other moderate activity, vigorous gardening and yardwork, and other vigorous activities increased between 1997 and 1999.

**Table 6.3: Total time (minutes) for physical activity during the previous week, 1997 and 1999**

	Walking		Moderate-intensity		Vigorous-intensity		Vigorous gardening <sup>(a)</sup>	
	1997	1999	1997	1999	1997	1999	1997	1999
Mean	137	114	62	54	91	65	87	77
75th percentile	180	170	30	30	120	60	90	90
95th percentile	487	420	420	360	480	360	480	420

(a) Vigorous-intensity gardening and yardwork.

Mean minutes of total activity by age and sex show some clear patterns (Table 6.4). Walking was common in both sexes, across age groups, and increased in prevalence among older men. Older adults of both sexes spent the greatest time in moderate-intensity physical activities. Men, especially those aged 18–29 years, spent the most time in vigorous-intensity activity. Men also spent more time than did women doing vigorous-intensity gardening and yardwork, and this increased with age.

**Table 6.4: Mean minutes for physical activity during the previous week by age group and sex, 1999**

Age group (years)	Walking		Moderate-intensity		Vigorous-intensity		Vigorous gardening <sup>(a)</sup>	
	Men	Women	Men	Women	Men	Women	Men	Women
18–29	111.3	132.1	59.3	29.5	148.8	91.7	53.7	29.8
30–44	98.1	110.4	58.2	24.2	74.2	49.8	95.7	67.4
45–59	98.0	122.5	59.5	37.0	47.2	36.6	107.2	76.3
60–75	146.1	112.5	132.3	79.6	23.5	16.3	139.0	65.3
<b>All ages</b>	<b>109.2</b>	<b>119.2</b>	<b>70.6</b>	<b>38.1</b>	<b>78.8</b>	<b>51.5</b>	<b>94.5</b>	<b>59.6</b>

(a) Vigorous-intensity gardening and yardwork.

## Measures of physical activity

This section describes current patterns and trends for the following measures of physical activity:

- physical inactivity (sedentary, no minutes of activity); and
- physical activity to confer a health benefit:
  - ‘sufficient’ time (150 minutes per week, using the sum of walking, moderate activity and vigorous activity (weighted by two));
  - ‘sufficient’ time and sessions (150 minutes and five sessions of activity per week).

### Physical inactivity (sedentary)

In 1999, almost 15% of Australian adults reported no leisure-time physical activity during the previous week (Table 6.5). Sedentary behaviour increased with age, from 6% in people 18–29 years old to around 18% in those aged 45 years and over. The prevalence of sedentary behaviour in people with less than 12 years of education (20%) was almost twice that of people with tertiary education (11%).

The proportion of people reporting no physical activity did not change significantly from 1997 to 1999 (13.4% to 14.6%). However, during this period there was a significant increase in physical inactivity among people aged 30–44 years, from 12% to 17%. There were no changes in physical inactivity for other age groups during that period.

Between 1997 and 1999, the proportion of people with tertiary education reporting no physical activity increased from 6% to 11%, although no significant changes were noted for other categories of educational attainment.

### Physical activity to confer a health benefit

#### ‘Sufficient’ time

The categories of ‘insufficiently active’ and ‘sufficiently active’ were derived using participation in weighted vigorous-intensity activity to reflect its extra health benefits.

In Table 6.6, 29% of people were doing some physical activity, but not enough to be categorised as ‘sufficient’. Participation at this level was more common among women (32%) than men (26%). Participation increased with age (until age 60) and decreased with educational attainment.

Over half (57%) of the population was undertaking ‘sufficient’ physical activity to obtain a health benefit. Participation at this level was more common among men (60%) than women (54%) and decreased with age, until age 60. Participation in ‘sufficient’ activity increased with education, from 50% in those with less than 12 years of education to 62% in those with tertiary education.

**Table 6.5: Percentage of people reporting no physical activity (sedentary) during the previous week, 1997 and 1999**

	1997	1999
<b>Sex</b>		
Men	13.7	14.6
Women	13.1	14.7
<i>Persons</i>	13.4	14.6
<b>Age group (years)</b>		
18–29	7.3	6.3
30–44	11.7	16.9
45–59	18.1	18.2
60–75	19.2	17.9
<b>Education</b>		
Less than 12 years	18.2	19.5
HSC or equivalent	13.1	12.5
Tertiary	6.2	10.9

HSC = Higher School Certificate.

**Table 6.6: Percentage of people achieving 'sufficient' time during the previous week by sex, age group and education level, 1999**

	Sedentary	Insufficient	'Sufficient' <sup>(a)</sup>
<b>Sex</b>			
Men	14.6	25.9	59.6
Women	14.7	31.5	53.8
<i>Persons</i>	14.6	28.7	56.6
<b>Age group (years)</b>			
18–29	6.3	25.0	68.7
30–44	16.9	29.6	53.5
45–59	18.2	31.9	50.0
60–75	17.9	28.1	54.1
<b>Education</b>			
Less than 12 years	19.5	30.9	49.6
HSC or equivalent	12.5	27.9	59.7
Tertiary	10.9	26.7	62.3

HSC = Higher School Certificate.

(a) 'Sufficient' time is defined as 150 minutes per week, using the sum of walking, moderate activity and vigorous activity (weighted by two).

## 'Sufficient' time and sessions

Table 6.7 shows the proportion of people doing insufficient and 'sufficient' physical activity to obtain a health benefit, when 'sufficient' is defined as the accumulation of at least 150 minutes of physical activity (where vigorous-intensity activity is weighted by a factor of two) in at least five sessions over the week. When defined in this manner, 45% of people participated in physical activity to obtain a health benefit. Participation decreased with age until age 60. About 43% of women and 47% of men participated at this level. Participation in 'sufficient' physical activity increased with education level. Only 39% of people with less than 12 years of education did 'sufficient' physical activity compared with 52% of people with tertiary education.

**Table 6.7: Percentage of people achieving 'sufficient' time and sessions during the previous week by sex, age group and education level, 1999**

	Sedentary	Insufficient	'Sufficient' <sup>(a)</sup>
<b>Sex</b>			
Men	14.6	38.3	47.1
Women	14.7	41.9	43.4
Persons	14.6	40.2	45.2
<b>Age group (years)</b>			
18–29	6.3	37.5	56.3
30–44	16.9	41.9	41.2
45–59	18.2	41.6	40.2
60–75	17.9	38.5	43.6
<b>Education</b>			
Less than 12 years	19.5	41.9	38.6
HSC or equivalent	12.5	40.5	47.0
Tertiary	10.9	36.8	52.3

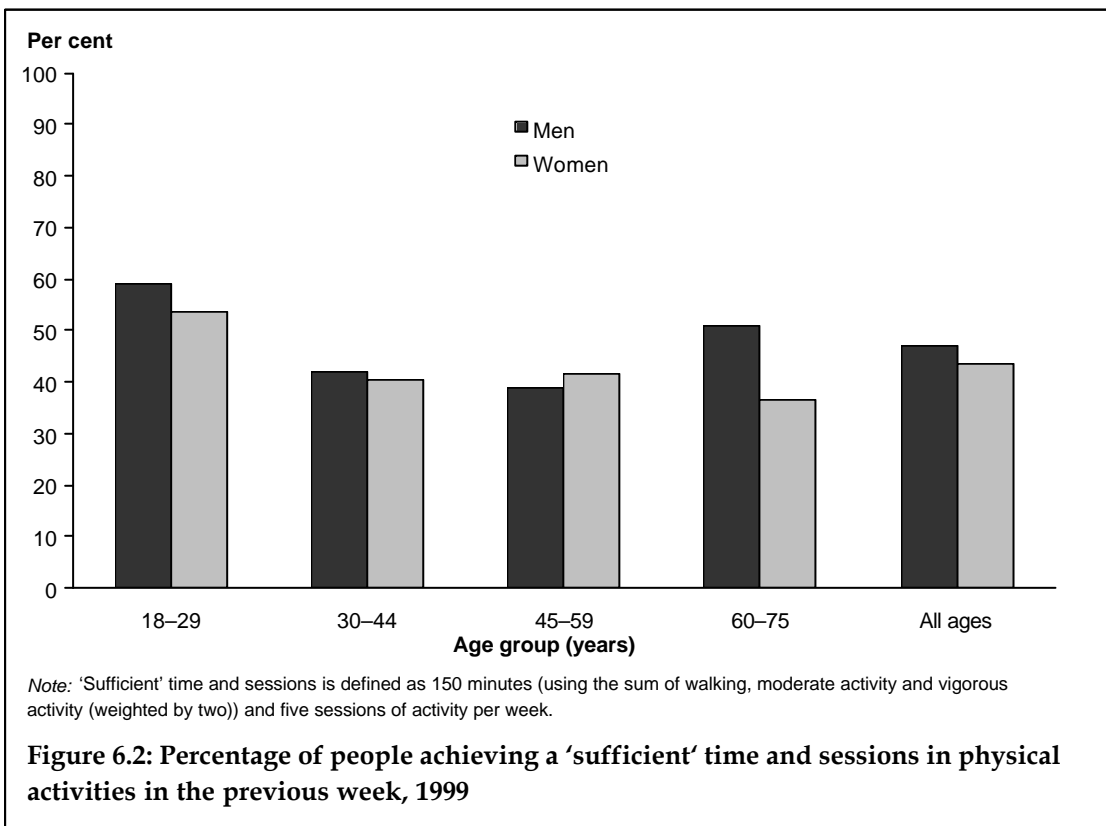
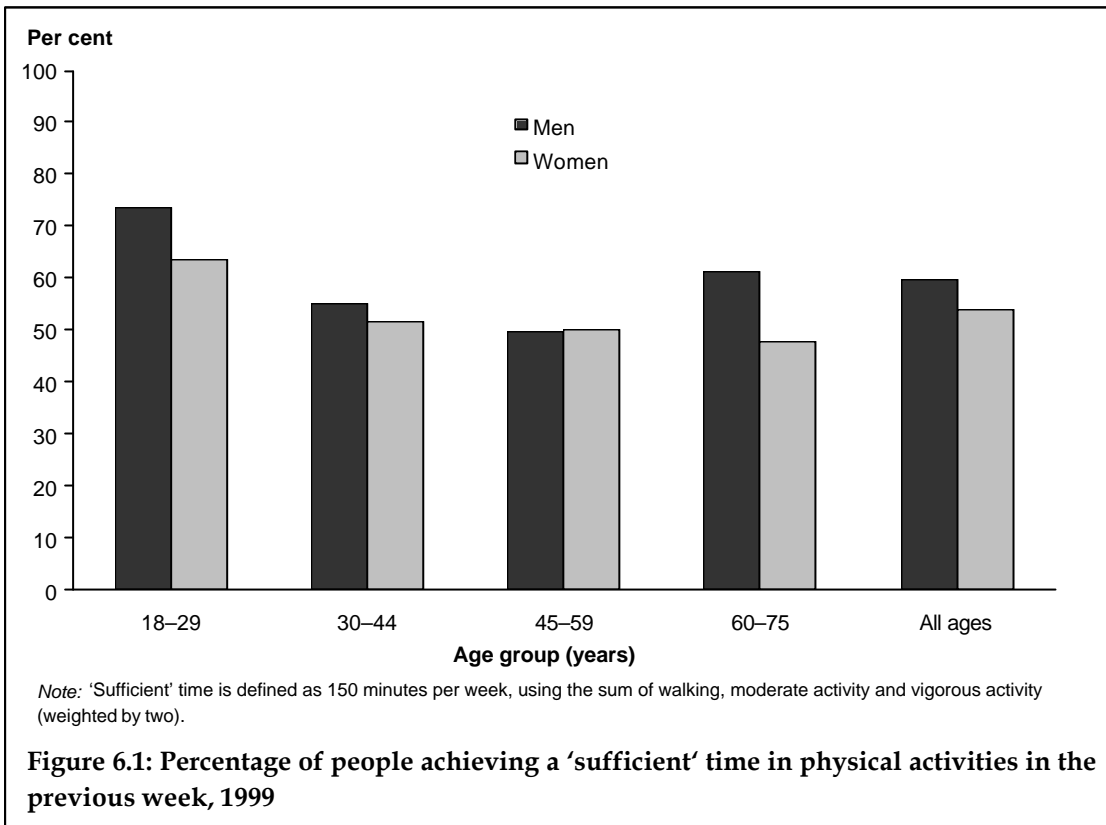
HSC = Higher School Certificate.

(a) 'Sufficient' time and sessions is defined as 150 minutes (using the sum of walking, moderate activity and vigorous activity (weighted by two)) and five sessions of activity per week.

## 'Sufficient' levels by age and sex

Figures 6.1, 6.2, and Table A3.1 show participation levels of men and women in each age group. For men, participation decreased with age until age 60 when participation increased to levels greater than those seen among men in the 30–44 age group. This was due to greater participation in moderate-intensity physical activity among older men. This pattern was not seen for women, where participation declined with age.

These patterns were seen for both measures of 'sufficient' activity.



## Trends 1997 and 1999

Participation in physical activity has declined significantly between 1997 and 1999 (Table 6.8). This decline was true for both interpretations of the 'sufficient' category, for both men and women, for ages up to 60 years and across levels of educational attainment. The continued participation by those 60 years of age and older is of particular interest given the public education campaign to promote physical activity among older people during 1999 (NSW Health 2000).

Data for both definitions of 'sufficient' activity (described page 17) are presented below. For the 'sufficient' time category (at least 150 minutes of physical activity is accumulated, where vigorous-intensity activity is weighted by two) the decline in participation at 'sufficient' level dropped from 62% to 57% between 1997 and 1999. The decline was greater for women (61% to 54%) than for men (63% to 60%), among those aged 30–44 years (64% to 54%), and for those with tertiary education (72% to 62%).

When 'sufficient' time and sessions is calculated (the accumulation of at least 150 minutes of physical activity, where vigorous-intensity activity is weighted by a factor of two, in at least five sessions over the week) the decline in participation was from 51% to 45% between 1997 and 1999, with similar groups showing the most decline, namely women, those aged 30–44 years and the tertiary-educated group.

**Table 6.8: Trends in 'sufficient' levels of activity (per cent), 1997 and 1999**

	'Sufficient' time <sup>(a)</sup>		'Sufficient' time and sessions <sup>(b)</sup>	
	1997	1999	1997	1999
<b>Sex</b>				
Men	63.4	59.6	51.7	47.1
Women	61.1	53.8	50.1	43.4
<i>Persons</i>	62.2	56.6	50.9	45.2
<b>Age group (years)</b>				
18–29	74.0	68.7	62.9	56.3
30–44	63.6	53.5	51.6	41.2
45–59	53.8	50.0	43.1	40.2
60–75	53.4	54.1	42.7	43.6
<b>Education</b>				
Less than 12 years	55.1	49.6	43.9	38.6
HSC or equivalent	63.0	59.7	51.4	47.0
Tertiary	71.9	62.3	61.2	52.3

HSC = Higher School Certificate.

(a) 'Sufficient' time is defined as 150 minutes per week, using the sum of walking, moderate activity and vigorous activity (weighted by two).

(b) 'Sufficient' time and sessions is defined as 150 minutes (using the sum of walking, moderate activity and vigorous activity (weighted by two)) and five sessions of activity per week.

# Physical activity habits (a usual week)

## Time spent in activities over the previous six months

The mean amount of time people reported that they usually spent (i.e. each week over the past six months) in various physical activities declined significantly from 1997 to 1999 (Table 6.9). The average time spent in each activity (walking, moderate, vigorous) decreased between 1997 and 1999. The greatest decline was for participation in vigorous activity, from a mean of 104 minutes in 1997 to 75 minutes in 1999.

**Table 6.9: Mean minutes of physical activity over the previous six months, 1997 and 1999**

	Walking		Moderate-intensity		Vigorous-intensity <sup>(a)</sup>	
	1997	1999	1997	1999	1997	1999
Mean	158.5	120.7	65.5	57.6	103.8	75.1
75th percentile	210	180	60	60	120	100
95th percentile	600	420	360	300	480	360

(a) Vigorous-intensity activity is unweighted.

## Physical activity to confer a health benefit over the previous six months

Questions about the previous six months' activity were asked to reflect usual physical activity patterns. These three questions only asked about *usual* total weekly time for participation in moderate, vigorous and walking activities. Since no information was collected on the number of sessions done in the previous six months, a 'sufficient' time and sessions measure could not be calculated. The following results are produced using only the 'sufficient' time measure, with the same derivation as reported in the previous section.

Table 6.10 shows that the proportion of people who reported they were usually active (i.e. in a typical week over the previous six months) active at 'sufficient' levels to achieve a health benefit decreased from 1997 to 1999 (69% to 62%). The pattern of decline was similar to that shown in Figures 6.1 and 6.2, and occurred for each age group (except for ages 45–59 years), for men and women, and for each level of educational attainment.

### Age and sex

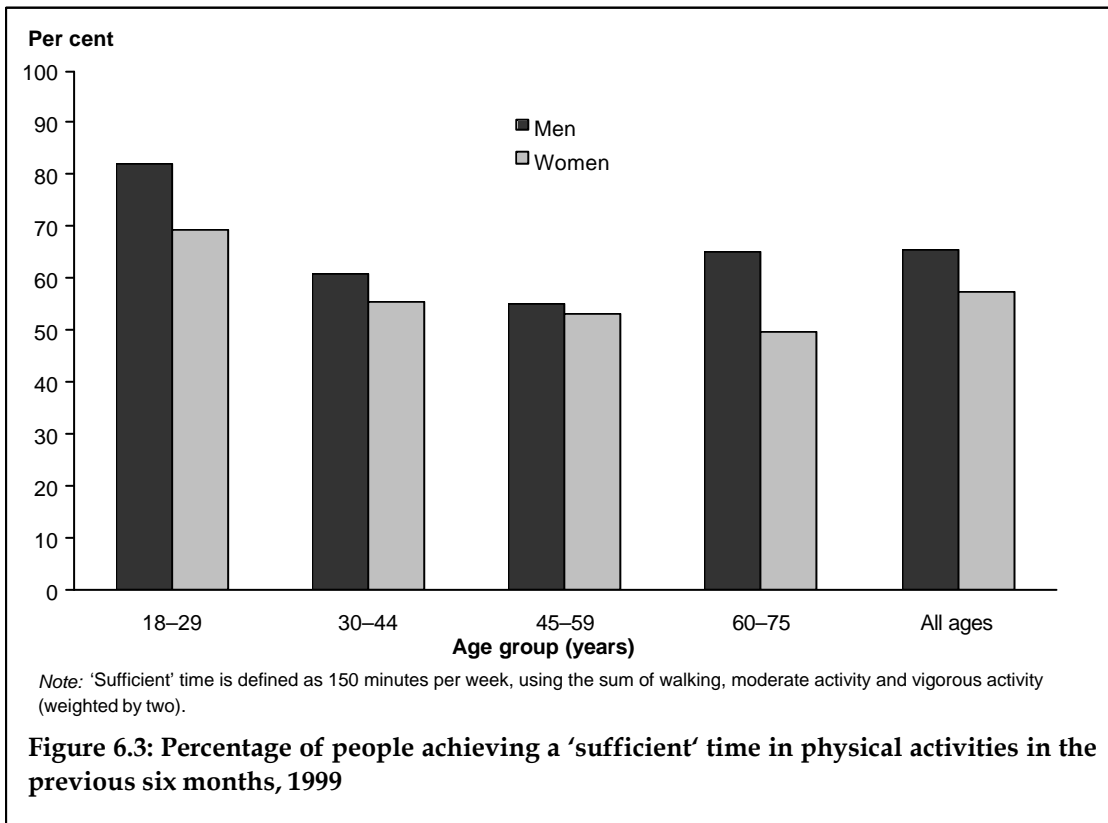
Figure 6.3 and Table A3.1 shows that usual participation (i.e. over the past six months) in 'sufficient' activity declined with age for men until age 60 when it increased to levels greater than that seen among men aged 30–44 years. For women, usual weekly participation at 'sufficient' levels declined across age groups.

**Table 6.10: Percentage of people achieving a 'sufficient' time in physical activity over the previous six months, 1997 and 1999**

	'Sufficient' time <sup>(a)</sup>	
	1997	1999
<b>Sex</b>		
Men	71.6	65.6
Women	67.1	57.4
Persons	69.3	61.5
<b>Age group (years)</b>		
18–29	83.1	75.8
30–44	70.7	58.1
45–59	58.9	54.1
60–75	60.5	57.2
<b>Education</b>		
Less than 12 years	62.2	52.8
HSC or equivalent	71.5	65.1
Tertiary	77.2	68.6

HSC = Higher School Certificate.

(a) 'Sufficient' time is defined as 150 minutes per week, using the sum of walking, moderate activity and vigorous activity (weighted by two).



## **Correlation of 'usual' week and 'previous' week**

It is of interest to assess the relationship between the reported average weekly physical activity over the previous six months (i.e. a usual week) and the activity reported for the previous week. Although reporting of the usual week provided higher estimates of activity, the two measures showed broad agreement. In terms of total minutes reported, intra-class correlation (ICC) of the two measures was 0.76 (95% confidence interval (CI) 0.74–0.77). In 1997, similar agreement was found (ICC = 0.77, 95% CI = 0.75–0.78).

When categorised as 'sufficient' (e.g. 57% in previous week; 62% in usual week), good agreement was also obtained (kappa = 0.65, 95% CI 0.62–0.67). This result was consistent with the 1997 survey results (kappa = 0.66, 95% CI 0.63–0.69).

# 7. Awareness and understanding of current physical activity media messages

## Promotion of physical activity in Australia

The central aim of promoting physical activity is to improve health and wellbeing by promoting increased levels of moderate-intensity activity in the Australian population. Strategies and approaches for increasing physical activity at the population level include those which target individuals through health professionals, in settings where they live and work, and through community-wide campaigns and programs. Obtaining timely information on physical activity habits is essential for monitoring the effectiveness of community-wide efforts to promote exercise. Regular information on physical activity habits is important for assessing national trends, identifying sedentary groups for targeted programs, and for better planning of sport and recreation facilities.

### **Active Australia**

The *Active Australia* concept was launched in December 1996. It involves a partnership of the Australian Sports Commission, DHAC, the National Office of Local Government, and Sport and Recreation departments in all States and Territories.

*Active Australia* is a public health initiative to promote regular moderate-intensity physical activity and to increase participation in sports. It is unique in that it is a national initiative promoting population-wide strategies and public policies to encourage people to become and remain physically active at levels 'sufficient' to confer a health benefit.

*Active Australia's* vision is for 'all Australians to be actively involved in sport, community recreation, fitness, outdoor recreation and other physical activities' (DHFS 1998). The three major goals of *Active Australia* are to realise and enhance lifelong participation in physical activity; to realise the social, health and economic benefits of participation in physical activity; and to develop quality infrastructure, opportunities and services to support participation in physical activity.

### **Mass media campaigns conducted through Active Australia**

The first campaign produced through *Active Australia* was a pilot physical activity campaign in New South Wales, implemented in February and March 1998. It was funded by NSW Health, with the support of DHAC and *Active Australia*. The central theme of this campaign was 'Exercise – you only have to take it regularly, not seriously'. It was disseminated through various media, including mainstream television, radio and print.

The 'Rusty' (tin man) campaign was a more specific initiative in the following year which focussed on older Australians. This campaign was a Commonwealth, State and Territory initiative celebrating the International Year of Older Persons in 1999. It was jointly funded by *Active Australia*, the Commonwealth Department of Veterans' Affairs, NSW Health and New South Wales Sport and Recreation. In addition, versions of this campaign were

conducted in other States, especially Victoria. It encouraged older Australians to have an active lifestyle to improve their health and wellbeing. The media campaign portrayed 'Rusty', a tin man who was squeaky and rusty. With increased physical activity he had more energy and get-up-and-go, and started to participate in a range of moderate-intensity physical activities.

Both the campaigns encouraged the 'moderate message': they both indicated that people could derive benefits from '30 minutes of moderate exercise on most days of the week', 'you can do it in three lots of ten minutes', 'just 30 minutes of regular moderate activity, such as brisk walking or participating in a sporting group'.

## Message recall

To assess the impact of the *Active Australia* campaign, respondents were asked if they recalled any generic messages about exercise and physical activity, and the *Active Australia* campaign, specifically, on the recall of its 1998–99 campaign tagline and the 1999 'Rusty' (tin man) physical activity campaign theme.

### Recall of generic messages about physical activity and exercise

In 1999 64% of people recalled that they had heard or seen any message about physical activity in the previous month. This generic recall was more common among females than males, but showed no significant gradient with age or educational attainment.

Although the overall proportion of people recalling a generic physical activity message did not change between 1997 and 1999 (Table 7.1), message recall declined significantly for 30–44-year-olds, but increased among those aged 60 years or greater. Recall also significantly increased from 1997 to 1999 among those with the highest levels of education.

The content analysis of the open-ended recall of the generic messages about physical activity and exercise showed that many people recalled only a non-specific physical activity message (8.2% of total respondents), 5.7% recalled a gym or private facility advertisement, 5.1% recalled something about walking, 2.9% identified a National Heart Foundation message, 2.8% reported association with other diseases, and 2.1% recalled an 'older people message'. A further 3.3% identified a specific recommended level for physical activity (five sessions of 30 minutes, or 'be more active every day', or half an hour daily), and 3% identified other health and physical activity resources.

**Table 7.1: Percentage of people recalling generic messages about exercise and physical activity, 1997 and 1999**

	<b>1997</b>	<b>1999</b>
<b>Sex</b>		
Men	60.2	61.5
Women	67.1	66.3
<i>Persons</i>	63.7	63.9
<b>Age group (years)</b>		
18–29	65.6	66.8
30–44	64.9	61.8
45–59	62.4	64.3
60–75	60.0	63.1
<b>Education</b>		
Less than 12 years	62.3	63.4
HSC or equivalent	65.3	63.5
Tertiary	63.1	65.4

HSC = Higher School Certificate.

## Recall of the *Active Australia* campaign

An unprompted question on the recall of the *Active Australia* campaign was asked for the first time in 1999 and the results are presented in Table 7.2.

In 1999 almost 18% of Australian adults had heard of the *Active Australia* campaign. Knowledge of this campaign was more common among people aged 30–44 years (19%) than among older or younger people. Recall of the *Active Australia* campaign was better among those with tertiary education (21%) than those with the HSC (17%) or less than 12 years of education (16%).

The open-ended question about *Active Australia* was content-analysed and closed-coded (see coding frame in Appendix 4). The most frequent responses were a generic physical activity promotional message (reported by 4.3% of total), whereas 1.3% identified a national campaign, 1.8% identified the 'Rusty' campaign or older adults message, 0.8% identified walking, and 0.4% specified an '*Active Australia* day in October'.

**Table 7.2: Percentage of people recalling the unprompted *Active Australia* campaign, 1999**

	Percentage of respondents
<b>Sex</b>	
Men	17.0
Women	18.6
Persons	17.8
<b>Age group (years)</b>	
18–29	16.2
30–44	19.2
45–59	17.7
60–75	17.9
<b>Education</b>	
Less than 12 years	16.4
HSC or equivalent	17.4
Tertiary	20.6

HSC = Higher School Certificate.

### Recall of the *Active Australia* tagline

Prompted recall of the *Active Australia* tagline 'Exercise – you only have to take it regularly, not seriously' (Table 7.3) increased markedly from 14% to 42% between 1997 and 1999. Increases in recalling this message occurred for both men and women, all age groups and all levels of education. Note that the pre-campaign levels are a 'spurious baseline' as the campaign had not been conducted yet – this is typical of media campaigns, and this rate was higher for the least educated group and among older adults.

The increase in recalling this specific campaign occurred across all ages, both sexes and all education groups. This indicates increased awareness of the *Active Australia* media campaign, with awareness maintained at around 40% of the population approximately 18 months after the campaign had been conducted.

Content analysis of the open-ended question relating to the *Active Australia* tagline revealed that 15.4% repeated the message, 1.6% reported 'fun', 2.6% identified the '30 minutes daily' theme, 5.6% reported 'some or any level of even gentle exercise useful', and 3% identified a walking message. Some (1.8%) reported (inappropriately) that activity once or twice a week was 'sufficient'.

**Table 7.3: Percentage of people recalling the prompted *Active Australia* tagline 'Exercise – you only have to take it regularly, not seriously', 1997 and 1999**

	1997	1999
<b>Sex</b>		
Men	14.5	39.6
Women	14.1	44.0
Persons	14.4	41.8
<b>Age group (years)</b>		
18–29	11.4	46.8
30–44	14.1	42.0
45–59	16.6	39.7
60–75	16.3	36.8
<b>Education</b>		
Less than 12 years	17.1	40.8
HSC or equivalent	13.9	44.3
Tertiary	10.9	39.5

HSC = Higher School Certificate.

## Recall of the 'Rusty' campaign

Table 7.4 shows that 21% of people recalled 'Rusty', the (1999 International Year of Older People) mass media campaign. Recall of this campaign tended to increase with age from 19% among those 18–29 years to 24% among those aged 60 years and over. Recall of the 'Rusty' campaign declined with increasing levels of education.

Content analysis of the open-ended question relating to 'Rusty' identified the most common understanding of this message (3.8%) was describing features of the advertisement in detail, 3.8% reporting 'use it or lose it' or 'get up and go', 2.6% reported arthritis, 'seizing up' or movement stiffness, 1.7% identified walking daily and 3.7% reported other physical activity messages.

**Table 7.4: Percentage of people recalling the 'Rusty' campaign, 1999**

	Percentage of respondents
<b>Sex</b>	
Men	20.6
Women	21.7
Persons	21.2
<b>Age group (years)</b>	
18–29	19.4
30–44	21.9
45–59	19.9
60–75	24.3
<b>Education</b>	
Less than 12 years	22.1
HSC or equivalent	22.0
Tertiary	18.5

HSC = Higher School Certificate.

## Understanding of physical activity messages

It is generally accepted that people need to recognise and understand public health messages in order for them to change behaviour to comply with such messages.

To assess whether people remember particular messages about physical activity, respondents were asked to rate (on a five-point Likert scale) the extent to which they agreed with the statements below:

Message 1: Taking the stairs at work or generally being more active for at least 30 minutes each day is enough to improve your health.

Message 2: Half an hour of brisk walking on most days is enough to improve your health.

Message 3: To improve your health it is essential for you to do vigorous exercise for at least 20 minutes each time, three times a week.

Message 4: Exercise doesn't have to be done all at one time – blocks of 10 minutes are okay.

Message 5: Moderate exercise that increases your heart rate slightly can improve your health.

Table 7.5 shows people's agreement with these statements, using combined 'strongly agree' and 'agree' categories versus other categories (namely 'neutral', 'disagree', 'strongly disagree') in 1997 and 1999. In general, the strength of agreement for the three statements about moderate activity (messages 1, 2 and 5) increased significantly from 1997 to 1999.

The proportion of people agreeing that 'vigorous activity three times per week for 20 minutes each time was essential' to obtain a health benefit did not change from 1997 to 1999. This message (message 3) is the 'old' public health message suggesting that only participation in vigorous physical activity is beneficial for health. The proportion of people agreeing that 'exercise doesn't have to be done all at one time' increased from 74% to 79%.

Women more commonly reported agreement with the three statements about moderate activity (messages 1, 2 and 5) than did men. Men more often reported agreement with the vigorous activity statement than did women (64% and 58%, respectively).

**Table 7.5: Percentage of people agreeing (combined 'strongly agree' and 'agree') with knowledge statements, 1997 and 1999**

	Message 1	Message 2	Message 3	Message 4	Message 5
<b>Sex</b>					
Men	86.1	90.7	63.8	77.3	95.3
Women	90.2	93.4	57.9	81.1	94.4
<i>Persons 1999</i>	<i>88.1</i>	<i>92.1</i>	<i>60.8</i>	<i>79.2</i>	<i>94.9</i>
<i>Persons 1997</i>	<i>84.6</i>	<i>90.3</i>	<i>62.2</i>	<i>74.1</i>	<i>92.7</i>
<b>Age group (years)</b>					
18–29	86.6	91.2	65.9	76.3	93.1
30–44	88.3	93.6	61.4	76.1	95.6
45–59	89.6	91.4	60.3	81.0	95.3
60–75	88.1	91.4	52.5	87.0	95.4
<b>Education</b>					
Less than 12 years	88.4	92.6	60.5	84.3	94.2
HSC or equivalent	87.9	91.7	63.4	77.2	95.0
Tertiary	88.2	91.7	57.6	74.5	95.5

Message 1: Taking the stairs at work or generally being more active for at least 30 minutes each day is enough to improve your health.

Message 2: Half an hour of brisk walking on most days is enough to improve your health.

Message 3: To improve your health it is essential for you to do vigorous exercise for at least 20 minutes each time, three times a week.

Message 4: Exercise doesn't have to be done all at one time—blocks of 10 minutes are okay.

Message 5: Moderate exercise that increases your heart rate slightly can improve your health.

HSC = Higher School Certificate.

## Intentions to become more active

A population's level of intention to be more active is an intermediate outcome, on the way towards increasing physical activity levels. An increase in intention is considered a precursor to trialling active behaviours, and this question was to monitor this intermediate variable. Survey participants were asked whether they did not intend to increase their activity levels, intended to increase them in the short term (over the next month) or in the longer term (over the next six months). More than one-third of respondents (37%) indicated that they did not intend to become more physically active in 1999 (Table 7.6). This was significantly less than responses in 1997, where 40% did not intend to be more active.

Just over one-third of respondents (34%) indicated that they intended to become more physically active in the next month. This was significantly greater than in 1997, where 32% intended to be more active in the next month.

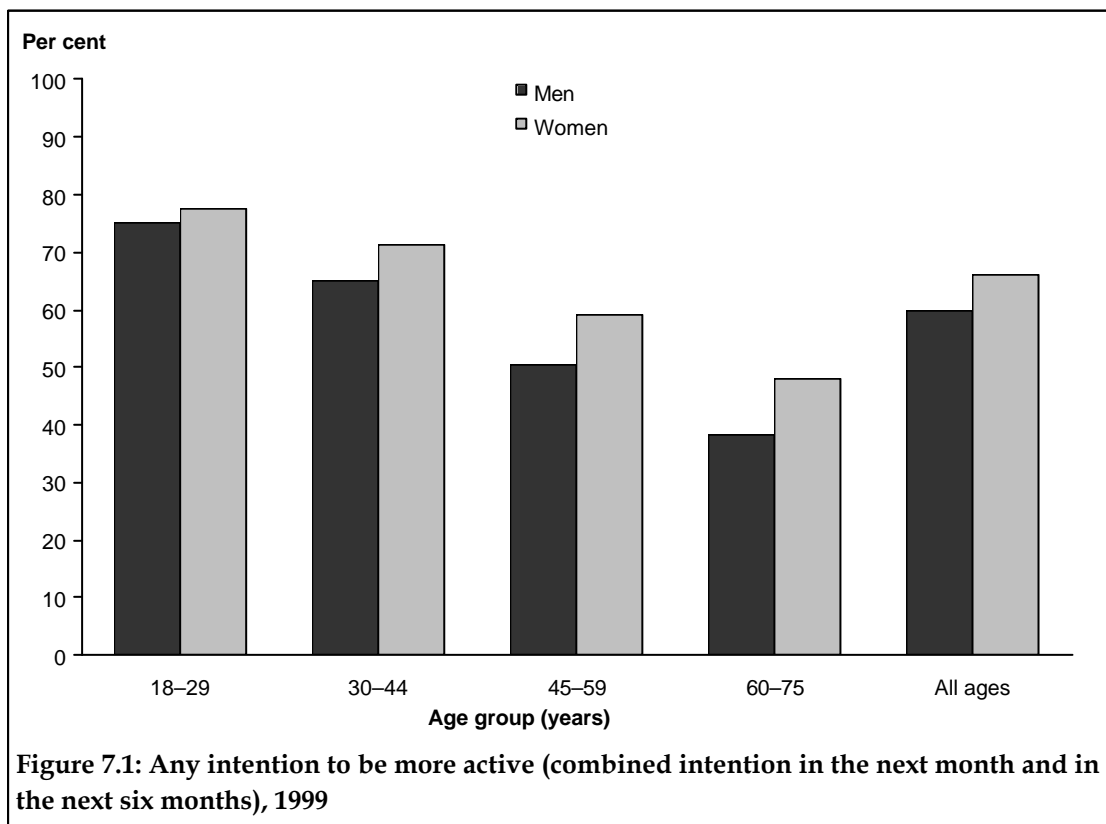
Over the coming six months, 29% of respondents indicated that they intended to become more physically active. This was the same as in 1997. Interestingly, more women indicated that they intended to be more active over the next six months than men, 30% and 27% respectively.

Figure 7.1 shows any intention to be active (combined intention in the next month and next six months) by sex and age group. Women (66%) were more likely to report an intention to become more active than were men (60%). This was true for each age category (see Table A3.1).

**Table 7.6: Percentage of people intending to be more physically active, 1999**

	Do not intend	Intend next month	Intend next 6 month
<b>Sex</b>			
Men	40.2	32.8	27.0
Women	34.0	36.1	29.9
<i>Persons 1999</i>	<i>37.1</i>	<i>34.4</i>	<i>28.5</i>
<i>Persons 1997</i>	<i>39.9</i>	<i>31.5</i>	<i>28.5</i>
<b>Age group (years)</b>			
18–29	23.6	43.1	33.2
30–44	31.8	36.1	32.2
45–59	45.4	31.1	23.5
60–75	56.6	22.5	20.9
<b>Education</b>			
Less than 12 years	41.4	31.3	27.3
HSC or equivalent	34.8	36.3	28.9
Tertiary	34.0	36.3	29.7

HSC = Higher School Certificate.



## Factors independently associated with participation

Logistic regression was used to assess the independent factors associated with participation in physical activity in 1999. Forced entry models, which include non-significant variables, are shown in Table 7.7. Forward stepwise models reached almost identical conclusions, with the variables employment, language spoken at home, and children under five not included in the final model.

These analyses are shown in Table 7.7, with adjusted odds ratios and 95% CIs shown. These data indicate that increasing education level is associated with an increased likelihood of participation in 'sufficient' physical activity. Older age groups are less likely to be sufficiently active, compared with the youngest age category. Women are 20% less likely to achieve this threshold of activity compared to men. The obese are 50% less likely to reach this sufficiently active threshold than those of healthy weight.

Factors that are positively associated with participation in 'sufficient' physical activity include being single and not having children at home.

Of particular interest in the assessment of the *Active Australia* campaign is that people not recognising the *Active Australia* tagline 'Exercise – you only have to take it regularly, not seriously' were 19% less likely to achieve 'sufficient' physical activity than people who did recall the campaign tagline. This was significant, after adjustment for demographic differences between those who recalled the message and those who did not.

**Table 7.7: Adjusted odds ratios for factors associated with participation in 'sufficient' physical activity, 1999**

	'Sufficient' time <sup>(a)</sup>		'Sufficient' time and sessions <sup>(b)</sup>	
	Adjusted odds ratio	Confidence interval	Adjusted odds ratio	Confidence interval
<b>Sex</b>				
Men	1.00	—	1.00	—
Women	0.80	(0.68–0.96)	0.80	(0.69–0.96)
<b>Age group (years)</b>				
18–29	1.00	—	1.00	—
30–44	0.64	(0.51–0.82)	0.64	(0.51–0.82)
45–59	0.55	(0.42–0.73)	0.50	(0.38–0.67)
60–75	0.63	(0.43–0.94)	0.60	(0.40–0.88)
<b>Education</b>				
Less than 12 years	1.00	—	1.00	—
HSC or equivalent	1.27	(1.05–1.53)	1.24	(1.02–1.50)
Tertiary	1.48	(1.18–1.86)	1.42	(1.13–1.79)
<b>Occupation</b>				
Manager	1.00	—	1.00	—
White collar	1.04	(0.83–1.29)	0.96	(0.77–1.22)
Blue collar	0.91	(0.66–1.26)	0.81	(0.59–1.12)
Unemployed	0.77	(0.48–1.25)	0.76	(0.47–1.24)
Home duties	1.12	(0.84–1.25)	1.05	(0.79–1.41)
Student	0.76	(0.50–1.15)	0.81	(0.53–1.25)
Retired	1.18	(0.84–1.67)	1.11	(0.78–1.57)
<b>Main language spoken at home</b>				
English	1.00	—	1.00	—
Other	0.73	(0.52–1.01)	0.78	(0.56–1.08)
<b>Marital status</b>				
Married/de facto	1.00	—	1.00	—
Never married/single	1.14	(1.05–1.53)	1.21	(0.95–1.53)
Widow	0.66	(0.39–1.02)	0.64	(0.39–1.04)
<b>Children (less than 5 years)</b>				
Nil	1.00	—	1.00	—
1 or more	0.81	(0.64–1.04)	0.82	(0.64–1.06)
<b>Children (less than 18 years)</b>				
Nil	1.00	—	1.00	—
1 or more	0.81	(0.66–0.99)	0.81	(0.66–1.00)

*(continued)*

**Table 7.7 (continued): Adjusted odds ratios for factors associated with participation in 'sufficient' physical activity, 1999**

	'Sufficient' time <sup>(a)</sup>		'Sufficient' time and sessions <sup>(b)</sup>	
	Adjusted odds ratio	Confidence interval	Adjusted odds ratio	Confidence interval
<b>BMI categories</b>				
Healthy weight	1.00	—	1.00	—
Underweight	0.88	(0.55–1.41)	0.95	(0.60–1.49)
Overweight	0.93	(0.77–1.11)	0.86	(0.72–1.03)
Obese	0.51	(0.40–0.66)	0.55	(0.43–0.72)
<b>Recall of <i>Active Australia</i> tagline</b>				
<b>'Exercise—you only have to take it regularly, not seriously'</b>				
Yes	1.00	—	1.00	—
No	0.81	(0.68–0.96)	0.81	(0.68–0.96)

HSC = Higher School Certificate. White collar = professional, para-professional. Blue collar = tradesperson, clerk, salesperson and personal service worker, plant and machine operator/driver, labourer. BMI= body mass index.

BMI categories are: underweight = BMI less than 18.5; healthy weight = BMI from 18.5 to less than 25; overweight = BMI from 25 to less than 30; obese = BMI greater than or equal to 30.

(a) 'Sufficient' time is defined as 150 minutes per week, using the sum of walking, moderate activity and vigorous activity (weighted by two).

(b) 'Sufficient' time and sessions is defined as 150 minutes (using the sum of walking, moderate activity and vigorous activity (weighted by two)) and five sessions of activity per week.

## 8. Trends in Australians' physical activity habits, 1997 and 1999

Table 8.1 summarises the trends in physical activity from 1997 to 1999. Between 1997 and 1999, there was no change in the proportion of Australian adults recalling any generic physical activity message they may have heard or seen during the previous six months.

In general, there was an increase in the knowledge and awareness of the health benefits of participating in moderate physical activity from 1997 to 1999.

The proportion of people who believed that their health could be improved by being more active increased from 85% to 88% between 1997 and 1999. Similarly, the proportion of people agreeing that health could be improved by participation in 30 minutes of activity each day (the current physical activity guidelines) increased from 90% to 92%. The proportion of people perceiving that blocks of 10 minutes could accumulate to provide a health benefit increased from 74% to 79% between 1997 and 1999. Similarly, the proportion of people with the perception that moderate activity could improve health increased from 93% to 95% during that time. There was no change in the proportion of people having the perception that a health benefit required three sessions of 20 minutes of vigorous activity each week.

Although levels of knowledge of the health benefits of physical activity have increased from 1997 to 1999, actual participation in physical activity declined. This decline is apparent in terms of the mean amount of time each week people spent walking and in moderate- and vigorous-intensity physical activity. The decline in vigorous-intensity activity was particularly marked, from a mean of 91 minutes each week in 1997 to 65 minutes in 1999.

The proportion of people participating in physical activity to obtain a health benefit, (defined as 150 minutes of physical activity per week, with vigorous physical activity weighted by a factor of two to reflect its greater intensity and therefore greater health benefits) declined from 62% to 57% between 1997 and 1999. If the advice to undertake this level of physical activity over five sessions per week (to reflect the public health message of 'on most if not all days of the week') were taken into account, then the decline was from 51% in 1997 to 45% in 1999.

Estimates of usual participation (assessed by reported participation over the past six months) at a 'sufficient' level (defined as 150 minutes of physical activity per week, with vigorous-intensity physical activity weighted by a factor of two) declined from 69% to 62% between 1997 and 1999.

In 1997 14% of adults recalled the *Active Australia* tagline 'Exercise – you only have to take it regularly, not seriously'. This was a 'spurious' pre-campaign recall rate, as the campaign tagline had not yet been launched. In 1999, 42% of people recalled the tagline some 18 months after the campaign tagline had been introduced.

The proportions of Australian adults that did not intend to become more physically active declined from 40% to 37% between 1997 and 1999. The proportion of people saying that they intended to become more active next month increased from 32% in 1997 to 34% in 1999. However, there was no difference between the two surveys in the proportion of people saying they intended to become more active in the next six months (29%).

**Table 8.1: Summary of changes between the 1997 and 1999 surveys**

	1997	1999
<b>Message recall (per cent)</b>		
Recall of generic message about exercise or physical activity	63.7	63.9
Recall <i>Active Australia</i> tagline 'Exercise—you only have to take it regularly, not seriously'	14.4	41.8
<b>Intention to be active (per cent)</b>		
Do not intend	39.9	37.1
Intend next month	31.5	34.4
Intend next 6 months	28.5	28.5
<b>Knowledge of physical activity (per cent agreement)</b>		
Message 1 Taking the stairs at work or generally being more active for at least 30 minutes each day is enough to improve your health.	85.0	88.1
Message 2 Half an hour of brisk walking on most days is enough to improve your health.	90.3	92.1
Message 3 To improve your health it is essential for you to do vigorous exercise for at least 20 minutes each time, three times a week.	62.2	60.8
Message 4 Exercise doesn't have to be done all at one time—blocks of 10 minutes are okay.	74.1	79.2
Message 5 Moderate exercise that increases your heart rate slightly can improve your health.	92.7	94.9
<b>Total minutes (mean) in previous week</b>		
Walking	137.0	114.2
Moderate	62.3	54.2
Vigorous	91.3	65.3
<i>Total (WMV)</i>	291.2	233.2
<b>Physical activity categories (per cent)</b>		
'Sufficient' time <sup>(a)</sup>	62.2	56.6
'Sufficient' time and sessions <sup>(b)</sup>	50.9	45.2
<b>Physical activity habit (last six months) categories (per cent)</b>		
'Sufficient' time <sup>(a)</sup>	69.3	61.5

(a) 'Sufficient' time is defined as 150 minutes per week, using the sum of walking, moderate activity and vigorous activity (weighted by two).

(b) 'Sufficient' time and sessions is defined as 150 minutes (using the sum of walking, moderate activity and vigorous activity (weighted by two)) and five sessions of activity per week.

## 9. Discussion

The information presented in this report reveal the current patterns and trends of physical activity of Australian adults.

Surveys to assess the participation in, and awareness of, physical activity were conducted in 1997 and 1999. The surveys were conducted at the same time of year (November–December) and used identical sampling methodology and comparable questions.

The questions used in the surveys represent one of the established methods for collecting physical activity information in Australian population surveys. Both surveys had good response rates, providing for a representative sample of Australian adults.

### **Awareness and understanding of physical activity messages**

Between 1997 and 1999, several public education activities (including initiatives under the auspices of *Active Australia*) around physical activity were implemented throughout Australia. However, different initiatives occurred in different States and Territories, and the same initiatives were implemented to different degrees in different areas.

Results indicate that there is an increased awareness of physical activity initiatives among the Australian public. The *Active Australia* tagline ‘Exercise – you only have to take it regularly, not seriously’ was recognised by over 40% of adults in the 1999 survey. Further, one predictor of participation in physical activity at levels to achieve a health benefit was the recall of this tagline.

The understanding of current physical activity messages also increased between the two surveys. This was particularly evident for the message that the 30 minutes of moderate-intensity physical activity required daily for health benefits can be accumulated in blocks of at least ten minutes. Unlike the understanding of the current messages, the perception that physical activity for health required at least three sessions of vigorous activity per week (i.e. the ‘old’ public health message) showed no change between the two surveys. The proportion of people agreeing with this message was less in both 1997 and 1999 than those agreeing with the current physical activity messages emphasising more moderate physical activity.

### **Trends**

Despite the increase in awareness and understanding of physical activity, there was no increase in actual participation. In fact, there was an overall decline in participation in physical activity between 1997 and 1999 among adults. Australians spent less time each week walking, doing other moderate-intensity physical activities such as gentle swimming and social tennis, vigorous activities such as aerobics and jogging, and more intense gardening and yardwork. People also did these activities on fewer occasions each week in 1999 than they did in 1997. However, older Australians (those 60 years and older) did not show these declines, and in fact spent more time doing physical activity each week in 1999 than in 1997.

Information on frequency and duration in physical activity of different activities is used to assess participation in physical activity to achieve health benefits. The decline in participation at a level to achieve health benefits between 1997 and 1999 was greatest among women, people aged 30–44 years, and among those with tertiary levels of education.

However, it is of interest that there was no decline in participation among people aged 60 years and over. Although participation tends to decline with age, people in this age category, and especially men, were more likely to participate in moderate physical activity. It is possible that at retirement (around 60 years of age) people have more time to participate in physical activity (Armstrong 1998). Further, older Australians were the target of a specific physical activity education program to increase awareness and participation in physical activity during the Year of Older Persons (1999). One of the campaign themes (a rusty 'tin man') was well recalled by older Australians. This campaign may have influenced behaviour among older Australians and helped to slow the decline in physical activity seen for other age groups.

An area for further research stems from the observation that the largest decline in participation occurred among the middle aged and well educated, as it lends weight to the suggestion that pressures associated with modern living including longer working hours are influencing the physical activity behaviours of Australian adults. This is supported by the lack of decline among older Australians who are presumably retired and were the focus of a specific public health campaign.

Despite declines in actual participation in 1999, most people said that they intended to become more physically active in the coming months.

### **'At risk' groups**

The findings of this report indicate that the following groups were less likely to participate in physical activity:

- women
- middle aged (45–59 years)
- lower educated
- widowed
- parents
- obese.

### **Monitoring issues**

The information presented in this report relates primarily to leisure-time physical activity. The occupational and incidental physical activities people do each day were not captured. Methods to accurately assess these types of activities and to relate them to health are yet to be developed.

Further analysis of the 1999 data set is suggested to assess physical activity participation levels and awareness of physical activity messages among adults in New South Wales and Victoria, where *Active Australia* campaigns, and specifically the 'Rusty' tin man campaign were implemented to a greater degree than in the others States and Territories (NSW Health 2000). This information would provide more detailed and accurate evaluation of other public education campaigns.

Despite any limitations that may exist in the methods used here, monitoring physical activity using consistent methods is essential to continue tracking not only the end-point indicator of physical activity (i.e. participation), but also intermediate indicators such as awareness and intentions to become active.

The large differences reported for some trends between 1997 and 1999 need to be treated with caution. Although reported differences are statistically significant, further data points are required to ascertain whether the observed changes are real phenomena. It is therefore recommended that a national physical activity survey using comparable methods be conducted during November and December 2001.