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Helping patients lose weight

What works?

Background
Over one in two Australians are now overweight or obese. Weight loss is difficult for patients to achieve and maintain in the current 'obesogenic' environment. However, new developments have resulted in a number of strategies and methods with a good evidence base. A 5–10% reduction in weight can result in a 35% decrease in health risk.

Objective
This article discusses the evidence base behind weight loss strategies for use in clinical practice.

Discussion
Obesity treatments with good evidence include counselling and behavioural approaches, exercise based programs, pre-prepared low energy meals, meal replacement, and bariatric surgery (the most effective for long term weight loss). Medication can be useful in some settings. Limited data suggests commercial diets and self help may be of some benefit. Alternative noningestible treatments (eg. creams and body wrapping) and the majority of over-the-counter medications (with the notable exception of orlistat) have no convincing evidence for efficacy. All successful strategies include some form of lifestyle change resulting in a reduction in energy consumed versus energy expended. The most effective treatments are likely to involve combining and matching strategies to the characteristics of the patient.

Over one in two Australians are now overweight or obese[1] and obesity is causally linked to a range of metabolic diseases.[2] Therefore, weight loss knowledge is vital in general practice. A relatively small (ie. 5–10%) weight loss can result in a big (ie. 35%) reduction in metabolic risk.[3]

There is a vast amount of unproven information about weight loss available to the general public. However, there are some evidence based techniques available which can be applied to help achieve weight loss. These are categorised here into 10 strategies (*Figure 1*). Within each, there is a wide range of methods. These will not be delineated here. All successful strategies require a lifestyle change, so it is this which needs to be considered first.

Lifestyle modification

Energy balance is the core of all successful weight loss instruction. All effective treatments essentially involve a change in the balance of energy 'volume', or the amount of calories/kilojoules consumed, in relation to those expended. This is simply defined in both cases as shown in *Figure 2*.

The least understood of these components is probably energy density. This is defined as the number of kcals/kJ per gram of food or mL of fluid. Although not yet approved within any guidelines, an upper cutoff of <3 kcals (13 kJ)/g for food and >0.4 kcals (1.5 kJ)/g for drinks has been proposed, and a list of the energy density of Australian foods/drinks is now available.[4] Varying one factor in the equation shown in *Figure 1* can have a significant impact on total volume and hence, body weight. A method for calculating food and activity energy within an individual patient has been previously outlined in this journal,[5] and is available at www.professortrim.com/DAB-Q or www.lifestylemedicine.net.au.

Strategies for weight loss

Strategies with limited or no supporting evidence

(Most) over-the-counter products

Over-the-counter (OTC) weight loss products (available without prescription) are ingestible substances usually (but not always) derived from herbal or natural substances. Several reviews agree that despite their widespread use, there is no convincing evidence of efficacy for the majority of OTC products.[6–8] One notable exception is Xenical (orlistat) which began as a prescription medication and for which 4–5% of users maintain weight loss for 2–4 years.[9] In a review of 5 meta-analyses and 25 additional trials on 12 main herbal supplements,[7] the authors conclude that none of the currently available substances can be recommended for weight loss.

Alternative noningestible treatments

'Alternative' noningestible approaches to weight loss include creams, soaps, body wrapping, aromatherapy, acupuncture/acupressure.[7] Minor weight loss benefits have been reported with treatments such as hypnosis, which could have adjunct benefits (even as placebo) to other lifestyle change interventions. Other treatments in this category have no reliable evidence for efficacy in weight loss.

Strategies with some supporting evidence

Commercial diet oriented weight loss programs

Because of commercial concerns, few results of these programs are reported. One study compared the effects of self help with the Weight Watchers program in overweight and obese men and women.[10] After 26 weeks, subjects in the commercial program had greater decreases in body weight (–4.8 vs. –1.4 kg) and waist circumference (–4.3 vs. –0.7 cm) than those in the self help program. Limited data also suggest that male programs may have a higher success rate than female programs,[11] although getting men to participate in weight loss is difficult.[12] With the available data, it seems that commercial weight loss programs can lead to weight losses and weight loss maintenance in some individuals.

Self help

Self help in weight loss is difficult to evaluate. It includes self motivated lifestyle change, computer assisted interventions and packaged programs. Using the USA Weight Control Registry, Latner[13] claims that up to 45% of those who have lost weight and kept it off may have done so through self help. Take home kits, the internet and correspondence courses also claim moderate success.[14] Direction from a knowledgeable clinician following recommended practices[15] might assist individuals suited to a self help approach.

Strategies with good supporting evidence

Exercise based programs

An increase in physical activity has been found to be of particular value in maintaining weight loss.[16] Studies now show that exercise prescription (with diet) for weight loss should be for a minimum of around 150 minutes (2.5 hours) or 2500 kcal/week.[17] Using a pedometer, this equates to around 70 000 steps/week in an 80 kg person. Exercise alone is unlikely to be effective for weight loss until around 200–300 minutes (3.0–3.5 hour) or 3500 kcals/week (~90 000 steps/week) is expended with effects proportional to exercise volume. Data from the USA National Weight Control Registry suggests that exercise for weight loss maintenance in a postobese individual may need to be at around 60–80 mins/day of moderate activity (>100 000 steps/week) combined with a hypocaloric diet.[18] In summary, it seems that while exercise is a necessary component of any weight loss program, it is usually not sufficient (without diet), unless carried out at high levels.

Figure 1. Weight loss strategies

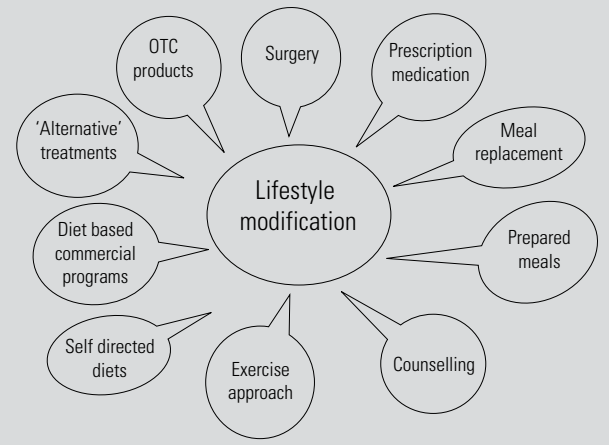
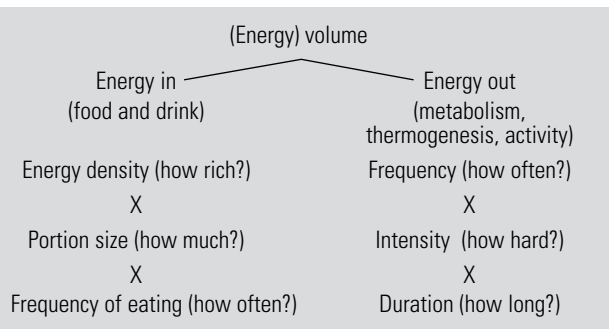


Figure 2. An energy 'volume' approach to energy balance



Counselling and behavioural approaches

Counselling can involve looking for deep causes of behavioural intransigence (inflexibility) or focus on eating and exercise behaviours based on the notion that because they are learned they can be modified. Techniques include self monitoring, stimulus control, problem solving, contingency management, cognitive restructuring, social support and stress management. These techniques add to the benefits of other forms of weight loss treatment[19] and should be a part of all weight loss interventions.

Pre-prepared low energy meals

A number of pre-prepared meal programs are commercially available. Meals are energy controlled and nutritionally balanced, enabling users

to objectify their energy intake. Such meals may be used as a total or partial substitute for adlib eating. They are useful for initial weight loss and (under the supervision of an experienced clinician) for 'refeeding' after more severe caloric restriction. A number of studies have shown positive benefits of pre-prepared meals,[20] although their use in combination with other strategies has not yet been widely studied. They are most likely to appeal to individuals with time limitations, lack of culinary skills and lack of nutritional knowledge.

Meal replacements

Meal replacements provide balanced nutrition in powdered form mixed as a drink or 'shake'. They were overlooked in the past for various reasons, but recent research suggests that meal replacements are safe, economical, can produce good weight losses, and can help reduce comorbidities.[21] They can be either low (eg. <1200 kcals/day) or very low (eg. <800 kcals/day) in energy and are usually used as a replacement for some, rather than all meals, or in combination with pre-prepared meals. For best effect, particularly to increase early motivation in patients, they should be used with close clinical supervision.

Prescribed medication

Although there is considerable literature on prescribed weight loss medications,[22] there are currently only a few options available. Sibutramine (Reductil) reduces hunger in cases where this is a genuine problem. Phentermine (Duromine) is an adrenergic stimulant, available only for short term prescription, which can be especially useful where quick weight loss is desired to increase motivation, or to help break through plateaus. Some antidepressant medications (selective serotonin re-uptake inhibitors [SSRIs]) have weight loss effects, while others tend to cause weight gain. Antidepressants may have particular benefit in relapse prevention. In summary, prescribed medication is useful, but should not be considered as mono therapy in the absence of lifestyle modification or other strategies.

Surgery

Bariatric surgery is currently the most effective strategy available for long term weight loss.[13] There are several types, the main forms of which (gastric banding, vertical banded gastroplasty and gastric bypass) involve the restriction of stomach size. This was thought to reduce weight by restricting the amount of food able to be ingested, but recent studies have shown that physical stimulation may induce hormonal hunger suppressant mediators. Like all other treatments, surgery is only effective when combined with lifestyle change.

Combining strategies

The most effective treatments are likely to involve combining and matching strategies to the characteristics of the patient. A key component of treatment is recognition of two main phases: immediate weight loss, and long term weight loss maintenance, which invariably require different treatment emphases.[23] Use of strategy mixes may also change between these phases. For example, a patient needing quick success for motivational purposes might be prescribed meal replacements or a prescription drug, then be gradually 'refed' with pre-prepared meals or a balanced low energy diet with a graduated exercise program. Counselling and lifestyle modification can be carried out throughout. Packaged, and internet programs with clinical backup can optimise the clinician's time commitment and reduce repetitive responses to patient problems.

Conclusion

Management of lifestyle based chronic diseases requires a 'mixing and matching' approach. The skill of the clinician is in choosing available, evidence based options suitable to the patient and, if necessary,

Table 1. National clinical guidelines for weight control and obesity management[14]

Adults	Children
Discuss weight with patient and whether measurements (height, weight, BMI, waist circumference) should be taken at this stage	Assess the extent of overweight or obesity in the child or adolescent in relation to other children at the same stage of development
Assess and treat comorbidities associated with weight and determine the patient's need to lose weight	Assess comorbidities associated with weight and treat these independently where appropriate
Ascertain the patient's readiness and motivation to lose weight	Assess why energy imbalance has occurred
Assess why energy imbalance has occurred	Assess how energy imbalance has occurred
Assess how energy imbalance has occurred	Determine the level of clinical intervention required
Determine the level of clinical intervention required	Devise a treatment strategy with the patient and their family
Devise goals and treatment strategies with the patient	Devise treatment goals including outcome indicators not related to weight
Prescribe or refer for dietary and physical activity advice	Review and provide regular assistance for weight management and maintenance of weight change and change program as required
Prescribe medication or refer for obesity surgery and/or conduct or refer for behaviour modification as determined appropriate	
Review and provide regular assistance for weight management and maintenance of weight change and change program as required	

Table 2. What can be done in a brief consultation

- If appropriate, take anthropometric measures (waist circumference, weight, bio-impedance)
- Discuss waist circumference and weight goals (see reference below)
- Ask whether the patient thinks diet/physical activity or both are adding to weight gain
- Ask about stress and the reaction to this (ie. eating/moving more or less, when stressed)
- Suggest using a pedometer for measuring baseline activity levels (steps) over a week
- Explain available strategies, but emphasise the need for lifestyle modification
- Explain the chronic nature of obesity and the importance of maintenance in contrast to initial weight loss

Adapted from: Egger, Binns, Rossner. Lifestyle medicine. Sydney: McGraw-Hill, 2008

Table 3. Patient resources for clinicians

- Free tools for clinicians to use with patients for lifestyle based causes of disease – www.lifestylemedicine.net.au
- Australian Society for the Study of Obesity – www.asso.org.au
- Australian Association for Exercise and Sport Science – access to a qualified exercise physiologist – www.aaess.com.au
- Medical Director – Professor Trim's patient handouts: weight loss
- Kausman R. If not dieting, then what? Sydney: Allen and Unwin, 1998
- Noakes M, Clifton P. The CSIRO total wellbeing diet. Adelaide: CSIRO, 2006

changing these over time. Chronic disease now accounts for 60% of the world's deaths and 47% of the global burden of disease,[24] therefore clinical management is increasingly more likely to require this type of approach. Obesity treatment could benefit from a reconceptualisation in this light. See *Table 1–3* for guidelines and resources.

Summary of important points

- Although weight loss is difficult, a number of evidence based strategies are available for use in clinical practice.
- Small weight losses result in big reductions in disease risk.
- All successful strategies include some form of lifestyle change.
- A key concept underlying all weight loss is (calorific) 'volume'.
- Most effective treatments are likely to involve combining and matching strategies to the characteristics of the patient.

Conflict of interest: none declared.

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