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HOW AUSTRALIANS MEASURE UP

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- For further information about these and related statistics, contact Brian Richings on Canberra 02 6252 5786, or any ABS office shown on the back cover of this publication.

NOTES

ABOUT THIS PUBLICATION

This publication provides information about the height, weight and body mass characteristics of adults in Australia, focussing on a comparison of self-reported and measured characteristics. The information is based on results from the 1995 National Health Survey and 1995 National Nutrition Survey.

.....

SYMBOLS AND OTHER USAGES

ABS	Australian Bureau of Statistics
BMI	Body Mass Index
NHMRC	National Health and Medical Research Council
NHS	National Health Survey
NNS	National Nutrition Survey
WHO	World Health Organisation
..	not applicable
—	nil or rounded to zero

W. McLennan
Australian Statistician

SUMMARY OF FINDINGS

INTRODUCTION

Self-reported height and weight data were obtained in the 1995 National Health Survey (NHS) conducted by the Australian Bureau of Statistics. As part of the National Nutrition Survey (NNS) conducted in association with the 1995 NHS, height and weight measurements of NNS respondents were taken by trained nutritionists. This provided the opportunity to directly compare self-reported and measured height and weight over a large and representative sample of the population, and to analyse the implications for Body Mass Index (BMI) data derived from self-reported height and weight.

This publication presents findings from that comparison and analysis, based on around 10,000 respondents aged 18 years or more common to both surveys. Information about the recording of height, weight and body mass in both surveys, together with details of methods used in this analysis, are contained in the Explanatory Notes.

The differences between reported and measured height and weight described in this publication in part reflect the way people see themselves, but are also a product of the way people tend to report: often in imperial rather than metric units, or using an approximate metric conversion from imperial units; and rounding-off to larger units, such as multiples of 5 cm, or to the nearest half stone. Information about these reporting behaviours is contained in paragraph 13 of the Explanatory Notes.

HEIGHT

Using measured height data, 77% of males aged 18 years or more were 170 cm or taller, with over half (52%) being in the 170–180 cm range. The mean measured height of males was 174.8 cm. The mean measured height of females was 161.4 cm, with just under half of females aged 18 years or more (49%) in the 160–170 cm range.

MEASURED HEIGHT

	<i>Males</i>	<i>Females</i>
<i>Measured height (cm)</i>	%	%
Less than 150	. .	4.5
150 to less than 160	1.8	36.1
160 to less than 170	21.6	48.8
170 to less than 180	52.1	10.5
180 or more	24.5	0.1
Total	100.0	100.0

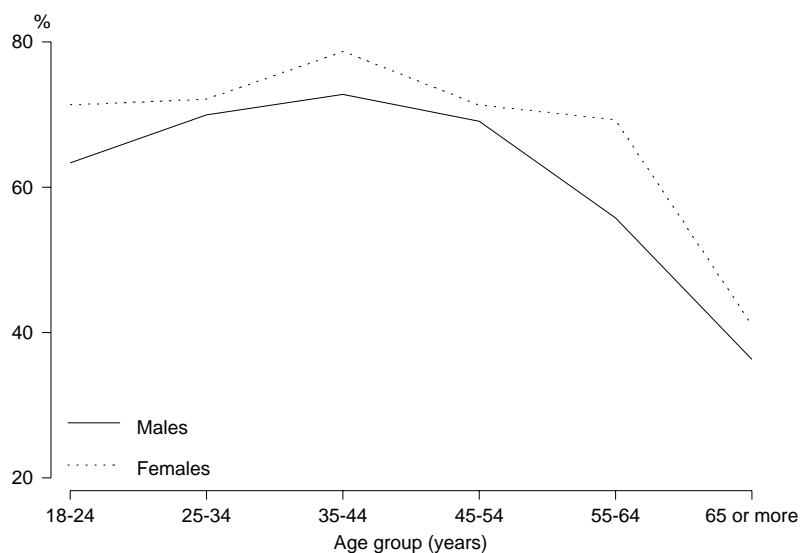
SUMMARY OF FINDINGS *continued*

Accuracy of reported height

Overall, 24% of males and 29% of females reported their height to within 1 cm of their measured height, with 63% of males and 69% of females to within 3 cm (table 4). The majority of people outside this range overestimated their height, with around 13% of males and 11% of females overestimating their height by 5 cm or more. The net effect of these inaccuracies was an overestimate in the mean height of males by 2.1 cm and females by 1.3 cm.

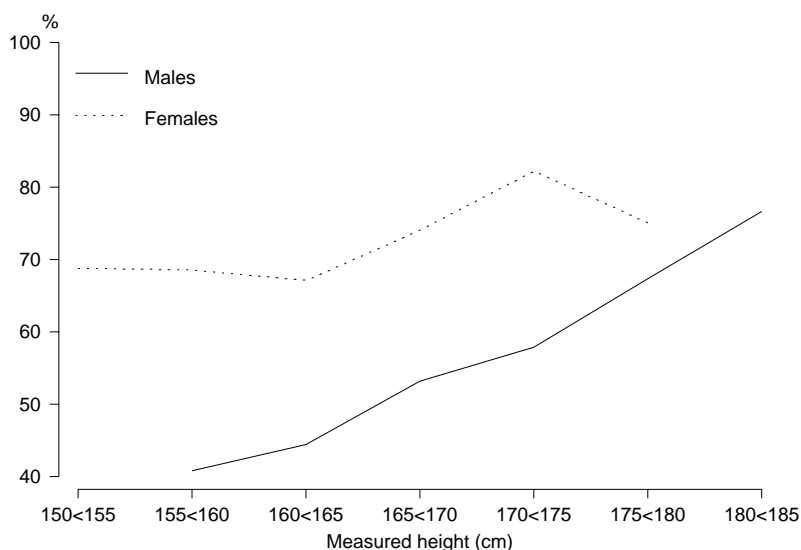
For both males and females the proportion accurately reporting their height was highest in the 35–44 year age group, and declined sharply in older age groups.

PERSONS REPORTING HEIGHT WITHIN ± 3 CM



In general, taller people more accurately reported their height than shorter people (table 5). Some 43% of males between 150 and 160 cm (measured) reported their height to within 3 cm, increasing to 83% of those 190 cm or more. For females, 69% with a measured height of 150–160 cm reported their height to within 3 cm, increasing to 81% of those 170–180 cm.

PERSONS REPORTING HEIGHT WITHIN ± 3 CM(a)



(a) The low end data point for males and high end data point for females have been excluded due to the small number of observations in these categories.

The distribution of differences between reported and measured height across measured weight categories showed little variation (table 6). For both males and females, over 60% of persons reported their height within 3 cm irrespective of weight.

Overestimation of height

Both males and females tended to overestimate their height. Comparing reported and measured height showed that 64% of males and 51% of females overstated their height by 1 cm or more, and 33% of males and 25% of females by 3 cm or more (table 4).

The size of the differences between reported and measured height varied across age groups. For both males and females, differences were greatest in the 65 years or more age group. For males aged 18–24 years, the difference in mean height was 1.6 cm rising to 3.8 cm in the 65 years and over group. Among females, the smallest difference was for those aged 25–44 years (0.5 cm) rising to 3.9 cm at 65 years and over.

The tendency to overstate height was common across a range of demographic and other characteristics, but some variations were noted in the distributions of differences between reported and measured height (table 7). Results showed little variation according to a person's birthplace, but age left school had some impact on the accuracy of self-reported height. The overstatement was more pronounced among those who left school aged 15 years or less. Differences in the distributions for labour force status, income and self-assessed health status are considered to be primarily a product of the age distributions of the populations involved.

SUMMARY OF FINDINGS *continued*

Overestimation of height *continued*

For both males and females, shorter people tended to overestimate their height by a greater amount than taller people (table 5). For example, among males with a measured height of 150 to less than 160 cm, 36% overestimated their height by 5 cm or more, compared with 13% of those 170 to less than 180 cm, and 5% of those 180 to less than 190 cm. Of females with a measured height of less than 150 cm, 32% overestimated their height by 5 cm or more, compared with 5% of those 170 to less than 180 cm.

WEIGHT

Based on measured weight, the majority (56%) of males aged 18 years or more weighed 70 to less than 90 kg, whereas the majority (60%) of females were in the 50 to less than 70 kg weight range. The mean measured weight for males and females was 82.0 kg and 67.0 kg respectively.

MEASURED WEIGHT

	Males	Females
Measured weight (kg)	%	%
Less than 50	0.2	6.8
50 to less than 60	3.8	27.2
60 to less than 70	15.6	32.9
70 to less than 80	28.8	18.6
80 to less than 90	27.0	8.4
90 to less than 100	14.7	3.5
100 to less than 110	6.7	1.5
110 or more	3.1	1.0
Total	100.0	100.0

Accuracy of reported weight

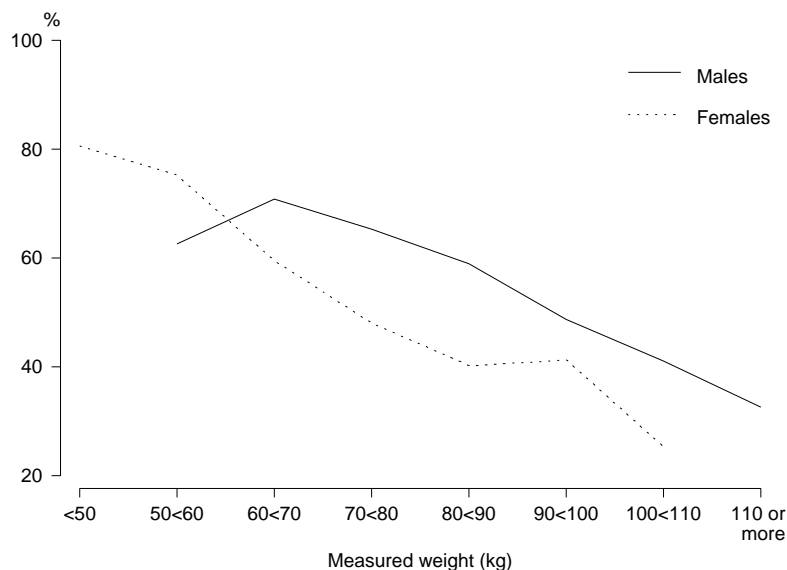
Overall, 22% of both males and females reported their weight within 1 kg of their measured weight, and around 60% within 3 kg (table 9). Outside these ranges the majority of people underestimated their weight, with 16% of males and females underestimating by 5 kg or more. The accuracy of reporting was similar across age groups.

In general, lighter people tended to report their weight more accurately than those in heavier groups (table 10). For both males and females, the proportion of people who reported their weight within 3 kg of the measured weight declined as measured weight increased. Just as the proportion accurately reporting weight declined as measured weight increased, the level of difference increased as measured weight increased.

The distribution of differences between reported and measured weight showed a tendency for the accuracy of reported weight to decline as measured height increased (table 11). This tendency was stronger in females than in males.

SUMMARY OF FINDINGS *continued*

PERSONS REPORTING WEIGHT WITHIN ± 3 KG(a)



(a) The low end data point for males and high end data point for females have been excluded due to the small number of observations in these categories.

Underestimation of weight

Both males and females tended to underestimate their weight with 57% of males and 68% of females underestimating their weight by 1 kg or more and 32% of males and 37% of females by 3 kg or more (table 9). The net effect of these differences was an underestimate in mean reported weight of 1.8 kg for males and 2.5 kg for females.

The differences between reported and measured weight were broadly similar across age groups, with greatest differences in mean weight recorded in the 45–64 year age group: 2.4 kg underestimate for males and 2.7 kg for females (table 8). For both males and females, differences were smallest in the 18–24 year age group.

While the majority underestimated their weight, 21% of males and 11% of females overestimated their weight by 1 kg or more. Proportions were highest in the 18–24 year age group: 29% of males and 18% of females (table 9).

BODY MASS INDEX

Body mass (i.e. weight in relation to height) is regarded as a key indicator of possible risk for conditions such as heart disease, high blood pressure and diabetes, particularly when linked with other lifestyle factors such as lack of exercise and smoking.

Based on measured height and weight data, 3% of males and 9% of females were categorised as underweight, 33% of males and 44% of females as acceptable weight, and 64% of males and 47% of females as overweight or obese.

MEASURED BODY MASS INDEX

<i>BMI score</i>	<i>BMI category(a)</i>	<i>Males</i>	<i>Females</i>
		<i>%</i>	<i>%</i>
Less than 20.0	Underweight	3.1	8.9
20.0 to less than 25.0	Acceptable weight	32.9	44.0
25.0 to less than 30.0	Overweight	46.0	30.4
30.0 or more	Obese	17.9	16.7
Total	..	100.0	100.0

(a) National Health and Medical Research Council guidelines.

Underestimation of Body Mass Index

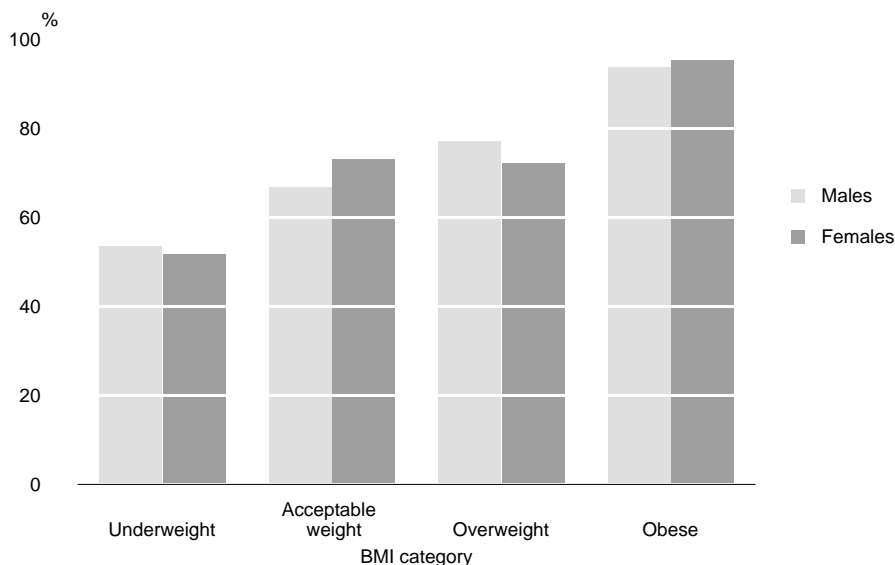
For both males and females, mean BMI scores based on measured height and weight were higher than those based on self-reported data; for males 26.8 compared with 25.7, and for females 25.7 compared with 24.4. This pattern resulted from the tendency described earlier in this publication for people to overstate their height and understate their weight.

The magnitude of differences between reported and measured BMI was generally similar across age groups, but slightly higher in the 65 years and over group, resulting primarily from people in this age group overstating their height to a larger extent than those in other age groups (table 13).

Overall, 27% of males were classified to a different BMI group using measured height and weight than using reported height and weight: 23% to a heavier BMI group, and 3% to a lighter group (table 15). The same pattern occurred with females, with 28% classified to a different group: 25% to a heavier category, and 3% to a lighter category. The reported BMI group most affected was the underweight group. Almost half (46% of males and 48% of females) who were classified as underweight based on reported height and weight information were classified to the acceptable weight category based on measured height and weight (table 16).

In population surveys, self-reported height and weight data are commonly collected to determine BMI, rather than measured height and weight which are more complex and costly to collect. Based on the findings from this study, there may be grounds for questioning the reliability, and hence the use and interpretation, of BMI results based on self-reported height and weight.

PERSONS WHOSE REPORTED AND MEASURED BMI CATEGORY WERE THE SAME



Self-assessed weight group

Respondents to the NHS were also asked to assess themselves as being underweight, of acceptable weight or overweight. Of males who declared they were of acceptable weight, 47% had a measured BMI score which put them in the overweight classification and a further 5% were actually obese (table 20). Of females who considered themselves to be of acceptable weight, 12% had a measured BMI score which put them in the underweight range, while a further 21% were classified as overweight. Most males who considered themselves overweight were either overweight (51%) or obese (46%) based on measured height and weight. In contrast, 15% of females who considered themselves to be overweight were classified as being of acceptable weight and a few (less than 1%) were actually underweight, based on height and weight measurements.

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MEAN HEIGHT, WEIGHT AND BODY MASS INDEX

	AGE GROUP (YEARS).....				Total
	18-24	25-44	45-64	65 and over	
MALES					
Mean height (cm)					
Self-reported	179.9	177.8	176.0	174.3	176.9
Measured	178.4	176.3	174.0	170.4	174.8
Mean weight (kg)					
Self-reported	77.0	80.9	82.1	77.2	80.2
Measured	78.0	82.4	84.5	78.9	82.0
Reported BMI(a)(b) (%)					
Underweight	12.2	4.3	2.1	4.1	4.8
Acceptable weight	58.7	42.5	35.5	45.3	43.1
Overweight	24.7	42.1	46.8	41.1	40.9
Obese	4.3	11.1	15.5	9.5	11.2
Measured BMI(a) (%)					
Underweight	8.4	2.9	1.4	2.0	3.1
Acceptable weight	56.5	34.6	22.3	26.7	32.9
Overweight	27.2	47.0	51.2	51.3	46.1
Obese	8.0	15.5	25.1	20.0	17.9
FEMALES					
Mean height (cm)					
Self-reported	164.9	163.4	162.3	160.8	162.7
Measured	163.9	162.9	161.2	156.9	161.4
Mean weight (kg)					
Self-reported	60.3	63.8	67.2	63.9	64.5
Measured	62.3	66.3	69.9	66.3	67.0
Reported BMI(a)(b) (%)					
Underweight	33.5	15.9	7.1	11.9	15.0
Acceptable weight	49.2	52.2	45.2	45.4	48.7
Overweight	13.1	21.7	31.7	30.8	24.9
Obese	4.2	10.2	16.0	12.0	11.3
Measured BMI(a) (%)					
Underweight	24.0	9.2	3.8	4.9	8.9
Acceptable weight	53.8	50.4	36.5	33.4	44.1
Overweight	18.1	26.6	37.0	37.9	30.3
Obese	4.2	13.8	22.7	23.8	16.7

(a) Categories based on National Health and Medical Research Council guidelines.

(b) Revised. See paragraph 16 of Explanatory Notes.

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HEIGHT AND WEIGHT DIFFERENCES

HEIGHT DIFFERENCE(a) (cm).....

	-5 or more	-3 to less than -5	-1 to less than -3	Between -1 and 1	1 to less than 3	3 to less than 5	5 or more	Total
Weight difference(a) (kg)	%	%	%	%	%	%	%	%

MALES

-5 or more	0.4	0.2	1.6	3.6	4.8	3.2	1.8	15.7
-3 to less than -5	0.2	0.2	1.1	4.4	5.1	3.2	2.3	16.7
-1 to less than -3	0.3	0.5	2.4	6.5	7.7	4.4	3.1	25.0
Between -1 and 1	0.3	0.5	1.6	5.3	6.6	4.4	3.2	21.8
1 to less than 3	0.1	0.2	1.1	2.8	4.1	2.7	1.5	12.5
3 to less than 5	0.2	0.1	0.2	1.2	1.7	1.2	0.4	5.0
5 or more	0.1	0.1	0.1	0.5	0.8	0.9	0.7	3.3
All males(b)	1.6	1.8	8.0	24.4	31.0	20.1	13.0	100.0

FEMALES

-5 or more	0.4	0.5	2.3	4.9	4.6	2.2	1.8	16.5
-3 to less than -5	0.4	0.8	3.0	6.1	5.7	2.6	1.8	20.5
-1 to less than -3	0.5	1.4	4.5	9.5	7.7	4.5	3.0	31.0
Between -1 and 1	0.5	0.6	3.1	6.4	5.5	2.8	2.6	21.6
1 to less than 3	0.3	0.3	0.7	1.9	2.0	1.2	0.8	7.2
3 to less than 5	0.1	0.1	0.3	0.4	0.4	0.4	0.3	1.9
5 or more	—	0.1	0.1	0.3	0.3	0.1	0.2	1.2
All females(b)	2.2	3.7	14.0	29.5	26.2	13.8	10.5	100.0

(a) Reported height (weight) minus measured height (weight), i.e. a positive score indicates reported was larger than measured.

(b) Numbers differ from those shown separately for height or weight elsewhere in this publication: see paragraph 10 of Explanatory Notes.

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REPORTED AND MEASURED MEAN HEIGHT

	<i>Mean</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Age group (years)</i>	cm	cm	cm	cm
MALES				
18–24				
Reported height	179.9	7.2	152.0	198.0
Measured height	178.4	6.6	153.0	198.9
Difference	1.6	3.1	-10.7	12.0
25–44				
Reported height	177.8	7.1	150.0	204.0
Measured height	176.3	6.8	151.9	200.6
Difference	1.5	2.6	-10.0	14.2
45–64				
Reported height	176.0	6.9	152.0	198.0
Measured height	174.0	6.7	151.2	196.6
Difference	2.0	2.7	-10.3	12.5
65 and over				
Reported height	174.3	6.7	152.0	203.0
Measured height	170.4	6.5	148.6	198.5
Difference	3.8	3.1	-8.8	14.5
18 and over				
Reported height	176.9	7.2	150.0	204.0
Measured height	174.8	7.1	148.6	200.6
Difference	2.1	2.9	-10.7	14.5
FEMALES				
18–24				
Reported height	164.9	7.4	145.0	185.0
Measured height	163.9	6.6	144.9	184.5
Difference	1.0	3.1	-10.3	13.6
25–44				
Reported height	163.4	7.1	137.0	184.0
Measured height	162.9	6.4	139.4	181.0
Difference	0.5	2.9	-12.8	14.2
45–64				
Reported height	162.3	6.7	145.0	183.0
Measured height	161.2	6.3	138.6	182.7
Difference	1.1	2.6	-11.6	15.5
65 and over				
Reported height	160.8	6.8	124.0	185.0
Measured height	156.9	6.3	135.1	177.2
Difference	3.9	3.6	-11.0	15.2
18 and over				
Reported height	162.7	7.1	124.0	185.0
Measured height	161.4	6.7	135.1	184.5
Difference	1.3	3.2	-12.8	15.5

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REPORTED AND MEASURED MEAN HEIGHT AND DIFFERENCE

	AGE GROUP (YEARS).....				
Height	18-24	25-44	45-64	65 and over	Total
MALES					
Mean (cm)					
Reported	179.9	177.8	176.0	174.3	176.9
Measured	178.4	176.3	174.0	170.4	174.8
Difference(a) (%)					
-5 cm or more	3.2	1.7	1.3	0.5	1.6
-3 cm to less than -5 cm	2.9	2.3	1.3	1.1	1.9
-1 cm to less than -3 cm	9.7	9.9	7.4	2.6	8.2
Between -1 cm and 1 cm	24.8	28.8	23.0	11.0	24.1
1 cm to less than 3 cm	28.9	32.7	33.5	22.7	31.0
3 cm to less than 5 cm	19.2	16.8	20.6	28.9	19.9
5 cm or more	11.2	7.8	12.9	33.1	13.2
Total	100.0	100.0	100.0	100.0	100.0
FEMALES					
Mean (cm)					
Reported	164.9	163.4	162.3	160.8	162.7
Measured	163.9	162.9	161.2	156.9	161.4
Difference(a) (%)					
-5 cm or more	4.1	3.0	1.0	0.6	2.2
-3 cm to less than -5 cm	4.5	5.5	2.7	1.2	3.8
-1 cm to less than -3 cm	11.4	19.1	15.1	3.5	14.3
Between -1 cm and 1 cm	29.9	32.0	33.0	14.8	29.1
1 cm to less than 3 cm	30.1	24.4	28.3	22.8	26.0
3 cm to less than 5 cm	13.0	10.8	13.6	22.2	13.8
5 cm or more	7.1	5.3	6.3	34.8	10.9
Total	100.0	100.0	100.0	100.0	100.0

(a) Reported height minus measured height, i.e. a positive score indicates that reported was larger than measured.

Height (cm)	HEIGHT DIFFERENCE(a) (cm).....							Total
	-5 or more	-3 to less than -5	-1 to less than -3	Between -1 and 1	1 to less than 3	3 to less than 5	5 or more	
	%	%	%	%	%	%	%	%
MALES								
Reported								
Less than 150	—	—	—	—	—	—	—	—
150 to less than 160	44.7	10.8	10.5	25.7	3.7	2.7	1.7	100.0
160 to less than 170	6.1	5.0	13.1	28.4	22.7	15.4	9.4	100.0
170 to less than 180	0.9	1.9	9.0	24.2	31.2	19.3	13.5	100.0
180 to less than 190	0.2	0.8	5.3	23.5	33.7	22.1	14.4	100.0
190 or more	—	—	6.9	13.2	36.8	27.7	15.5	100.0
Measured								
Less than 150	—	—	—	—	—	59.9	40.1	100.0
150 to less than 160	1.5	1.6	3.6	20.3	18.9	18.1	36.1	100.0
160 to less than 170	2.8	2.3	6.9	21.6	22.0	22.5	21.9	100.0
170 to less than 180	1.4	2.0	8.1	22.6	31.9	21.0	13.1	100.0
180 to less than 190	1.2	1.6	9.2	30.0	38.1	15.6	4.5	100.0
190 or more	1.3	—	20.1	28.0	34.8	14.8	1.1	100.0
All males	1.6	1.9	8.2	24.1	31.0	19.9	13.2	100.0
FEMALES								
Reported								
Less than 150	9.8	10.5	14.8	25.3	18.0	12.7	9.0	100.0
150 to less than 160	5.1	8.2	22.6	30.6	19.7	8.5	5.4	100.0
160 to less than 170	1.1	2.3	12.6	30.4	27.1	15.0	11.5	100.0
170 to less than 180	—	0.9	6.6	24.5	33.7	18.7	15.7	100.0
180 to less than 190	—	—	—	9.1	18.4	22.3	50.1	100.0
190 or more	—	—	—	—	—	—	—	—
Measured								
Less than 150	1.5	0.7	3.4	13.3	22.7	25.9	32.4	100.0
150 to less than 160	1.2	3.4	18.0	28.8	21.9	13.0	13.8	100.0
160 to less than 170	3.2	4.9	12.9	30.0	27.2	13.8	8.0	100.0
170 to less than 180	0.8	1.8	13.0	32.2	35.6	11.4	5.2	100.0
180 to less than 190	—	—	—	67.8	32.2	—	—	100.0
190 or more	—	—	—	—	—	—	—	—
All females	2.2	3.8	14.3	29.1	26.0	13.8	10.9	100.0

(a) Reported height minus measured height, i.e. a positive score indicates that reported was larger than measured.

Weight (kg)	HEIGHT DIFFERENCE(a) (cm).....							Total
	-5 or more	-3 to less than -5	-1 to less than -3	Between -1 and 1	1 to less than 3	3 to less than 5	5 or more	
	%	%	%	%	%	%	%	%
MALES								
Reported								
Less than 50	—	—	4.7	30.7	28.8	—	35.8	100.0
50 to less than 60	4.5	3.1	3.1	22.8	33.5	12.8	20.1	100.0
60 to less than 70	1.2	2.4	7.1	22.4	27.7	21.6	17.6	100.0
70 to less than 80	2.1	2.3	8.7	24.4	29.3	20.7	12.6	100.0
80 to less than 90	1.2	1.1	7.2	25.6	32.1	20.5	12.2	100.0
90 to less than 100	0.8	1.7	10.4	24.2	33.1	18.9	10.9	100.0
100 to less than 110	2.0	1.2	8.8	25.8	35.7	18.8	7.7	100.0
110 or more	0.4	—	6.4	24.6	36.3	20.1	12.3	100.0
Measured								
Less than 50	—	—	6.3	33.3	48.2	5.0	7.2	100.0
50 to less than 60	1.8	2.9	3.2	26.2	31.8	12.9	21.1	100.0
60 to less than 70	2.1	2.8	6.5	18.5	28.5	21.9	19.7	100.0
70 to less than 80	1.5	2.2	9.0	26.5	27.7	20.9	12.2	100.0
80 to less than 90	1.5	1.1	7.8	25.3	32.9	20.3	11.1	100.0
90 to less than 100	1.8	1.7	8.1	24.7	32.0	19.1	12.6	100.0
100 to less than 110	1.1	1.3	12.0	22.3	35.6	19.4	8.3	100.0
110 or more	0.8	—	5.9	27.4	38.7	18.7	8.5	100.0
All males(b)	1.6	1.8	8.0	24.4	31.0	20.1	13.0	100.0
FEMALES								
Reported								
Less than 50	2.6	5.3	15.3	26.1	24.4	11.9	14.4	100.0
50 to less than 60	2.5	4.4	15.9	29.7	24.1	14.2	9.2	100.0
60 to less than 70	2.1	2.9	13.8	29.9	28.6	12.3	10.5	100.0
70 to less than 80	1.7	3.1	11.8	31.2	26.3	14.7	11.2	100.0
80 to less than 90	1.9	3.9	10.9	25.8	25.9	19.2	12.5	100.0
90 to less than 100	1.8	4.0	14.0	28.3	29.6	13.2	9.0	100.0
100 to less than 110	3.8	8.9	15.1	35.1	20.5	9.3	7.3	100.0
110 or more	—	4.5	11.0	33.0	26.3	21.5	3.6	100.0
Measured								
Less than 50	2.5	5.1	13.3	26.9	26.0	11.5	14.7	100.0
50 to less than 60	2.3	4.8	16.5	29.0	23.2	14.2	10.0	100.0
60 to less than 70	2.8	3.0	14.1	30.1	28.0	12.3	9.8	100.0
70 to less than 80	1.3	2.4	11.5	31.5	26.6	15.3	11.3	100.0
80 to less than 90	1.1	4.2	12.2	26.9	27.1	18.1	10.3	100.0
90 to less than 100	2.1	5.7	15.6	24.1	27.5	11.2	13.7	100.0
100 to less than 110	2.7	5.0	11.7	28.3	35.0	9.3	8.1	100.0
110 or more	—	2.9	7.5	45.6	20.4	20.1	3.5	100.0
All females(b)	2.2	3.7	14.0	29.5	26.2	13.8	10.5	100.0

(a) Reported height minus measured height, i.e. a positive score indicates that reported was larger than measured.

(b) Numbers differ from those in tables 4 and 5 due to different populations used:
see paragraph 10 of Explanatory Notes.

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HEIGHT DIFFERENCE, By Selected Characteristics

HEIGHT DIFFERENCE(a) (cm).....

	Number of persons '000	Mean measured height cm	Mean reported height cm	-3 or more %	-1 to less than -3 %	Between -1 and 1 %	1 to less than 3 %	3 to less than 5 %	5 or more %	Total %
MALES										
Country of birth										
Australia	4 661.8	175.4	177.5	3.5	8.7	23.8	31.2	19.2	13.6	100.0
New Zealand	143.0	175.3	177.4	2.9	6.8	20.5	27.9	29.3	12.5	100.0
Europe and the former USSR	1 003.3	173.3	175.4	2.6	6.1	25.5	31.5	22.0	12.3	100.0
Middle East	42.8	172.8	174.5	—	18.1	21.6	12.9	45.7	1.6	100.0
South-East Asia	127.7	168.8	170.3	2.5	4.1	23.8	33.8	20.7	15.1	100.0
Other Asia	124.9	170.5	171.9	7.5	5.1	36.2	27.8	14.2	9.2	100.0
All other countries	201.9	174.4	175.7	9.9	10.2	18.4	29.2	18.4	14.0	100.0
Age left school(b)										
Aged 15 years or less	2 162.8	172.9	175.4	3.0	6.7	19.3	29.2	23.2	18.6	100.0
Aged 16 or more — did not complete secondary	1 602.9	175.5	177.4	4.1	8.4	23.8	32.1	19.8	11.8	100.0
Aged 16 or more — completed secondary	2 526.8	176.4	178.1	3.6	9.3	28.3	31.9	17.4	9.6	100.0
Employment status										
Not asked(c)	863.3	170.4	174.3	1.6	2.6	11.0	22.7	28.9	33.1	100.0
Employed	4 515.1	176.0	177.7	3.7	9.1	26.2	33.4	17.9	9.7	100.0
Unemployed	350.2	175.2	176.5	4.5	11.9	32.5	23.6	19.1	8.4	100.0
Not in the labour force	576.9	173.8	175.9	4.7	6.7	22.0	29.4	22.8	14.4	100.0
Gross annual household income										
Less than \$10 400	337.4	172.3	175.3	2.2	6.6	22.4	27.1	19.0	22.7	100.0
\$10 400–\$25 999	1 109.0	172.7	175.2	3.9	6.2	20.5	26.8	24.7	18.0	100.0
\$26 000–\$51 999	1 840.1	175.1	177.0	3.9	10.4	24.2	30.6	18.9	11.9	100.0
\$52 000 or more	2 146.9	176.4	178.0	3.5	8.1	28.8	32.5	18.1	9.0	100.0
Not stated/not known	872.0	175.1	177.4	3.2	6.8	17.5	34.8	20.8	16.9	100.0
Self-assessed health status										
Excellent	1 204.7	175.5	177.5	2.8	7.9	26.6	29.0	20.1	13.6	100.0
Very good	2 329.4	175.9	177.7	3.5	8.4	26.4	32.8	18.9	10.0	100.0
Good	1 790.4	174.1	176.3	3.7	9.6	21.9	30.6	20.5	13.8	100.0
Fair	761.6	173.2	175.6	5.1	5.8	20.5	32.6	19.5	16.6	100.0
Poor	219.4	171.5	174.7	2.5	3.7	16.2	20.4	27.6	29.7	100.0
All males(d)	6 305.5	174.8	176.9	3.6	8.2	24.1	31.0	19.9	13.2	100.0

(a) Reported height minus measured height, i.e. a positive score indicates that reported was larger than measured.

(b) Excludes those still at school.

(c) Persons aged 65 years or more.

(d) Number of persons differs from that shown in tables 12 and 18 due to different populations used: see paragraph 10 of Explanatory Notes.

HEIGHT DIFFERENCE(a) (cm).....

	Number of persons '000	Mean measured height cm	Mean reported height cm	-3 or more %	-1 to less than -3 %	Between -1 and 1 %	1 to less than 3 %	3 to less than 5 %	5 or more %	Total %
FEMALES										
Country of birth										
Australia	4 538.8	161.8	163.1	6.3	14.1	29.3	26.0	13.7	10.6	100.0
New Zealand	105.6	164.2	165.3	6.3	16.4	25.1	26.4	19.6	6.3	100.0
Europe and the former USSR	1 018.7	160.7	162.2	5.4	14.6	29.5	24.0	14.0	12.5	100.0
Middle East	32.4	158.8	160.8	3.6	9.7	25.1	16.8	34.2	10.7	100.0
South-East Asia	151.8	155.1	157.2	5.3	12.3	20.6	28.0	18.8	15.0	100.0
Other Asia	109.0	157.4	158.8	1.5	15.7	26.0	36.0	9.2	11.6	100.0
All other countries	161.6	162.0	162.8	6.3	17.0	32.5	29.4	7.6	7.2	100.0
Age left school(b)										
Aged 15 years or less	2 348.3	159.6	161.4	5.3	12.9	25.7	23.9	15.9	16.3	100.0
Aged 16 or more — did not complete secondary	1 434.9	162.2	163.3	7.9	13.8	27.3	28.9	12.9	9.2	100.0
Aged 16 or more — completed secondary	2 307.2	163.0	163.9	5.6	16.0	33.3	26.3	12.3	6.5	100.0
Employment status										
Not asked(c)	1 045.1	156.9	160.8	1.8	3.5	14.8	22.8	22.2	34.8	100.0
Employed	3 322.1	163.1	163.8	7.1	16.9	33.3	27.1	10.7	4.9	100.0
Unemployed	203.1	161.6	162.3	7.5	18.4	27.9	24.1	13.5	8.6	100.0
Not in the labour force	1 547.5	161.0	162.0	6.3	15.3	29.7	25.9	14.8	7.9	100.0
Gross annual household income										
Less than \$10 400	483.0	158.5	161.2	3.5	9.8	24.7	18.7	17.1	26.3	100.0
\$10 400–\$25 999	1 342.1	160.2	162.0	6.4	11.4	23.0	26.5	16.7	16.0	100.0
\$26 000–\$51 999	1 645.1	161.8	162.8	6.8	15.6	29.2	26.9	13.9	7.7	100.0
\$52 000 or more	1 773.0	163.1	163.9	6.2	15.4	33.6	27.0	11.6	6.2	100.0
Not stated/not known	874.7	161.4	162.7	4.8	16.6	31.3	25.3	12.0	9.9	100.0
Self-assessed health status										
Excellent	1 133.8	162.4	163.4	6.0	14.6	32.0	27.7	11.9	7.8	100.0
Very good	2 319.7	162.1	163.2	5.0	15.7	31.4	27.6	12.7	7.7	100.0
Good	1 711.8	160.8	162.3	6.9	13.1	26.0	24.8	16.2	13.0	100.0
Fair	754.8	159.7	161.7	7.3	13.5	24.9	21.4	14.7	18.2	100.0
Poor	197.7	159.4	161.5	5.1	9.7	27.4	24.2	14.2	19.3	100.0
All females(d)	6 117.9	161.4	162.7	6.0	14.3	29.1	26.0	13.8	10.9	100.0

(a) Reported height minus measured height, i.e. a positive score indicates that reported was larger than measured.

(b) Excludes those still at school.

(c) Persons aged 65 years or more.

(d) Number of persons differs from that shown in tables 12 and 18 due to different populations used: see paragraph 10 of Explanatory Notes.

<i>Age group (years)</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
	kg	kg	kg	kg
MALES				
18–24				
Reported weight	77.0	13.1	43.0	133.0
Measured weight	78.0	14.0	43.7	135.0
Difference	-1.0	4.1	-19.0	15.2
25–44				
Reported weight	80.9	12.9	45.0	152.0
Measured weight	82.4	13.5	47.2	139.6
Difference	-1.6	3.8	-19.0	15.0
45–64				
Reported weight	82.1	12.8	44.0	139.0
Measured weight	84.5	13.5	50.2	139.2
Difference	-2.4	3.8	-18.3	11.7
65 and over				
Reported weight	77.2	11.9	38.0	130.0
Measured weight	78.9	12.6	42.4	136.6
Difference	-1.7	4.0	-19.5	14.6
18 and over				
Reported weight	80.2	12.9	38.0	152.0
Measured weight	82.0	13.6	42.4	139.6
Difference	-1.8	3.9	-19.5	15.2
FEMALES				
18–24				
Reported weight	60.3	11.3	35.0	105.0
Measured weight	62.3	12.3	36.4	111.6
Difference	-2.0	3.6	-17.6	10.5
25–44				
Reported weight	63.8	12.7	40.0	128.0
Measured weight	66.3	13.5	39.6	137.8
Difference	-2.5	3.2	-18.0	11.2
45–64				
Reported weight	67.2	12.6	42.0	122.0
Measured weight	69.9	13.3	39.1	126.4
Difference	-2.7	3.2	-17.8	9.5
65 and over				
Reported weight	63.9	11.7	32.0	114.0
Measured weight	66.3	12.7	32.4	120.8
Difference	-2.3	3.2	-17.1	8.7
18 and over				
Reported weight	64.5	12.5	32.0	128.0
Measured weight	67.0	13.4	32.4	137.8
Difference	-2.5	3.3	-18.0	11.2

	AGE GROUP (YEARS).....					
Weight	18-24	25-44	45-64	65 and over	Total	
MALES						
Mean (kg)						
Reported	77.0	80.9	82.1	77.2	80.2	
Measured	78.0	82.4	84.5	78.9	82.0	
Difference(a) (%)						
-5 kg or more	11.9	14.4	20.9	13.8	15.9	
-3 kg to less than -5 kg	13.9	15.7	17.9	18.5	16.5	
-1 kg to less than -3 kg	24.7	24.7	24.9	26.0	24.9	
Between -1 kg and 1 kg	20.6	23.3	20.1	22.3	21.9	
1 kg to less than 3 kg	17.0	12.9	10.6	11.2	12.6	
3 kg to less than 5 kg	7.2	5.3	3.9	3.8	4.9	
5 kg or more	4.7	3.6	1.8	4.5	3.3	
Total	100.0	100.0	100.0	100.0	100.0	
FEMALES						
Mean (kg)						
Reported	60.3	63.8	67.2	63.9	64.5	
Measured	62.3	66.3	69.9	66.3	67.0	
Difference(a) (%)						
-5 kg or more	14.0	16.6	18.0	14.5	16.3	
-3 kg to less than -5 kg	17.9	20.4	22.0	19.9	20.4	
-1 kg to less than -3 kg	25.4	32.8	30.7	32.0	31.1	
Between -1 kg and 1 kg	24.7	21.0	21.3	21.1	21.6	
1 kg to less than 3 kg	12.9	6.4	5.5	7.8	7.3	
3 kg to less than 5 kg	2.5	1.8	1.4	2.8	2.0	
5 kg or more	2.7	0.9	1.0	1.7	1.3	
Total	100.0	100.0	100.0	100.0	100.0	

(a) Reported weight minus measured weight, i.e a positive score indicates that reported was larger than measured.

Weight (kg)	WEIGHT DIFFERENCE(a) (kg).....							Total
	-5 or more	-3 to less than -5	-1 to less than -3	Between -1 and 1	1 to less than 3	3 to less than 5	5 or more	
	%	%	%	%	%	%	%	%
MALES								
Reported								
Less than 50	52.7	3.1	5.8	28.5	9.9	—	—	100.0
50 to less than 60	17.1	15.6	9.7	35.4	14.6	7.3	0.3	100.0
60 to less than 70	12.8	13.1	26.6	25.3	14.7	4.6	3.0	100.0
70 to less than 80	14.5	17.4	25.6	22.8	12.2	4.5	2.9	100.0
80 to less than 90	13.5	16.9	26.6	21.1	12.5	5.8	3.7	100.0
90 to less than 100	21.1	18.2	24.4	16.7	12.2	3.8	3.7	100.0
100 to less than 110	24.3	18.4	18.7	17.9	10.0	5.6	5.0	100.0
110 or more	26.4	11.0	26.7	12.5	11.1	6.2	6.1	100.0
Measured								
Less than 50	—	4.1	—	48.0	47.9	—	—	100.0
50 to less than 60	5.7	10.0	7.2	35.8	19.7	9.9	11.6	100.0
60 to less than 70	6.9	9.9	24.0	27.6	19.3	6.8	5.6	100.0
70 to less than 80	10.4	14.9	27.8	25.1	12.4	5.9	3.5	100.0
80 to less than 90	15.0	19.9	26.8	19.9	12.3	4.2	1.9	100.0
90 to less than 100	25.5	21.3	25.3	15.5	8.0	2.3	2.0	100.0
100 to less than 110	34.2	19.2	18.7	15.5	6.9	3.8	1.7	100.0
110 or more	46.4	15.7	21.5	5.7	5.5	2.1	3.1	100.0
All males	15.9	16.5	24.9	21.9	12.6	4.9	3.3	100.0
FEMALES								
Reported								
Less than 50	11.8	13.5	31.4	30.1	10.2	2.2	0.9	100.0
50 to less than 60	11.1	18.6	35.8	25.6	6.6	1.7	0.6	100.0
60 to less than 70	14.5	22.7	30.6	21.4	7.1	2.1	1.4	100.0
70 to less than 80	22.4	23.3	28.1	16.0	6.7	1.5	2.0	100.0
80 to less than 90	23.3	23.2	25.4	15.1	8.4	2.1	2.5	100.0
90 to less than 100	36.7	11.2	26.3	14.0	8.2	2.7	1.0	100.0
100 to less than 110	34.9	22.1	10.0	14.5	12.8	5.7	—	100.0
110 or more	46.5	7.4	21.2	12.7	4.9	2.0	5.4	100.0
Measured								
Less than 50	3.0	6.7	25.4	37.6	17.7	6.7	2.8	100.0
50 to less than 60	5.5	15.4	37.8	29.8	7.6	2.0	1.9	100.0
60 to less than 70	13.7	24.0	31.7	20.6	7.3	1.6	1.0	100.0
70 to less than 80	23.8	26.2	30.0	14.0	4.0	1.0	1.1	100.0
80 to less than 90	32.4	25.1	22.9	11.3	6.1	1.9	0.3	100.0
90 to less than 100	40.1	16.2	21.7	13.3	6.4	2.3	—	100.0
100 to less than 110	54.2	19.4	13.7	6.0	5.7	—	0.9	100.0
110 or more	68.2	5.9	13.2	7.9	1.4	1.2	2.1	100.0
All females	16.3	20.4	31.1	21.6	7.3	2.0	1.3	100.0

(a) Reported weight minus measured weight, i.e. a positive score indicates that reported was larger than measured.

Height (cm)	WEIGHT DIFFERENCE(a) (kg).....							Total
	-5 or more	-3 to less than -5	-1 to less than -3	Between -1 and 1	1 to less than 3	3 to less than 5	5 or more	
	%	%	%	%	%	%	%	%
MALES								
Reported								
Less than 150	—	—	—	—	—	—	—	—
150 to less than 160	11.1	9.4	34.9	32.9	4.0	6.7	1.0	100.0
160 to less than 170	12.9	16.2	23.7	26.1	12.4	5.7	3.0	100.0
170 to less than 180	16.0	16.1	27.7	21.1	12.1	4.2	2.8	100.0
180 to less than 190	16.6	17.7	21.6	21.6	13.2	5.3	4.0	100.0
190 or more	14.5	18.1	23.6	15.8	14.3	8.4	5.3	100.0
Measured								
Less than 150	—	—	100.0	—	—	—	—	100.0
150 to less than 160	14.8	16.1	21.5	30.0	6.7	7.9	3.1	100.0
160 to less than 170	14.0	15.8	25.8	23.5	12.4	5.1	3.4	100.0
170 to less than 180	15.9	16.3	25.5	21.8	12.9	4.5	3.0	100.0
180 to less than 190	16.4	18.4	24.0	20.2	12.0	5.5	3.5	100.0
190 or more	23.8	16.3	13.0	13.9	17.1	7.4	8.5	100.0
All males(b)	15.7	16.7	25.0	21.8	12.5	5.0	3.3	100.0
FEMALES								
Reported								
Less than 150	4.8	10.4	38.2	28.4	7.4	5.3	5.5	100.0
150 to less than 160	13.3	20.5	31.5	22.8	7.3	2.8	1.7	100.0
160 to less than 170	17.2	21.0	31.0	21.9	6.9	1.1	0.8	100.0
170 to less than 180	20.6	20.0	30.5	18.1	7.7	2.3	1.0	100.0
180 to less than 190	15.6	18.4	17.4	29.1	9.5	2.6	7.4	100.0
190 or more	—	—	—	—	—	—	—	—
Measured								
Less than 150	9.7	13.9	35.8	26.8	7.4	3.3	3.2	100.0
150 to less than 160	14.0	19.7	31.3	24.1	7.1	2.2	1.6	100.0
160 to less than 170	18.1	21.8	30.7	19.9	7.1	1.5	0.8	100.0
170 to less than 180	20.5	20.1	29.9	18.2	8.0	2.0	1.1	100.0
180 to less than 190	40.3	8.9	2.8	34.8	13.2	—	—	100.0
190 or more	—	—	—	—	—	—	—	—
All females(b)	16.5	20.5	31.0	21.6	7.2	1.9	1.3	100.0

(a) Reported weight minus measured weight, i.e. a positive score indicates that reported was larger than measured.

(b) Numbers differ from those in tables 9 and 10 due to different populations used:
see paragraph 10 of Explanatory Notes.

WEIGHT DIFFERENCE(a) (kg).....

	Number of persons '000	Mean measured weight kg	Mean reported weight kg	-5 or more %	-3 to less than -5 %	-1 to less than -3 %	Between -1 and 1 %	1 to less than 3 %	3 or more %	Total %
MALES										
Country of birth										
Australia	4 564.2	82.6	80.8	16.3	17.2	23.8	21.6	13.0	8.1	100.0
New Zealand	137.8	83.2	81.2	23.6	10.8	25.0	17.5	11.9	11.2	100.0
Europe and the former USSR	995.9	81.9	80.0	14.8	16.7	27.6	22.2	10.8	7.9	100.0
Middle East	45.7	81.2	78.9	1.4	10.3	61.0	22.4	3.5	1.3	100.0
South-East Asia	127.7	69.1	68.4	5.8	21.4	16.8	25.6	12.3	18.2	100.0
Other Asia	123.8	68.7	67.3	10.8	8.4	25.8	26.1	22.6	6.3	100.0
All other countries	189.5	80.7	78.7	18.9	6.3	34.4	23.1	7.8	9.5	100.0
Age left school(b)										
Aged 15 years or less	2 141.5	82.6	80.8	16.5	15.4	24.1	23.7	11.6	8.8	100.0
Aged 16 or more — did not complete secondary	1 551.7	82.0	80.3	15.2	16.8	24.0	22.5	12.9	8.6	100.0
Aged 16 or more — completed secondary	2 482.5	81.4	79.6	15.8	17.3	26.3	19.8	13.3	7.6	100.0
Employment status										
Not asked(c)	869.7	78.9	77.2	13.8	18.5	26.0	22.3	11.2	8.3	100.0
Employed	4 413.9	83.0	81.2	15.9	16.1	25.2	21.5	13.2	8.1	100.0
Unemployed	348.8	80.4	78.7	16.4	19.1	19.6	24.4	11.3	9.2	100.0
Not in the labour force	552.3	81.3	79.4	18.4	15.0	24.3	22.5	10.7	9.0	100.0
Gross annual household income										
Less than \$10 400	334.0	81.1	79.5	20.4	16.4	17.8	21.2	12.2	12.0	100.0
\$10 400–\$25 999	1 102.9	80.5	78.8	16.4	16.0	23.3	22.8	12.1	9.4	100.0
\$26 000–\$51 999	1 802.6	82.0	80.2	15.8	14.7	26.7	22.2	11.9	8.5	100.0
\$52 000 or more	2 101.3	83.1	81.3	15.7	27.7	24.8	21.3	13.3	7.2	100.0
Not stated/not known	843.9	82.5	80.5	13.7	18.0	26.2	21.5	12.9	7.6	100.0
Self-assessed health status										
Excellent	1 171.5	80.0	78.3	13.7	18.5	23.8	22.7	13.2	8.1	100.0
Very good	2 283.5	81.9	80.1	15.4	16.5	27.0	21.7	11.7	7.6	100.0
Good	1 750.0	82.6	80.9	16.2	14.8	23.8	22.9	12.7	9.6	100.0
Fair	757.9	83.4	81.3	19.5	16.2	25.3	18.2	14.9	5.9	100.0
Poor	221.9	82.8	81.2	16.8	20.5	17.0	23.1	9.2	13.3	100.0
All males(d)	6 184.8	82.0	80.2	15.9	16.5	24.9	21.9	12.6	8.3	100.0

(a) Reported weight minus measured weight, i.e. a positive score indicates that reported was larger than measured.

(b) Excludes those still at school.

(c) Persons aged 65 years or more.

(d) Number of persons differs from that shown in tables 7 and 18 due to different populations used: see paragraph 10 of Explanatory Notes.

WEIGHT DIFFERENCE(a) (kg).....

	Number of persons	Mean measured weight	Mean reported weight	-5 or more	-3 to less than -5	-1 to less than -3	Between -1 and 1	1 to less than 3	3 or more	Total
	'000	kg	kg	%	%	%	%	%	%	%
FEMALES										
Country of birth										
Australia	4 349.9	67.5	64.9	17.0	21.5	31.3	20.2	7.2	2.8	100.0
New Zealand	102.9	66.2	63.8	16.8	15.0	29.1	29.2	6.8	3.2	100.0
Europe and the former USSR	993.4	67.1	64.6	15.8	19.5	30.4	23.8	7.1	3.3	100.0
Middle East	32.4	63.7	63.9	—	13.1	9.6	46.9	4.1	26.2	100.0
South-East Asia	150.6	56.4	55.1	6.3	14.3	34.1	28.6	8.8	7.9	100.0
Other Asia	106.9	59.1	57.6	13.3	16.0	33.9	23.0	6.2	7.5	100.0
All other countries	151.5	65.9	63.8	14.7	12.1	29.1	30.6	9.7	3.8	100.0
Age left school(b)										
Aged 15 years or less	2 313.3	68.6	66.1	16.3	20.5	31.3	21.3	7.7	3.0	100.0
Aged 16 or more — did not complete secondary	1 359.7	66.9	64.3	18.5	21.3	30.3	20.9	5.4	3.5	100.0
Aged 16 or more — completed secondary	2 187.2	65.1	62.8	14.8	19.7	31.6	22.5	7.9	3.5	100.0
Employment status										
Not asked(c)	1 064.1	66.3	63.9	14.5	19.9	32.0	21.1	7.8	4.5	100.0
Employed	3 149.7	66.5	64.0	15.7	21.2	31.6	22.2	6.6	2.6	100.0
Unemployed	194.4	64.3	62.0	22.5	19.6	19.7	21.4	13.6	3.2	100.0
Not in the labour force	1 479.5	68.7	66.1	18.0	19.2	30.8	20.7	7.5	3.7	100.0
Gross annual household income										
Less than \$10 400	490.9	66.6	64.1	17.3	20.3	28.8	22.9	7.1	3.6	100.0
\$10 400–\$25 999	1 312.9	67.8	65.4	16.4	18.3	31.0	23.6	6.8	4.0	100.0
\$26 000–\$51 999	1 575.3	66.9	64.5	16.4	19.6	29.3	22.7	8.7	3.4	100.0
\$52 000 or more	1 691.7	66.5	63.9	14.9	22.1	33.6	19.9	6.7	2.7	100.0
Not stated/not known	817.7	66.7	64.0	18.1	22.2	30.9	19.2	6.7	2.8	100.0
Self-assessed health status										
Excellent	1 095.0	65.1	62.5	17.2	21.1	30.0	22.5	6.7	2.5	100.0
Very good	2 237.6	66.3	63.8	15.3	20.2	32.2	22.6	6.6	3.0	100.0
Good	1 634.9	67.4	64.9	16.3	21.2	29.8	20.6	8.4	3.7	100.0
Fair	720.7	69.9	67.4	17.6	19.3	32.0	19.6	8.2	3.3	100.0
Poor	199.6	70.3	68.0	17.2	17.5	31.6	22.1	5.3	6.3	100.0
All females(d)	5 887.7	67.0	64.5	16.3	20.4	31.1	21.6	7.3	3.3	100.0

(a) Reported weight minus measured weight, i.e. a positive score indicates that reported was larger than measured.

(b) Excludes those still at school.

(c) Persons aged 65 years or more.

(d) Number of persons differs from that shown in tables 7 and 18 due to different populations used: see paragraph 10 of Explanatory Notes.

BODY MASS INDEX.....

<i>Age group (years)</i>	<i>Mean Score</i>	<i>Standard deviation Score</i>	<i>Minimum Score</i>	<i>Maximum Score</i>
MALES				
18–24				
Reported body mass index	23.8	3.6	15.4	39.2
Measured body mass index	24.5	3.9	16.7	40.1
Difference	-0.7	1.5	-5.9	5.1
25–44				
Reported body mass index	25.6	3.6	16.9	45.9
Measured body mass index	26.5	3.8	16.8	45.5
Difference	-0.9	1.4	-6.8	7.0
45–64				
Reported body mass index	26.5	3.7	15.0	44.1
Measured body mass index	27.9	4.0	18.4	46.0
Difference	-1.4	1.5	-7.5	6.2
65 and over				
Reported body mass index	25.5	3.6	15.9	40.4
Measured body mass index	27.2	3.8	16.0	42.4
Difference	-1.7	1.6	-7.9	4.5
18 and over				
Reported body mass index	25.7	3.7	15.0	45.9
Measured body mass index	26.8	4.0	16.0	46.0
Difference	-1.2	1.5	-7.9	7.0
FEMALES				
18–24				
Reported body mass index	22.1	3.8	14.2	37.5
Measured body mass index	23.1	4.1	15.6	39.0
Difference	-1.0	1.6	-6.3	6.2
25–44				
Reported body mass index	23.9	4.6	15.3	51.9
Measured body mass index	25.0	4.8	16.5	52.5
Difference	-1.1	1.5	-8.3	6.3
45–64				
Reported body mass index	25.5	4.7	15.0	50.8
Measured body mass index	26.9	5.0	14.9	49.6
Difference	-1.4	1.5	-8.9	6.3
65 and over				
Reported body mass index	24.7	4.3	14.8	45.3
Measured body mass index	26.9	4.8	15.3	43.8
Difference	-2.2	1.8	-9.6	7.3
18 and over				
Reported body mass index	24.4	4.6	14.2	51.9
Measured body mass index	25.7	5.0	14.9	52.5
Difference	-1.3	1.6	-9.6	7.3

	AGE GROUP (YEARS).....					
<i>Body Mass Index</i>	18-24	25-44	45-64	65 and over		<i>Total</i>
MALES						
Mean (score)						
Reported	23.8	25.6	26.5	25.5		25.7
Measured	24.5	26.5	27.9	27.2		26.8
Difference(a) (%)						
-5 or more	1.2	0.7	2.0	3.4		1.5
-3 to less than -5	5.1	6.6	12.2	15.0		9.2
-1 to less than -3	34.8	38.4	44.4	51.0		41.4
Between -1 and 1	50.1	47.5	37.3	26.5		42.0
1 to less than 3	6.8	6.3	3.5	3.2		5.1
3 to less than 5	1.6	0.5	0.5	0.9		0.7
5 or more	0.4	—	0.1	—		0.1
<i>Total</i>	100.0	100.0	100.0	100.0		100.0
FEMALES						
Mean (score)						
Reported	22.1	23.9	25.5	24.7		24.4
Measured	23.1	25.0	26.9	26.9		25.7
Difference(a) (%)						
-5 or more	0.8	1.2	2.4	6.5		2.4
-3 to less than -5	7.4	8.3	10.2	19.1		10.5
-1 to less than -3	38.2	41.3	44.7	49.0		43.2
Between -1 and 1	45.5	43.1	39.4	23.1		39.0
1 to less than 3	7.2	5.5	3.0	2.0		4.4
3 to less than 5	0.7	0.5	0.3	—		0.4
5 or more	0.2	0.1	0.1	0.3		0.1
<i>Total</i>	100.0	100.0	100.0	100.0		100.0

(a) Reported Body Mass Index minus measured Body Mass Index, i.e. a positive score indicates that reported was larger than measured.

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DISTRIBUTION(a) OF MEASURED AND REPORTED BODY MASS INDEX GROUPS(b)

REPORTED BODY MASS INDEX GROUPS.....

	<i>Underweight</i>	<i>Acceptable weight</i>	<i>Overweight</i>	<i>Obese</i>	<i>Total</i>
<i>Measured BMI groups</i>	%	%	%	%	%

MALES

Underweight	2.6	0.5	—	—	3.1
Acceptable weight	2.2	28.8	1.9	—	32.9
Overweight	—	13.7	31.6	0.8	46.1
Obese	—	0.1	7.4	10.4	17.9
Total	4.8	43.1	40.9	11.2	100.0

FEMALES

Underweight	7.8	1.1	—	—	8.9
Acceptable weight	7.1	35.7	1.2	—	44.1
Overweight	0.1	11.7	18.0	0.5	30.3
Obese	—	0.2	5.7	10.8	16.7
Total	15.0	48.7	24.9	11.3	100.0

(a) Percentage of total males and percentage of total females.

(b) Categories based on National Health and Medical Research Council guidelines. See Glossary.

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REPORTED BODY MASS INDEX GROUPS, By Measured Body Mass Index Groups(a)

REPORTED BODY MASS INDEX GROUPS.....

	<i>Underweight</i>	<i>Acceptable weight</i>	<i>Overweight</i>	<i>Obese</i>	<i>Total</i>
<i>Measured BMI groups</i>	%	%	%	%	%

MALES

Underweight	53.7	1.3	—	—	3.1
Acceptable weight	45.8	66.9	4.6	0.1	32.9
Overweight	0.6	31.7	77.2	7.0	46.1
Obese	—	0.1	18.2	92.9	17.9
Total	100.0	100.0	100.0	100.0	100.0

FEMALES

Underweight	51.8	2.3	—	—	8.9
Acceptable weight	47.5	73.2	5.0	—	44.1
Overweight	0.7	24.0	72.2	4.5	30.3
Obese	—	0.4	22.9	95.5	16.7
Total	100.0	100.0	100.0	100.0	100.0

(a) Categories based on National Health and Medical Research Council guidelines. See Glossary.

BODY MASS INDEX DIFFERENCE(a).....

Body Mass Index	-5 or more	-3 to less than -5	-1 to less than -3	Between -1 and 1	1 to less than 3	3 to less than 5	5 or more	Total
	%	%	%	%	%	%	%	%
MALES								
Reported								
Less than 18.5	3.3	13.7	37.0	46.0	—	—	—	100.0
18.5 to less than 20.0	5.1	10.8	23.9	57.7	2.5	—	—	100.0
20.0 to less than 22.5	1.2	8.0	44.5	42.8	3.1	0.3	—	100.0
22.5 to less than 25.0	1.0	7.6	43.0	43.9	4.0	0.4	—	100.0
25.0 to less than 27.5	0.8	8.8	42.9	41.9	5.3	0.3	—	100.0
27.5 to less than 30.0	1.8	11.6	41.2	38.0	5.4	1.7	0.3	100.0
30.0 or more	3.0	11.7	36.0	35.8	11.0	1.8	0.7	100.0
Measured								
Less than 18.5	—	—	6.0	73.6	13.8	6.6	—	100.0
18.5 to less than 20.0	—	5.2	9.6	77.2	5.4	2.5	—	100.0
20.0 to less than 22.5	0.4	0.7	26.7	61.3	9.6	0.9	0.4	100.0
22.5 to less than 25.0	0.7	3.1	37.4	52.1	5.3	1.3	—	100.0
25.0 to less than 27.5	0.7	7.5	46.0	41.2	4.4	0.1	—	100.0
27.5 to less than 30.0	1.3	11.2	50.8	31.8	4.3	0.3	0.3	100.0
30.0 or more	4.8	22.9	43.3	24.6	3.8	0.6	0.1	100.0
All males	1.5	9.2	41.4	42.0	5.1	0.7	0.1	100.0
FEMALES								
Reported								
Less than 18.5	3.8	9.4	44.8	39.6	2.4	—	—	100.0
18.5 to less than 20.0	1.4	6.8	43.9	45.1	2.7	—	—	100.0
20.0 to less than 22.5	1.4	7.2	43.1	44.2	4.0	0.1	—	100.0
22.5 to less than 25.0	2.1	10.1	47.0	37.1	3.6	0.1	—	100.0
25.0 to less than 27.5	2.3	10.4	43.5	38.1	5.5	0.2	—	100.0
27.5 to less than 30.0	5.3	14.8	41.5	31.0	6.3	1.1	—	100.0
30.0 or more	3.1	19.8	35.3	32.5	6.4	1.6	1.3	100.0
Measured								
Less than 18.5	—	—	19.6	60.7	18.9	0.8	—	100.0
18.5 to less than 20.0	—	0.1	26.4	63.4	9.7	0.4	—	100.0
20.0 to less than 22.5	0.1	2.8	37.8	54.8	4.4	—	—	100.0
22.5 to less than 25.0	0.9	6.1	49.4	39.4	4.0	0.2	—	100.0
25.0 to less than 27.5	1.8	11.1	49.9	32.9	3.2	1.0	0.1	100.0
27.5 to less than 30.0	3.4	18.7	49.0	25.1	3.5	—	0.5	100.0
30.0 or more	8.4	25.3	39.4	23.1	2.8	0.6	0.4	100.0
All females	2.4	10.5	43.2	39.0	4.4	0.4	0.1	100.0

(a) Reported Body Mass Index minus measured Body Mass Index, i.e. a positive score indicates that reported was larger than measured.

BODY MASS INDEX DIFFERENCE(a).....

	Number of persons '000	Mean measured BMI score	Mean reported BMI score	-5 or more %	-3 to less than -5 %	-1 to less than -3 %	Between -1 and 1 %	1 to less than 3 %	3 or more %	Total %
MALES										
Country of birth										
Australia	4 466.4	26.9	25.7	1.4	9.0	42.1	41.9	5.1	0.6	100.0
New Zealand	135.4	27.1	25.9	1.3	19.7	29.0	39.9	9.0	1.1	100.0
Europe and the former USSR	978.3	27.3	26.0	1.5	9.5	44.2	39.3	4.6	0.7	100.0
Middle East	42.8	27.1	26.2	—	—	54.5	44.1	—	1.4	100.0
South-East Asia	127.7	24.1	23.5	—	14.7	21.7	54.0	9.3	—	100.0
Other Asia	123.8	23.6	22.8	5.9	2.2	28.2	55.9	3.1	4.8	100.0
All other countries	189.5	26.5	25.5	2.2	9.2	38.4	41.6	5.9	2.5	100.0
Age left school(b)										
Aged 15 years or less	2 092.6	27.7	26.3	2.0	11.3	43.7	37.7	4.7	0.6	100.0
Aged 16 or more — did not complete secondary	1 516.9	26.7	25.6	1.4	9.1	40.3	42.4	5.9	0.9	100.0
Aged 16 or more — completed secondary	2 445.4	26.1	25.1	1.2	7.5	40.3	45.3	5.0	0.8	100.0
Employment status										
Not asked(c)	837.8	27.2	25.5	3.4	15.0	51.0	26.5	3.2	0.9	100.0
Employed	4 359.5	26.8	25.7	1.0	8.0	39.6	45.1	5.6	0.7	100.0
Unemployed	329.9	26.3	25.3	2.0	6.8	40.8	43.1	5.8	1.4	100.0
Not in the labour force	536.9	27.0	25.7	2.4	11.4	41.0	40.3	3.5	1.4	100.0
Gross annual household income										
Less than \$10 400	326.7	27.4	26.0	5.8	11.8	40.5	35.7	4.8	1.4	100.0
\$10 400–\$25 999	1 061.8	27.0	25.7	2.1	10.5	45.3	35.9	4.9	1.2	100.0
\$26 000–\$51 999	1 771.4	26.7	25.6	1.4	7.7	40.3	45.0	4.9	0.7	100.0
\$52 000 or more	2 082.1	26.7	25.7	0.7	9.1	39.6	43.3	6.6	0.8	100.0
Not stated/not known	821.9	26.9	25.6	1.4	10.0	43.8	42.3	2.4	0.1	100.0
Self-assessed health status										
Excellent	1 165.4	25.9	24.8	1.2	7.8	43.5	41.2	5.8	0.4	100.0
Very good	2 243.7	26.5	25.4	0.8	8.3	39.7	46.2	4.5	0.5	100.0
Good	1 705.5	27.3	26.1	1.7	9.3	40.8	41.4	5.7	1.1	100.0
Fair	740.1	27.8	26.4	3.5	12.1	43.6	34.8	4.6	1.5	100.0
Poor	209.3	28.2	26.7	2.5	16.7	45.5	30.3	4.5	0.5	100.0
All males(d)	6 064.0	26.8	25.7	1.5	9.2	41.4	42.0	5.1	0.8	100.0

(a) Reported Body Mass Index minus measured Body Mass Index, i.e. a positive score indicates that reported was larger than measured.

(b) Excludes those still at school.

(c) Persons aged 65 years or more.

(d) Number of persons differs from that shown in tables 7 and 12 due to different populations used: see paragraph 10 of Explanatory Notes.

BODY MASS INDEX DIFFERENCE(a).....

	Number of persons '000	Mean measured BMI score	Mean reported BMI score	-5 or more %	-3 to less than -5 %	-1 to less than -3 %	Between -1 and 1 %	1 to less than 3 %	3 or more %	Total %
FEMALES										
Country of birth										
Australia	4 198.0	25.8	24.5	2.4	10.6	43.7	38.8	3.9	0.5	100.0
New Zealand	96.3	24.6	23.4	1.4	9.6	47.0	37.1	4.9	—	100.0
Europe and the former USSR	956.3	26.0	24.6	2.2	12.4	40.2	40.1	4.3	0.7	100.0
Middle East	32.4	25.2	24.8	—	1.7	34.1	38.0	22.6	3.6	100.0
South-East Asia	146.2	23.4	22.3	4.0	4.2	48.5	33.1	9.9	0.3	100.0
Other Asia	104.1	23.7	22.7	2.4	3.0	46.0	40.9	7.6	—	100.0
All other countries	143.1	25.1	24.0	2.9	9.8	38.9	41.5	6.5	0.5	100.0
Age left school(b)										
Aged 15 years or less	2 186.3	27.0	25.4	3.8	12.2	44.2	35.2	4.0	0.6	100.0
Aged 16 or more — did not complete secondary	1 320.5	25.5	24.2	2.2	10.9	44.3	36.7	5.2	0.7	100.0
Aged 16 or more — completed secondary	2 142.2	24.5	23.4	1.1	8.5	41.2	44.5	4.4	0.3	100.0
Employment status										
Not asked(c)	966.6	26.9	24.7	6.5	19.1	49.0	23.1	2.0	0.3	100.0
Employed	3 090.5	25.0	23.9	1.2	7.9	41.8	43.9	4.8	0.5	100.0
Unemployed	187.7	24.7	23.6	0.7	14.2	34.6	44.4	5.7	0.4	100.0
Not in the labour force	1 431.8	26.5	25.3	2.4	9.9	43.4	38.4	5.1	0.8	100.0
Gross annual household income										
Less than \$10 400	443.4	26.5	24.6	7.2	15.1	45.0	29.3	3.0	0.4	100.0
\$10 400–\$25 999	1 252.8	26.5	25.0	3.0	13.3	43.5	35.6	3.9	0.8	100.0
\$26 000–\$51 999	1 533.0	25.6	24.4	2.2	8.7	41.5	41.7	5.1	0.8	100.0
\$52 000 or more	1 660.2	25.0	23.8	0.9	8.0	44.5	41.7	4.7	0.2	100.0
Not stated/not known	787.1	25.6	24.1	2.4	2.4	42.1	38.7	4.1	0.3	100.0
Self-assessed health status										
Excellent	1 083.5	24.7	23.4	2.1	8.4	45.7	39.5	4.0	0.4	100.0
Very good	2 166.8	25.2	24.0	1.5	9.3	41.3	43.2	4.4	0.2	100.0
Good	1 564.6	26.1	24.7	2.6	11.5	44.7	35.1	5.4	0.6	100.0
Fair	78.7	27.5	25.9	4.6	15.2	42.2	33.2	3.3	1.6	100.0
Poor	182.9	27.8	26.2	4.7	11.6	40.1	40.0	2.6	1.0	100.0
All females(d)	5 676.5	25.7	24.4	2.4	10.5	43.2	39.0	4.4	0.5	100.0

(a) Reported Body Mass Index minus measured Body Mass Index, i.e. a positive score indicates that reported was larger than measured.

(b) Excludes those still at school.

(c) Persons aged 65 years or more.

(d) Number of persons differs from that shown in tables 7 and 12 due to different populations used: see paragraph 10 of Explanatory Notes.

SELF-ASSESSED WEIGHT.....

	<i>Underweight</i>	<i>Acceptable weight</i>	<i>Overweight</i>	<i>Total</i>
<i>Body Mass Index</i>	%	%	%	%
MALES				
Reported				
Less than 18.5	13.8	0.6	—	1.1
18.5 to less than 20.0	29.2	3.1	0.2	3.6
20.0 to less than 22.5	36.5	21.6	0.9	15.7
22.5 to less than 25.0	17.3	38.0	9.0	27.4
25.0 to less than 27.5	1.7	26.5	30.0	26.2
27.5 to less than 30.0	0.9	7.8	30.1	14.7
30.0 or more	0.6	2.4	29.8	11.2
Measured				
Less than 18.5	8.8	0.3	—	0.7
18.5 to less than 20.0	23.3	1.8	—	2.4
20.0 to less than 22.5	42.0	12.8	0.2	10.3
22.5 to less than 25.0	20.3	32.9	3.5	22.6
25.0 to less than 27.5	3.0	31.8	18.4	25.8
27.5 to less than 30.0	1.7	15.5	32.3	20.2
30.0 or more	0.8	4.9	45.5	17.9
Total	100.0	100.0	100.0	100.0
FEMALES				
Reported				
Less than 18.5	51.8	6.1	0.2	5.3
18.5 to less than 20.0	22.6	15.6	0.3	9.7
20.0 to less than 22.5	20.3	40.5	6.6	26.2
22.5 to less than 25.0	3.3	25.3	20.1	22.5
25.0 to less than 27.5	1.5	9.3	26.6	16.0
27.5 to less than 30.0	—	2.1	19.4	8.9
30.0 or more	0.4	1.1	26.7	11.3
Measured				
Less than 18.5	34.2	2.3	0.1	2.5
18.5 to less than 20.0	24.2	9.6	0.2	6.4
20.0 to less than 22.5	32.8	32.5	2.6	20.5
22.5 to less than 25.0	5.2	32.3	12.7	23.5
25.0 to less than 27.5	2.6	15.3	23.2	18.1
27.5 to less than 30.0	0.5	5.5	22.8	12.3
30.0 or more	0.4	2.5	38.3	16.7
Total	100.0	100.0	100.0	100.0

(a) See Glossary.

SELF-ASSESSED WEIGHT.....				
	<i>Underweight</i>	<i>Acceptable weight</i>	<i>Overweight</i>	<i>Total</i>
<i>Body Mass Index(b)</i>	%	%	%	%
MALES				
Reported				
Underweight	42.9	3.7	0.2	4.8
Acceptable weight	53.8	59.6	10.0	43.1
Overweight	2.6	34.3	60.1	40.9
Obese	0.6	2.4	29.8	11.2
Measured				
Underweight	32.1	2.1	—	3.1
Acceptable weight	62.3	45.7	3.7	32.9
Overweight	4.8	47.3	50.7	46.1
Obese	0.8	4.9	45.5	17.9
Total	100.0	100.0	100.0	100.0
FEMALES				
Reported				
Underweight	74.4	21.7	0.5	15.0
Acceptable weight	23.6	65.8	26.8	48.7
Overweight	1.5	11.4	46.0	24.9
Obese	0.4	1.1	26.7	11.3
Measured				
Underweight	58.4	11.9	0.3	8.9
Acceptable weight	38.0	64.8	15.3	44.1
Overweight	3.1	20.8	46.1	30.3
Obese	0.4	2.5	38.3	16.7
Total	100.0	100.0	100.0	100.0

(a) See Glossary.

(b) Categories based on National Health and Medical Research Council guidelines.

EXPLANATORY NOTES

INTRODUCTION

1 The 1995 National Health Survey (NHS) obtained a range of health information from a dwelling-based national sample of approximately 53,800 people. The survey collected information about the health status of Australians, actions they had taken for their health, and health-related lifestyle behaviours. Respondents aged 15 years or more were asked how tall they were (without shoes), how much they weighed, and whether they considered themselves to be underweight, acceptable weight or overweight. Information was recorded by interviewers 'as reported' by respondents. Responses given in imperial units were converted to metric equivalents during data processing. Body Mass Index (BMI) was derived during processing from the reported height and weight information. Further information about the NHS is contained in *National Health Survey: Users' Guide, 1995* (Cat. no. 4363.0).

2 The National Nutrition Survey (NNS) was conducted in association with the NHS on a subsample of NHS respondents. At the completion of their NHS interview, selected NHS respondents were invited to participate in the NNS. There were 13,858 respondents aged 2 years and over who agreed to participate. The NNS interview was conducted by a trained nutritionist and information was collected about food and beverage consumption, nutrient intake, eating habits and diet attitudes. Physical measures including height, weight, and waist and hip circumference were taken with the respondents consent. Pregnant women were excluded from this component of the survey. Protocols for taking physical measurements were developed for the survey based on the 1989 Risk Factor Prevalence Study and a draft World Health Organisation protocol. Details of the instruments used and measures taken are contained in paragraph 15. Further information is contained in *National Nutrition Survey: Users' Guide, 1995* (Cat. no. 4801.0).

3 The collection of both reported and measured characteristics for a large and representative population sample provided a rare opportunity to investigate the quality of self-reported data. The analysis reported in this publication compares reported and measured height and weight, and the derived BMI score in each case, to determine the accuracy of self-reported measures overall, and to investigate how the accuracy varies according to demographic, socioeconomic and physical characteristics.

4 Although reported and measured data were available for persons aged 15 years or more, the analysis presented in this publication refers only the persons aged 18 years or more. Limited information about persons aged 15–17 years is contained in Appendix 1.

SCOPE

5 The estimates contained in this publication are based on information obtained from residents of a sample of private dwellings (houses, flats, etc.) and from some types of non-private dwellings (hotels, motels, and boarding houses). Other special dwellings, such as hospitals, nursing homes and prisons were excluded from the survey.

6 Households were selected at random using a stratified multistage area sample which ensured that persons within each State and Territory had a known and, in the main, equal chance of selection in the survey.

7 Certain groups of persons such as non-Australian diplomatic personnel, persons from overseas holidaying in Australia, members of non-Australian defence forces and their dependents stationed in Australia, and students at boarding schools were excluded from the survey.

RECORDS USED IN ANALYSIS

8 Of the 13,858 respondents to the NNS aged 2 years and over, some 11,199 aged 15 years and over could be matched with records from the NHS. Reported height and weight were collected in the NHS only for persons aged 15 years or more. From those matched records, persons aged 15–17 years were excluded from the analysis, together with certain other records, because data were missing, differences between reported and measured data were too great or for other reasons. These exclusions are described in Appendix 1.

9 After these records were removed 10,124 records (of persons aged 18 years or more) remained for analysis of height, 9,878 for analysis of weight, and 9,599 for analysis of BMI. Results of the analysis are expressed in terms of weighted estimates derived from these records and proportions based on weighted estimates. Data were weighted using NNS weights: the weights were not adjusted to account for the records omitted from the analysis. As a result, the weighed estimates are below those otherwise released from these surveys. This is not expected to have significantly affected the results of this analysis: i.e. the distributions shown are valid. A table showing person records included in the analysis, together with the weighted estimates is provided in Appendix 1.

10 As a result of differences in the numbers of records included in the analysis, some differences occur between tables in the numbers or proportions shown, depending on whether height, weight or BMI was being analysed. For example, tables relating to height (without weight or BMI) are based on the 10,124 records for which height data were available, but tables cross-classifying height by weight are based on the 9,599 records for which both height and weight data were available.

RELIABILITY OF ESTIMATES

11 Since the estimates in this publication are based on a sample they are subject to sampling variability. Only estimates with relative standard errors less than 25% are considered sufficiently reliable for most purposes. Information about the calculation of standard errors is published in *National Health Survey: Summary of Results*, (Cat. no. 4364.0) and *National Nutrition Survey: Users' Guide, 1995* (Cat. no. 4801.0).

12 In addition to sampling error, the estimates are subject to non-sampling errors. These may be caused by errors in reporting (e.g. because some answers were based on memory, or because of misunderstanding or unwillingness of respondents to reveal all details) or errors arising during processing (e.g. coding, data recording). Respondent issues which may effect the reliability of data presented in this analysis include general privacy concerns, reluctance to accurately report, embarrassment about their weight, or the presence of other household members during the NHS interview. Among older respondents there was a clear tendency to report their height, in particular, as it was when they were younger. For weight, the delay of usually two to three weeks between the NHS and NNS interviews may also have contributed to the differences noted.

13 There was a tendency among respondents to report their height and weight in imperial rather than metric units, and to round-off their height and weight when reporting. Among males included in the analysis, 76% reported their height in feet/inches and 37% reported their weight in stone/pounds; among females proportions were 81% and 40% respectively. Graphs showing the distribution of reported height and weight by sex and whether reported in imperial or metric units are provided in Appendix 2. Particularly for weight, there was a marked tendency for respondents who reported their weight in metric units to respond in multiples of 5 kg: around 40% of both males and females. Those who reported in imperial units tended to report in terms of half-stone units, particularly among males. For height, the distributions suggest that even where people reported in metric units, they were reporting a metric equivalent of their height assessed in imperial units, rather than a metric-based assessment. These factors, together with other features of the reporting patterns, will have contributed to differences between reported and measured height and weight described in this publication.

14 Also affecting the results described in this publication is the difference in the level of precision at which reported and measured data were recorded in the surveys. In the NHS, height data were recorded in centimetres or feet/inches; as no provision was made to record part centimetres or inches, responses were rounded to the nearest centimetre or inch. In the NNS, measured height was the average of two measurements in centimetres, expressed to two decimal places. Similarly for weight, self-reported responses which included part kilogram or part pounds were rounded to the nearest kilogram or pound when data were recorded in the NHS. In contrast, measured weight was recorded to 0.1 of a kilogram. In effect this means that differences of up to plus or minus 3 cm in height, and up to plus or minus 1 kg in weight may be in part attributable to the different recording methods used. However, it seems unlikely that this was a major cause of the differences noted, given the reporting behaviours described in paragraph 13.

15 Measured height and weight information was obtained in the NNS as follows:

- Participants were measured without shoes on a level floor. A Masonite board was used if the floor was carpeted. The instrument used was a specially manufactured portable stadiometer, incorporating a metal base plate, an extended head piece with a spirit level attached, and a locking, steel measuring tape graduated in millimetres. Two measurements were taken with the person standing with heels together and head positioned in the Frankfort plane. Measurements were recorded to the nearest 0.1 cm. A third measurement was taken if the first two measurements differed by 0.5 cm or more. A single height value was calculated from the measurements taken. In cases where height could not be measured, the reasons were recorded: refused measurement, could not stand unaided or upright, could not stand still, headwear/hair interferes, other.
- The scales used to measure weight were Tanita™ Model 1597 (System 502) digital platform scales reading to 139.9 kg. All scales were checked by the interviewer once each day using a standardised 5 kg weight. No adjustments were required to the scales throughout the survey. The scales were placed on a hard flat surface, or if this was unavailable, on the Masonite board carried by the interviewer. Where possible respondents were measured wearing only a single layer of light indoor clothing and without shoes. One measurement was taken and recorded to the nearest 0.1 kg. If a person weighed 140.0 kg or more this was recorded as over the limit of the scales.

EXPLANATORY NOTES *continued*

INTERPRETATION OF RESULTS

16 BMI data from the 1995 NHS initially released were incorrectly derived, with the result that a proportion of people were incorrectly classified to the acceptable weight category instead of the overweight category. This error has been corrected in the NHS-based BMI data presented in this publication.

17 For consistency in this publication, differences between reported and measured height, weight and BMI scores have been grouped using the same range groupings. However, the orders of magnitude these ranges represent differ between height, weight and BMI. For example, a difference of between -1 and +1 is relatively smaller for height than for weight or BMI score, as shown below. As a result care should be taken in making comparisons based on these ranges of differences in reported and measured values between height, weight and BMI.

Measured units	Height	Weight	BMI score
MEAN MEASURED VALUES			
	cm	kg	score units
Males	174.8	82.0	26.8
Females	161.4	67.0	25.7
ONE UNIT AS A PERCENTAGE OF MEANS			
	%	%	%
Males	0.6	1.2	3.7
Females	0.6	1.5	3.9

RELATED PUBLICATIONS

18 This publication is one of a series of publications and other releases of information from the 1995 NHS. Information about all the publications and other products released, or to be released, is contained in the brochure *National Health Survey: Guide to Products and Services* which is available free of charge from any office of the ABS. Other ABS publications which may be of interest include:

National Health Survey: Summary of Results, 1995 (Cat. no. 4364.0)

National Nutrition Survey: Foods Eaten, Australia, 1995 (Cat. no. 4804.0)

National Nutrition Survey: Nutrient Intake, Australia, 1995 (Cat. no. 4805.0)

National Nutrition Survey: Selected Highlights, Australia, 1995 (Cat. no. 4802.0)

Occasional Paper: Overweight and Obesity, Indigenous Australians, 1994 (Cat. no. 4702.0).

19 Current publications produced by the ABS are listed in the *Catalogue of Publications and Products* (Cat. no. 1101.0). The ABS also issues, on Tuesdays and Fridays, a *Release Advice* (Cat. no. 1105.0) which lists publications to be released in the next few days. The Catalogue and Release Advice are available from any ABS office.

20 Other unpublished height, weight and BMI data may be available on request. Inquiries should be made to the contact shown at the front of this publication.

APPENDIX 1 PERSONS INCLUDED IN ANALYSIS

INTRODUCTION

The analysis in this publication refers to persons aged 18 years or more. While data were obtained for persons aged 15–17 years, records for these persons were excluded from the analysis together with certain other records which were incomplete, or contained large differences between reported and measured values (i.e. their inclusion may have skewed results). These exclusions are described below.

PERSONS AGED 15–17 YEARS

NHS respondents aged 15–17 years could, with the approval of a parent or guardian, answer survey questions themselves, or have questions answered by proxy, usually by a parent or guardian. Data were obtained by proxy for 33% of respondents in this age group: 36% of males and 31% of females. Of females aged 15–17 years, 67% of those reporting on their own behalf reported their height to within 3 cm of their measured height compared with 64% of those for whom data were collected by proxy. The proportions of females for whom reported weight were within 3 kg were 64% and 57% respectively. For males differences were generally greater. For example, while 62% reported their height to within 3 cm of its measured value, only 42% of those for whom the data were collected by proxy were within the range and nearly 15% of proxy interviews overestimated height by 7 cm or more. Two-thirds of males reported their weight within 3 kg while only 43% of those reporting by proxy did so. Fewer males (24%) under reported their weight by 3 kg or more than those answering by proxy (39%).

As a result of the divergence between self-reported data and data obtained by proxy, together with the large percentage of respondents in this age group for whom data were obtained by proxy, persons aged 15–17 years were excluded from the analysis in this publication.

PERSONS AGED 15–17 YEARS, Height Difference—By type of interview

DIFFERENCE(a) (cm).....										
	-7 or more	-5 to less than -7	-3 to less than -5	-1 to less than -3	Between -1 and 1	1 to less than 3	3 to less than 5	5 to less than 7	7 or more	Total
Type of interview	%	%	%	%	%	%	%	%	%	%
MALES										
Personal interview	1.1	1.9	2.3	20.8	21.1	20.3	14.5	12.5	5.5	100.0
Interview by proxy	—	5.7	12.7	12.6	14.4	15.0	18.3	6.5	14.8	100.0
All interviews	0.8	3.1	5.7	18.1	18.9	18.5	15.7	10.5	8.6	100.0
FEMALES										
Personal interview	—	0.6	5.7	20.6	29.5	16.8	11.7	6.2	9.0	100.0
Interview by proxy	—	—	9.1	19.4	18.1	26.5	12.5	5.6	8.8	100.0
All interviews	—	0.4	6.7	20.2	26.1	19.7	11.9	6.0	8.9	100.0

(a) Reported height minus measured height, i.e. a positive score indicates that reported was larger than measured.

APPENDIX 1 PERSONS INCLUDED IN ANALYSIS *continued*

PERSONS AGED 15–17 YEARS, Weight Difference—By type of interview

Type of interview	DIFFERENCE(a) (kg)									Total
	–7 or more	–5 to less than –7	–3 to less than –5	–1 to less than –3	Between –1 and 1	1 to less than 3	3 to less than 5	5 to less than 7	7 or more	
	%	%	%	%	%	%	%	%	%	%
MALES										
Personal interview	8.4	3.9	12.1	29.3	26.5	10.2	6.7	1.8	1.1	100.0
Interview by proxy	10.0	10.1	19.3	7.8	16.4	19.0	4.8	2.5	10.0	100.0
All interviews	8.9	5.9	14.4	22.6	23.3	13.0	6.1	2.0	3.9	100.0
FEMALES										
Personal interview	6.1	6.6	21.7	32.9	23.2	8.0	—	1.4	0.1	100.0
Interview by proxy	7.1	3.6	21.5	25.3	13.7	18.3	3.9	1.4	5.4	100.0
All interviews	6.3	5.8	21.7	30.9	20.7	10.7	1.0	1.4	1.5	100.0

(a) Reported weight minus measured weight, i.e. a positive score indicates that reported was larger than measured.

INCOMPLETE/INCORRECT RECORDS

Those who did not report their height and/or weight in the NHS were excluded as were those who were unable to be measured in the NNS. Also excluded were those with a difference between reported and measured height and/or weight of more than four standard errors. This approach was previously used in a 1993 report of the Australian Institute of Health and Welfare¹.

A higher proportion of females than males were excluded by this process: for example, 7% of males and 14% of females were excluded from the analysis of BMI. Proportionally more people were excluded due to problems with their weight data than with height data and proportionally more were in the younger (18–24 years) and older (65 years or more) age groups.

¹ A. Waters, *Assessment of self-reported height and weight and their use in the determination of body mass index*, Australian Institute of Health and Welfare, Canberra, 1993.

APPENDIX 1 PERSONS INCLUDED IN ANALYSIS *continued*

PERSONS AGED 18 YEARS AND OVER, Records Deleted from the Analysis

Age group (years)	HEIGHT RECORDS.....			WEIGHT RECORDS.....			BMI RECORDS.....		
	<i>Not stated/ not known</i>	<i>Difference >4 standard errors</i>	<i>Valid records</i>	<i>Not stated/ not known</i>	<i>Difference >4 standard errors</i>	<i>Valid records</i>	<i>Height and/or weight records deleted</i>	<i>Valid records</i>	<i>All records</i>
no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
MALES									
18-24	27	1	502	34	4	492	55	475	530
25-44	55	10	2 048	101	13	1 999	151	1 962	2 113
45-64	25	4	1 500	46	7	1 476	67	1 462	1 529
65 and over	45	6	836	48	4	835	80	807	887
Total	152	21	4 886	229	28	4 802	353	4 706	5 059
FEMALES									
18-24	82	4	549	92	9	534	137	498	635
25-44	180	6	2 159	268	14	2 063	314	2 031	2 345
45-64	59	6	1 619	121	9	1 554	164	1 520	1 684
65 and over	115	16	911	111	6	925	198	844	1 042
Total	436	32	5 238	592	38	5 076	813	4 893	5 706

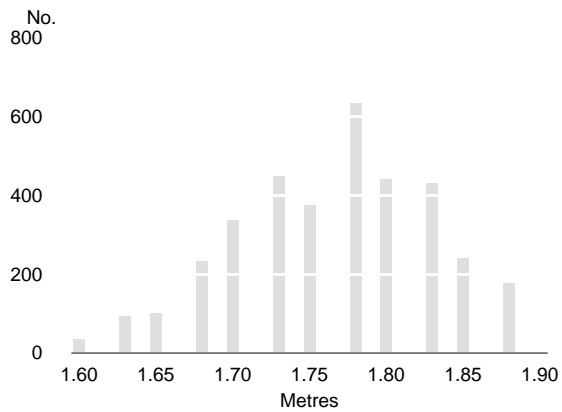
APPENDIX 1 PERSONS INCLUDED IN ANALYSIS *continued*

After the exclusions noted above, the numbers of records used in the analysis and corresponding weighted estimates are shown in the table below.

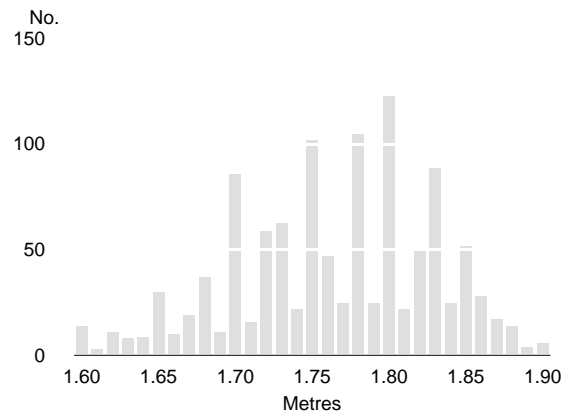
Dimension	AGE GROUP (YEARS).....				Total
	18-24	25-44	45-64	65 and over	
MALES					
Height					
Record count (no.)	502	2 048	1 500	836	4 886
Weighted estimates ('000)	914.3	2 684.3	1 843.6	863.3	6 305.5
Weight					
Record count (no.)	492	1 999	1 476	835	4 802
Weighted estimates ('000)	885.1	2 617.0	1 812.9	869.7	6 184.8
BMI					
Record count (no.)	475	1 962	1 462	807	4 706
Weighted estimates ('000)	855.6	2 570.3	1 800.3	837.8	6 064.0
FEMALES					
Height					
Record count (no.)	549	2 159	1 619	911	5 238
Weighted estimates ('000)	828.0	2 541.5	1 703.3	1 045.1	6 117.9
Weight					
Record count (no.)	534	2 063	1 554	925	5 076
Weighted estimates ('000)	786.2	2 417.5	1 620.0	1 064.1	5 887.7
BMI					
Record count (no.)	498	2 031	1 520	844	4 893
Weighted estimates ('000)	741.4	2 382.4	1 586.1	966.6	5 676.5

APPENDIX 2 RESPONDENTS' REPORTED HEIGHT

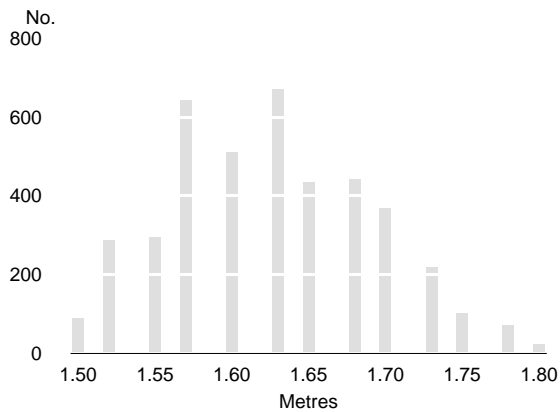
Males reporting in imperial units



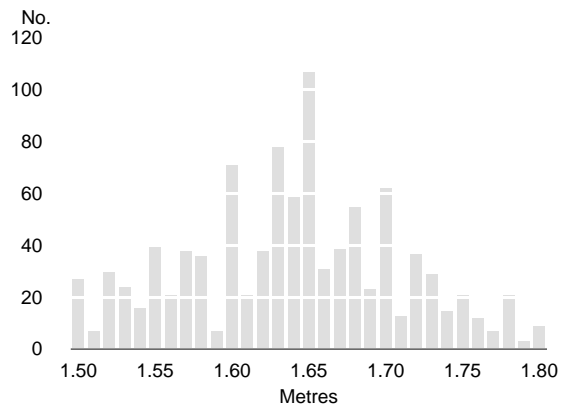
Males reporting in metric units



Females reporting in imperial units

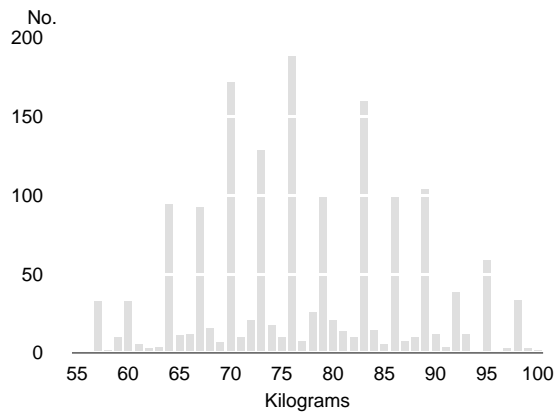


Females reporting in metric units

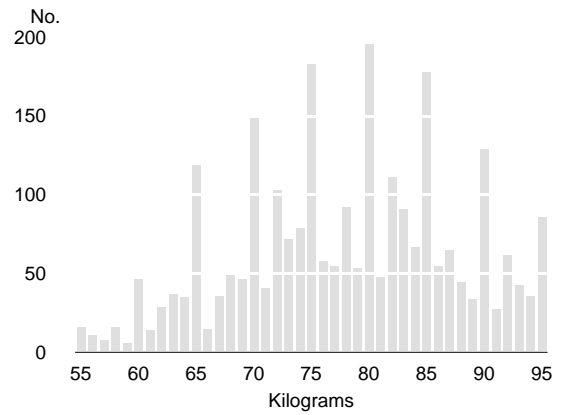


APPENDIX 3 RESPONDENTS' REPORTED WEIGHT

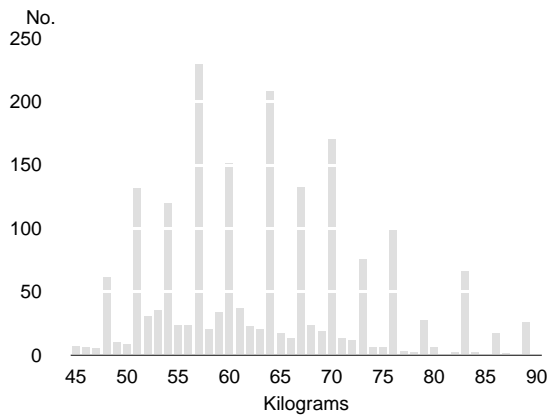
Males reporting in imperial units



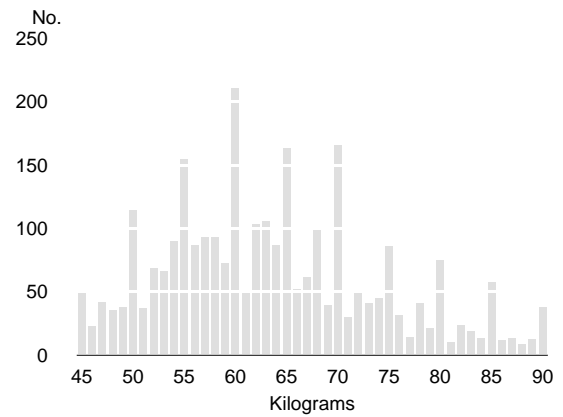
Males reporting in metric units



Females reporting in imperial units



Females reporting in metric units



GLOSSARY

Body Mass Index (BMI)

BMI is a measure of weight in relation to height. In adults it is largely independent of height and for this reason is widely used as an indicator of both underweight and overweight. BMI values above the acceptable range are associated with increased risk for conditions such as heart disease, high blood pressure and diabetes, particularly when linked with other lifestyle factors including lack of exercise and smoking. BMI values below the acceptable range are associated with an increased risk of eating disorders, especially in younger women.

BMI, also known as Quetelet's index, is calculated as weight in kilograms divided by the square of height in metres. Scores produced can be grouped and categorised in different ways, as shown below.

BMI range	WHO(a) category	NHMRC(b) category
Less than 16.0	Severe thinness (grade 3)	Underweight
16.0 less than 17.0	Moderate thinness (grade 2)	Underweight
17.0 less than 18.5	Mild thinness (grade 1)	Underweight
18.5 less than 20.0	Acceptable weight	Underweight
20.0 less than 25.0	Acceptable weight	Acceptable weight
25.0 less than 30.0	Overweight (grade 1)	Overweight
30.0 less than 40.0	Obese (grade 2)	Obese
40 or more	Obese (grade 3)	Obese

(a) WHO Expert Committee on Physical Status, *The Use and Interpretation of Anthropometry*, WHO Technical Report Series 854, WHO, Geneva, 1995.

(b) National Health and Medical Research Council, *Reports of the 98th and 100th sessions*, AGPS, Canberra, 1984 and 1985.

Body Mass Index (measured)

Derived from measured height and weight recorded in the National Nutrition Survey.

Body Mass Index (reported)

Derived from reported height and weight recorded in the National Health Survey.

Height (measured)

In the National Nutrition Survey, with the exception of women who identified they were pregnant (for whom no measurements were taken), height was measured for all consenting respondents who were able to stand upright and stand still long enough for their height to be measured. For details of the method used to measure height, see paragraph 15 of Explanatory Notes.

Height (reported)

Height, without shoes, as reported by respondents. Responses were recorded in whatever units the respondent stated, centimetres or feet and inches. Responses involving part inches were rounded down to the next whole inch. All answers were converted to centimetres in subsequent processing.

- Self-assessed weight group** Refers to respondent's perception of their own weight, reported against a three point scale: acceptable weight, underweight, overweight.
- Weight (measured)** In the National Nutrition Survey, weight was measured for all consenting respondents except women who identified that they were pregnant. In some cases, weight could not be measured and the reason was recorded as one of: refused measurement, unable to stand on scales, amputee wearing prosthesis, other. For details of the method used to measure weight, see paragraph 15 of Explanatory Notes.
- Weight (reported)** Weight, as reported by respondents, recorded in whole kilograms, stones and pounds, or pounds. Data were converted to whole kilograms in subsequent processing. If a respondent was pregnant her usual non-pregnant weight was recorded.

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