

SUMMARY

BACKGROUND

Overweight and obesity are in epidemic proportions throughout Australia: it is estimated that 67 per cent of adult males and 52 per cent of adult females were overweight or obese in 1999-2000. The figures are even higher for some ethnic and age groups.

This epidemic of overweight and obesity is part of a worldwide trend, and it is contributing to increasing levels of non-communicable metabolic and mechanically induced disorders such as diabetes, cardiovascular disease, joint problems, obstructive sleep apnoea, and some cancers.

While the causes of the problem are diverse, it is the interaction between humans' varying levels of genetic, cultural and socio-economic predisposition to weight gain, and an increasingly 'obesogenic' modern environment, that is propelling the epidemic and explains the inter-individual differences in response.

ASSESSMENT

As well as the assessment of weight related co-morbidities (such as dislipidaemia, hypertension and hyperglycaemia), clinical assessment of overweight and obesity requires two other important aspects: examining energy intake and physical activity levels to assess how energy imbalance has occurred; and considering the nature of the environment, personal reasons and other factors to understand why it has occurred.

Clinicians should take into account a person's weight history, background, family, work and social environments, the presence of medical co-morbidities, motivation and readiness to change, and the costs and benefits of weight loss before prescribing any treatment.

MEASUREMENT

There are no perfect measures of overweight and obesity in the clinical situation. The most useful absolute indicator of risk and relative change is a combination of anthropometric measures such as body mass index (BMI) or weight and waist circumference.

TREATMENT: GENERAL

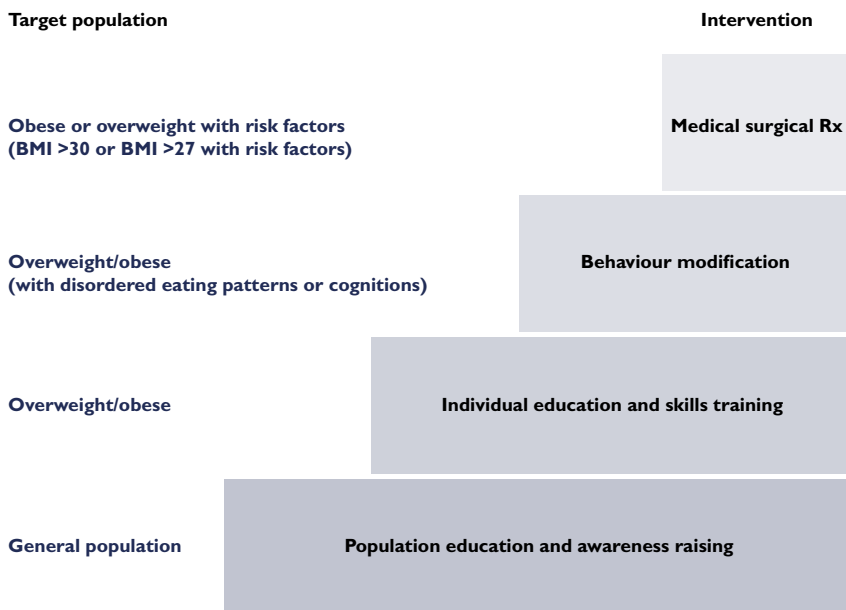
Obesity is a chronic problem. There is no single, effective treatment for all overweight and obese people, and the problem tends to recur after weight loss. Some treatments (such as surgery) may be more effective than others in terms of total weight loss in certain circumstances.

People’s expectations of weight loss often exceed the capabilities of available programs, making successful treatment more difficult. However, weight loss has a strongly beneficial effect on the co-morbidities of obesity, with the degree of benefit usually related to the amount of weight loss. Even a modest loss of 5 to 10 per cent of starting weight can result in significant health benefits.

All successful treatments involve some form of lifestyle change affecting energy intake (food) or energy expenditure (physical activity), or both. Among the aids to treatment are behaviour modification, some medications, low-energy or very low energy diets, and surgery.

Treatment can be considered in a step-wise fashion, as shown in the following figure. The bottom steps suggest that that the clinical role must be supported by public health measures for an integrated approach to the problem.

A stepped model for clinical management of overweight and obesity



Source: Reproduced with permission—reference 10, Chapter 4.

TREATMENT: ENERGY INTAKE

The effectiveness of any diet depends on the energy imbalance produced by a reduction in energy intake in relation to energy expenditure. This can be done in many ways, but some methods are more effective and have less deleterious effects than others.

A variety of diets involving a reduction in energy intake lead to short-term weight loss. The current evidence base indicates that low-fat ad libitum eating plans, resulting in a daily energy reduction of 2 to 4 megajoules a day, in combination with increased physical activity, appear to be the most effective for long-term weight loss. It is possible that the primary mechanism through which low-fat diets exert their influence is reduction of energy density. Other forms of low-energy density diets are being researched and may prove equally effective. However, the evidence is not currently available.

Low-energy (that is, 4 to 5 megajoules a day) and very low energy (1.7 to 3.3 megajoules a day) formula diets can lead to significant weight loss in the short term in motivated people under strict supervision. In the long term (say, five years), however, they result in no greater weight losses than an ad libitum low-fat eating plan.

TREATMENT: ENERGY EXPENDITURE

It is more difficult to cause an energy imbalance leading to short-term weight loss through physical activity than it is through dietary restriction. A regular pattern of physical activity is, however, one of the key factors involved in long-term maintenance of weight loss.

Lifestyle-based changes that increase the volume of physical activity (where volume = frequency x duration x time) significantly above the baseline level are likely to be best for long-term weight loss.

Regular, weight-bearing exercise (for example, walking) that the person enjoys is most effective for weight loss. A non-weight bearing form of activity (such as swimming, walking in water or cycling) may, however, be best for very immobile, obese patients until their level of fitness increases and weight-bearing activities can be more easily carried out.

TREATMENT: BEHAVIOURAL TREATMENTS

Behavioural therapy can increase the effectiveness of other weight-loss treatments, and the duration of the therapy influences the ability to maintain the weight loss.

No single behavioural therapy strategy appears to be superior for long-term weight loss.

TREATMENT: PHARMACOTHERAPY

There are currently four prescription medications that have been approved by the Therapeutic Goods Administration for use in Australia—phentermine, diethylpropion, orlistat and sibutramine—and may offer benefits as adjunct therapy for weight loss in people with a BMI greater than 30 or greater than 27 with co-morbidities. Of these, phentermine and diethylpropion are indicated only for short-term use.

Some antidepressant medications help some people lose weight.

TREATMENT: SURGERY

Surgery—mainly of the types that restrict the intake or absorption of food—is the most effective weight-loss treatment in severely obese patients. In general, surgery is indicated for patients with a BMI greater than 40 or with a BMI greater than 35 and serious medical co-morbidities, although it is increasingly being used in patients with BMIs lower than this.

Surgically induced weight loss results in a marked reduction in some of the co-morbidities associated with obesity (particularly diabetes) and an improvement in quality of life.

Although it may appear expensive relative to other treatments, obesity surgery is one of the most cost-effective treatments available.

ALTERNATIVE TREATMENTS

At present no herbal or other over-the-counter supplements demonstrate sufficient evidence of long-term weight loss and lack of significant side effects.

DEALING WITH CO-MORBIDITIES

The severity of a co-morbidity will determine the type of treatment, but weight loss should nevertheless be a primary consideration when dealing with all co-morbidities related to obesity.

In cases of moderately elevated risk factors (such as raised blood sugars or cholesterol), attempts should be made to manage weight through lifestyle change before resorting to more intensive treatments.

SUMMARY OF TREATMENTS

The following table summarises the effect of weight-loss treatments in overweight or obese adults.

The effects of weight-loss treatments in overweight or obese adults: a summary

Treatment	Weight loss/gain (kg) over 1-2 years ^a	Weight loss/gain (kg) over >2 years ^a	Ability to prevent regain?
No treatment ^b	-0.2	+1.9 over 3-6 years	No
Diet			
Ad lib low-fat diet	-3.9 (-2.3 to -6.1) -4.4%	-2.7 (-3.6 to -1.8) over 3-6 years	Yes, to some degree
Low-energy diet	-6.7 (-12.2 to +0.4) -6.9%	-1.1 (-4.1 to +2.7) over 4-5 years	No
Very low energy diet	-16.3 (-8.6 to 25.6) ^c -14.7% ^c -4.2 (-8.6 to +0.5) ^d -4.0% ^d -11.8 (-9.2 to -14.2) ^e -11.0% ^e	-4.1 (-7.9 to +1.0) over 3-5 years	Yes, to some degree in some individuals if combined with a lifestyle-modification program
Meal replacement	-5.5 (-3.0 to -7.7) -6.0%	-6.5 (-4.2 to -9.5) over 4-5 years	Yes, based on limited evidence
Low-glycaemic index, high-protein or high-mono-unsaturated fatty acid diets	Not known	Not known	Not known
Physical activity	-1.8 (-5.8 to +0.7) -2.1% ^f	-1.3 (-3.1 to +1.0) over 2-6 years	Yes, if 80 minutes or more of daily activity
Diet plus activity	-7.5 (-15.2 to -4.2) -8.1%	-3.1 (-9.9 to 0) over 2-6 years	Yes, to some degree
Behaviour	-4.7 (-12.9 to -0.2) -5.1%	-2.8 (-9.6 to -0.2) over 3-5 years	Yes, to some degree
Pharmacological			
Diethylpropion	-6.5 (-1.9 to -13.1)	Not known	Yes, while drug is taken
Phentermine	-6.3 (-3.6 to -8.8)	Not known	Yes, while drug is taken
Sibutramine	-5.6 (-7.9 to -3.8) 6.0%	Not known	Yes, while drug is taken
Sibutramine plus lifestyle modification	-10.8 (-16.6 to -5.2) 10.7%	Not known	Yes, while drug is taken
Orlistat plus a mildly hypocaloric diet	-8.4 (-13.1 to -6.2) ^g -8.6%	-6.9 ^h	Yes, while drug is taken with a normal energy diet
Surgery			
Gastric bypass	-46 (-53 to -35) -36%	-42 (-62 to -29) over 3-14 years	Yes
Biliopancreatic bypass	-53 (-62 to -42) -38%	-54 (-84 to -37) over 3-8 years	Yes
Non-adjustable gastroplasty	-41 (-63 to -25) -32%	-25 (-39 to -17) over 3-8 years	Some weight regain
Adjustable gastric banding	-31 (-46 to -22) -24%	-34 (-43 to -28) over 3-4 years	Yes

- a. Results expressed as mean weight loss, with range of weight loss in parentheses and % weight loss in italics.
 b. Based on the placebo arms of 31 treatment studies lasting 1-2 years and 8 studies lasting more than 2 years.
 c. After 4-20 weeks.
 d. After 1-2 years without diet or behavioural therapy.
 e. After 1-2 years with diet or behavioural therapy.
 f. With 3-5 hours of moderate or vigorous activity per week.
 g. Weight loss due to orlistat alone is 2.8 kilograms.
 h. Not yet published in peer-reviewed literature (abstract only)

Note: Most treatment studies have been carried out on people of European descent, predominantly female. Many obesity treatment studies report high attrition rates (see Appendixes B to G). These high attrition rates are not associated with any particular intervention. They diminish the effectiveness of weight-reduction programs and suggest caution in the interpretation of data based on the weight losses of people who remain in the programs.

Source: Randomised controlled trials reported in the literature cited throughout this publication.