

Physical activity and energy balance

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INTRODUCTION

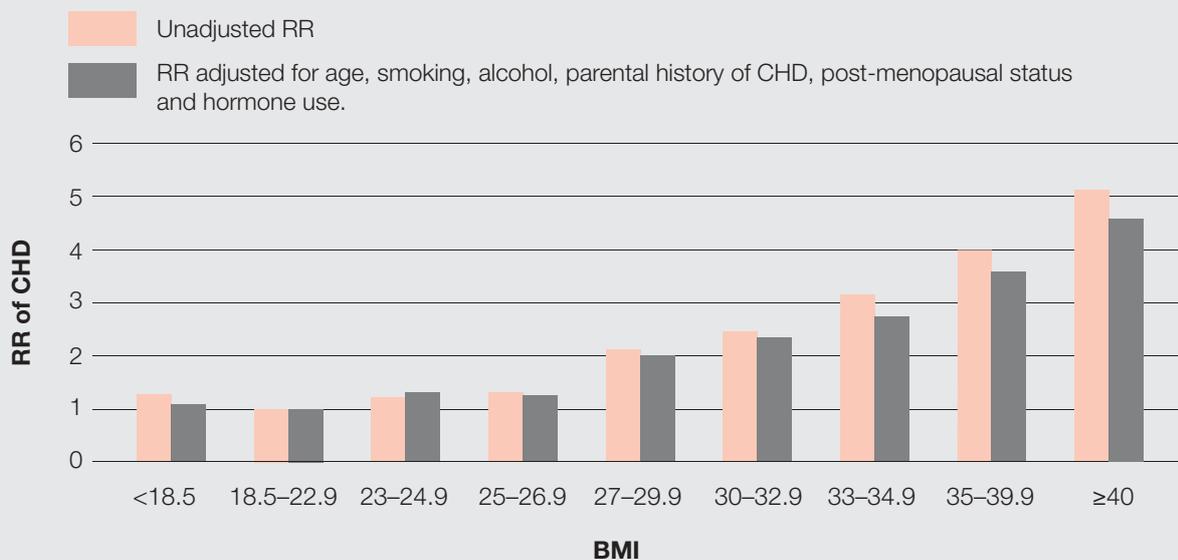
This quick reference guide aims to assist health professionals provide advice to adults regarding the role of physical activity and energy balance in preventing weight gain.

BACKGROUND

- The average weight of Australian adults (age 18–70) has increased by 0.5–1 kg per year in the last 20 years.^{1,2}
- Most people do not notice small annual gains in weight—but over 20 years these gains can amount to an average increase of 10–20 kg.^{1,2}
- Each 10 kg increase translates to a significant increase in body mass index (BMI).
- Increases in BMI are associated with an exponential increase in the risk of developing cardiovascular disease, diabetes and other chronic conditions (see Figure 1).³

The figure below shows the relative risk of coronary heart disease (CHD) with increasing BMI in women taken from the Nurses Health Study.³ A similar trend has been found in men.⁴ The light bars show unadjusted relative risks (RRs); dark bars show RRs adjusted for age, smoking, alcohol, parental history of CHD, post-menopausal status and hormone use; n=121,700 women aged 30–55, with 20 years of follow-up.³

FIGURE 1: RELATIVE RISK (RR) OF CHD WITH INCREASING BMI IN WOMEN



ARE ALL AUSTRALIANS GAINING WEIGHT?

Data from the Australian Longitudinal Study on Women's Health^{1,5} and the Melbourne Collaborative Cohort Study² suggest that about 40% of young and mid-age adults are maintaining their weight within a ± 2.25 kg range. For women, those who are already overweight or obese are at increased risk of higher

rate of weight gain, but this may not be true for men. Overall, those who are gaining weight are likely to be gaining weight at a higher rate than the average because not everyone is gaining weight. Young adults — particularly young women in their 20s and 30s — are gaining weight more rapidly than older adults.^{5,6}

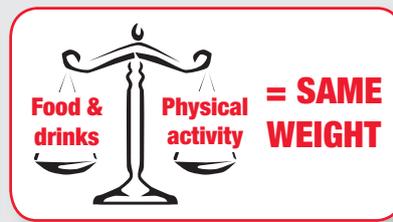
WHAT IS THE CAUSE OF WEIGHT GAIN IN THE AUSTRALIAN POPULATION?

Weight gain is caused by an imbalance between energy intake (food) and energy expenditure (activity) [Figure 2].

Although many factors contribute to individual differences in metabolism, it has been estimated that, at the population level, weight gain is caused by a modest positive energy balance.^{1,7,8}

At the individual level, the amounts of physical activity needed to prevent weight gain, and to lose weight, vary considerably.

FIGURE 2: AN IMBALANCE BETWEEN ENERGY INTAKE AND ENERGY EXPENDITURE LEADS TO WEIGHT GAIN OR LOSS



- If the amount of energy (kilojoules) you take into your body through food and drinks is more than you are using up through physical activity and daily activities, then you will gain weight.
- If you take in the same amount of energy (kilojoules) through food and drinks that you are using up through physical activity and daily activities, then your weight will stay the same.
- If the amount of energy (kilojoules) you take in through food and drinks is less than you are using up through physical activity and daily activities, then you will lose weight.

HOW CAN WEIGHT GAIN BE PREVENTED?

To prevent weight gain, energy intake must match energy expenditure.

Physical activity is a **key** strategy for preventing weight gain (as well as for weight maintenance and weight loss). It is also beneficial for general and heart health, regardless of body weight. Individuals of all body weights and sizes can benefit from participation in regular moderate-intensity physical activity (such as brisk walking), with or without weight loss.⁹

If energy intake is not excessive, 30 minutes of moderate-intensity physical activity every day is probably sufficient to prevent weight gain, providing sitting time is less than 4.5 hours/day.^{1,10,11,12} For people who sit for long hours in transport, at work or at home, energy balance can only be maintained if energy intake is reduced to match the low energy expenditure associated with long periods of sitting, or if activity levels are increased.

WHAT ABOUT WEIGHT LOSS?

Negative energy balance, where energy expenditure exceeds energy intake, results in weight loss. To achieve negative energy balance, it is recommended that energy intake is reduced AND energy expenditure is increased. Again, while the amount of physical activity necessary for weight loss varies from one individual to another, research suggests that *at least* 60 minutes of moderate-intensity physical activity (such as brisk walking) every day may be required in order to achieve measurable weight loss over a number of months.^{13,14} Physical activity has additional benefits, as it helps to maintain lean body mass

(muscle and bone), and increases resting (basal) metabolic rate, so that more energy is used, even at rest.

For prevention of weight gain and for weight loss, it is not essential or even necessary to do vigorous exercise. Every type of physical activity expends energy. Moderate-intensity weight-bearing activity such as brisk walking will result in fat loss. However, for those who are able, vigorous physical activity such as jogging or cycling is a more time-efficient way to expend energy, and also contributes to improvements in cardiorespiratory fitness.

SUMMARY OF RECOMMENDATIONS

- Thirty minutes of moderate-intensity physical activity (e.g. brisk walking) on most (preferably all) days of the week confers important health benefits for all individuals, regardless of body weight and shape. For people who sit less than 4–5 hours/day, this may be enough to prevent weight gain.
- For people with longer sitting hours (in transport, at work or at home), or for those wishing to lose weight, at least 60 minutes of moderate-intensity physical activity per day (e.g. brisk walking) may be required to maintain or lose weight.
- For those who are overweight and already physically active, it is important to stay active, even if they are not losing weight. Physical activity is still directly beneficial to heart health, regardless of whether or not it is accompanied by weight loss.
- For those who are overweight or gaining weight and wish to lose weight, it is recommended that they increase physical activity, reduce time spent sitting, *and* reduce energy intake (for more information refer to the Heart Foundation's weight booklet, *Losing Weight the Healthy Way*, or visit www.heartfoundation.org.au or call 1300 36 27 87).

SIMPLE IDEAS FOR MAINTAINING ENERGY BALANCE

Physical activity suggestions

- Be active in as many ways as possible, every day.
- Reduce sitting time – e.g. watch less television, limit computer screen time.
- Take every opportunity to be active e.g. take stairs, not the lift, walk for short neighbourhood trips and choose walking, cycling and public transport.
- Daily activity can be increased by making small changes throughout the day — these all add up. Don't forget, some activity is better than none, and more is better than a little.

Food and drink suggestions

- Drink plain water, plain mineral water or soda water instead of soft drink, fruit juice or alcohol.
- Eat smaller portion sizes.
- Make vegetables, fruit and legumes the main part of meals.
- Minimise high-energy foods (i.e. deep-fried foods, pastries, pizza, hamburgers, cakes, sweet biscuits, chocolate, confectionery and potato crisps).
- Choose wholegrain breads and cereals.

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For heart health information:
1300 36 27 87
www.heartfoundation.org.au