Lifestyle approaches to obesity

Making it a less weighty issue

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Most of us eat several times a day, most days of our lives. In our modern environment, food is plentiful, energy-dense, highly visible, convenient and a major part of our social lives. In contrast, being physically active is a choice and not a necessity for survival. It is therefore not surprising that it is hard for people to lose weight and keep that weight off.

Obesity is the result of a long-term positive energy balance and although an energy deficit must be created to achieve weight loss, attributing obesity to eating too much and not exercising enough is an oversimplification. It is evident in the real world and from scientific studies that people struggle to lose weight and keep it off. This failure is usually attributed to the individual, with the person often considered weak-willed, lazy and even stupid.

The factors contributing to obesity are complex due to an interaction between varying genetic and biological tendencies, and to cultural and socioeconomic drivers of weight gain. Factors may act alone or in combination to modulate energy intake and/or expenditure and hence determine the likelihood of an individual becoming obese. The current 'obesogenic' environment is propelling the epidemic by providing an unfavourable situation that overwhelms the sophisticated regulatory systems of the body controlling appetite and maintaining energy balance. In today's world it can be argued that weight gain is a natural response for humans endowed with an 'ancient metabolism'. Consuming excess calories was important in our evolutionary past to last us through the times of shortage, but it is a health hazard now.

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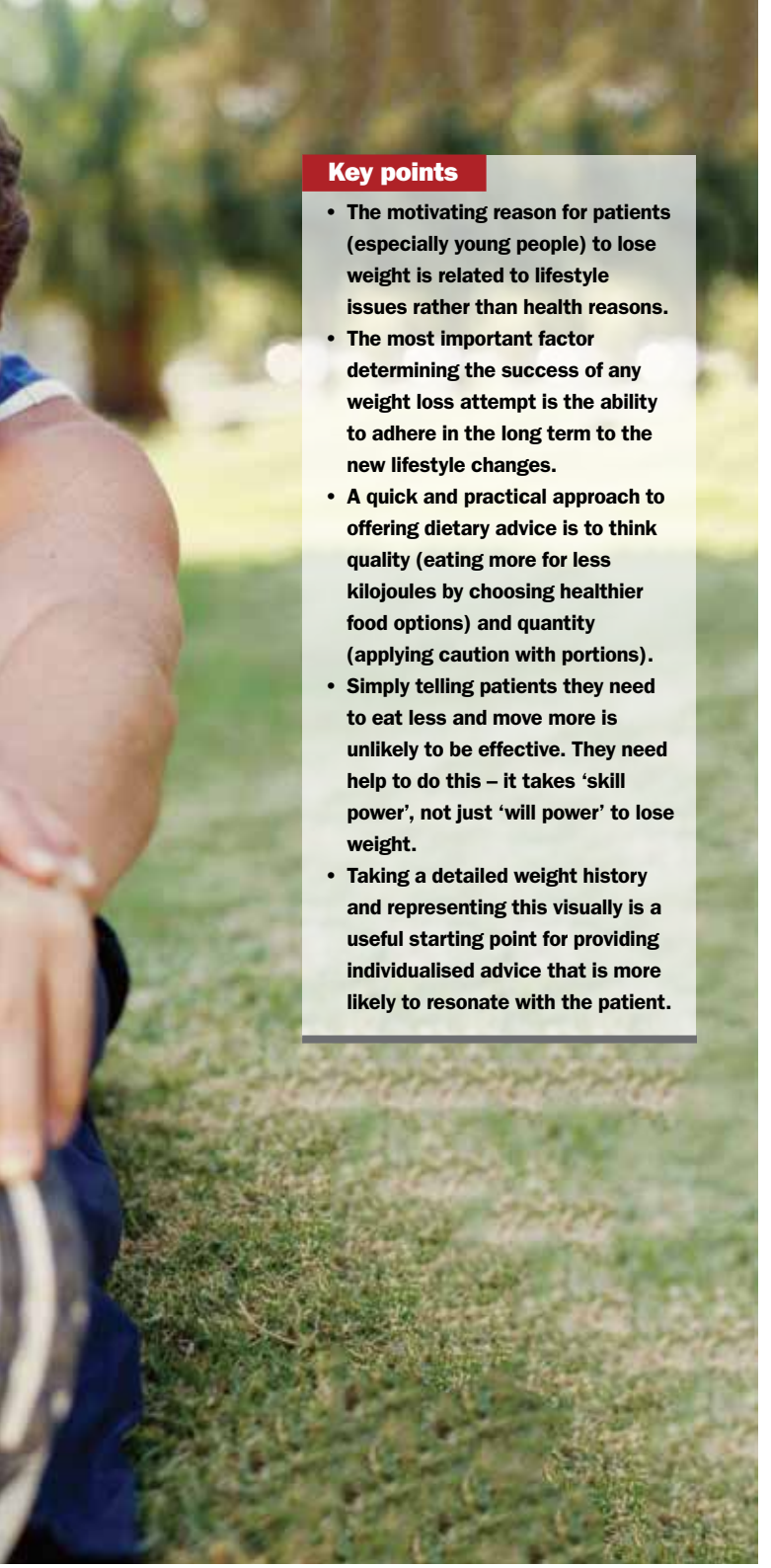

Key points

- **The motivating reason for patients (especially young people) to lose weight is related to lifestyle issues rather than health reasons.**
- **The most important factor determining the success of any weight loss attempt is the ability to adhere in the long term to the new lifestyle changes.**
- **A quick and practical approach to offering dietary advice is to think quality (eating more for less kilojoules by choosing healthier food options) and quantity (applying caution with portions).**
- **Simply telling patients they need to eat less and move more is unlikely to be effective. They need help to do this – it takes 'skill power', not just 'will power' to lose weight.**
- **Taking a detailed weight history and representing this visually is a useful starting point for providing individualised advice that is more likely to resonate with the patient.**

The primary care setting is the obvious choice for tackling the obesity epidemic because of the long-term nature of the clinician–patient relationship. However, due to a range of factors, including lack of time, confusing messages in the literature, lack of weight-loss success in patients, and the social and personal prejudices about the obese individual, many GPs find it challenging or feel ill equipped to tackle the problem.

This article aims to help practitioners start a conversation with their patients regarding weight loss and better health using simple practical suggestions. It is in line with the current National Health and Medical Research Council (NHMRC) guidelines that recommend lifestyle change as the cornerstone of all interventions. A future article in *Endocrinology Today* will discuss adjunctive therapies including pharmacotherapy, very low-energy diets and bariatric surgery. The reader is also referred to the NHMRC *Clinical Practice Guidelines for Managing Overweight and Obesity in Adults, Adolescents and Children* for more information.[1]

Diagnosing obesity

Obesity is defined as an abnormal or excessive accumulation of adipose tissue in the body, resulting in adverse effects on the health and wellbeing of the individual.[2] In clinical practice, a useful measure of obesity is the body mass index (BMI), which gives a reasonable approximation of adiposity. BMI is derived by dividing an individual's weight in kg by height in m squared (kg/m^2). Adults with a BMI between 25 and 29.9 kg/m^2 are categorised as overweight or preobese, and those with a BMI of 30 kg/m^2 or over are categorised as obese (see Table 1).[2] The BMI cut-off points are, however, not applicable to all ethnic groups, people at extremes of age and those with excess muscularity and height.

Defining someone as obese can have psychological consequences. Many people find the word offensive and derogatory. It is important to explain to the individual the use of the term for medical reasons and to be sensitive of the patient's reactions and beliefs. Using words such as unhealthy or excess weight (or overweight) can be a more palatable way of discussing an individual's weight status.

Obesity as a disease and risk factor

Obesity is regarded as a disease in its own right and is also a risk factor for a large number of noncommunicable, metabolic and mechanically-induced disorders; the risk of which increases on a continuum with increasing adiposity. It is not only the amount but also the distribution of adipose tissue that underlies the health risks and diseases associated with obesity. Waist circumference, a surrogate marker of visceral fat, has been shown to be a more sensitive measure of long-term health risks (see Table 2).[2] Waist circumference (really an abdominal circumference at a defined level) should be measured mid-way between the lowest rib and the upper border of the iliac crest. This position can sometimes be difficult to find in an obese individual. Always look from the side, make sure the tape measure is level and have it directly on the skin to get the most accurate and repeatable results.

Goals of obesity management

Any obesity management plan should be structured to include both an active weight loss phase and a weight maintenance phase. Lifestyle modification – dietary change, alterations in physical activity and behaviour modification – should be the main therapeutic approaches in the management of obesity. Effective weight management is defined as a weight loss of 5 to 10% of body weight that is maintained for at least two years. Health benefits associated with moderate weight loss are outlined in the box on page 10.[3,4]

Table 1. Classification of overweight and obesity according to BMI and risk of comorbidities*

Classification	BMI (kg/m^2)	Risk of comorbidities
Normal range	18.5–24.9	Average
Overweight	≥25	
– preobese	25–29.9	Increased
– obese class I	30–34.9	Moderate
– obese class II	35–39.9	Severe
– obese class III	≥40	Very severe

*The values are those suggested by WHO.[2]

Table 2. Waist circumference and risk of metabolic complications associated with obesity*

Group	Increased risk (cm)	Substantial increased risk (cm)
Men	≥94	≥102
Women	≥80	≥88
Asian men	≥90	
Asian women	≥80	

*The values are those suggested by WHO.[2]

Health benefits associated with moderate weight loss[3]

- Improved glycaemic control
- Improvements in dyslipidaemia (particularly in people with high triglyceride and low HDL-cholesterol levels)
- Lowered blood pressure
- Nonalcoholic fatty liver disease – reduced hepatic steatosis
- Reduced severity of obstructive sleep apnoea
- Reduced all-cause mortality[4]
- Lowered risk of heart disease, stroke and some cancers
- Improvements in psychological problems (social isolation and depression)
- Improvements in musculoskeletal problems (e.g. osteoarthritis, back pain)
- Improvements in reproductive abnormalities (e.g. fertility, polycystic ovaries)

Not all patients will be ready or willing to lose weight despite their weight putting them at risk of medical disorders. Patients need to be motivated for their own reasons, which need to be strong enough to compete with the instant gratification eating and sitting can bring. Reasons can be many and varied and, although they may include aspects of improved health, often it is more the things that will change on an everyday basis (e.g. less pain, feel better, wear different clothes, have more energy, able to do up shoelaces or look after grandchildren) that are the real motivating factors. Asking a patient for his or her reasons for wanting to lose weight will not only give an indication of expectations and realistic thoughts but may also help the patient feel valued, build rapport and aid in engaging the person in treatment.

Dietary approaches

Healthy eating, not dieting

The word 'diet' comes from the Latin word 'diaeta' meaning 'way of life'. This is in sharp contrast to the way the word is used in today's society where it carries connotations of short-term adherence and negative associations with restrictive eating. As such, it is better to prescribe an 'healthy eating plan' as opposed to a 'diet'. If patients embrace a 'eating for health' approach to dietary change and do not just view it as a way to lose weight then they may be less likely to 'give up' on their diet and start again the next day or week.

Any dietary advice for weight loss should not compromise the person's micronutrient nutritional status. After all, the types of foods that patients should be eating to lose weight are the same as those that are recommended for the general healthy population. Furthermore, as the recommended number of serves in the *Australian Guide to Healthy Eating* are also based on those with the lowest energy requirements within each age and gender group (i.e. smaller and less active), following the guidelines should inevitably result in an energy deficit for larger persons. These recommendations, developed by the NHMRC, were released earlier this year as part of *Eat For Health* program (www.eatforhealth.gov.au).

No one size fits all approach

Although a negative energy balance is essential for weight loss, how such an energy deficit is achieved is dependent on the individual. Weight loss is dynamic and needs to be reviewed on a regular basis. A prescribed energy deficit of 2 to 4 MJ per day will lead to a steady rate of weight loss of 0.5 to 1 kg per week for a period until the body adapts and the weight loss plateaus.

There are dynamic physiological adaptions that manifest with weight loss; namely a reduced resting metabolic rate, increased appetite and decreased energy cost of physical activity.[5] Dynamic models that allow prediction of how changes of diet or physical activity will translate into weight changes over time have been developed and are available online (http://bwsimulator.niddk.nih.gov/ [5] and http://www.pbrc.edu/research-and-faculty/calculators/weight-loss-predictor/ [6]). These models may be useful in clinical practice to establish a target energy intake for a patient based on

the desired weight loss outcome and duration. Furthermore, they can provide guidance on the energy intake necessary to maintain the new weight once reached.

Temporary changes equal temporary weight loss

Most people who diet reach a weight loss plateau at about six months and this occurs for several reasons. Firstly, people may become less restrictive with their eating, or reduce the time, intensity or frequency of physical activity they have been doing and consequently their energy balance is no longer in a deficit. Secondly, as people lose weight their energy requirements are likely to decline due to their being smaller. Thirdly, physiological adaptions may occur resulting in a reduction in metabolic rate and increased hunger and food-seeking.[7-10] At the weight loss plateau people are faced with the following four options (Figure 1):

- return to the way they were eating and exercising (or lack of) before weight loss and therefore regain the weight (most common scenario)
- maintain their weight by eating and exercising to match their new requirements
- further reduce energy intake and/or increase exercise further to lose more weight
- period of weight maintenance followed by further weight loss (i.e. second option followed by the third).

The above introduces several common misconceptions among dieters. Firstly, that they will be able to maintain a lower weight as easily as when they were at a higher weight. Secondly, that weight plateauing is bad and there is no point in trying if not achieving weight loss. And thirdly, that if you just have a strong enough will power you will be able to decrease your energy intake further and lose more weight.

Patients often think that because they were able to maintain their original weight with little or no effort then this should also be the case after weight loss. However, to maintain their new lower weight they need to be eating less or doing more exercise than they were at their original weight. This is why the most important factor determining the success of any weight loss attempt is the ability to maintain long-term adherence to new lifestyle changes. Temporary changes will lead to temporary weight loss; if

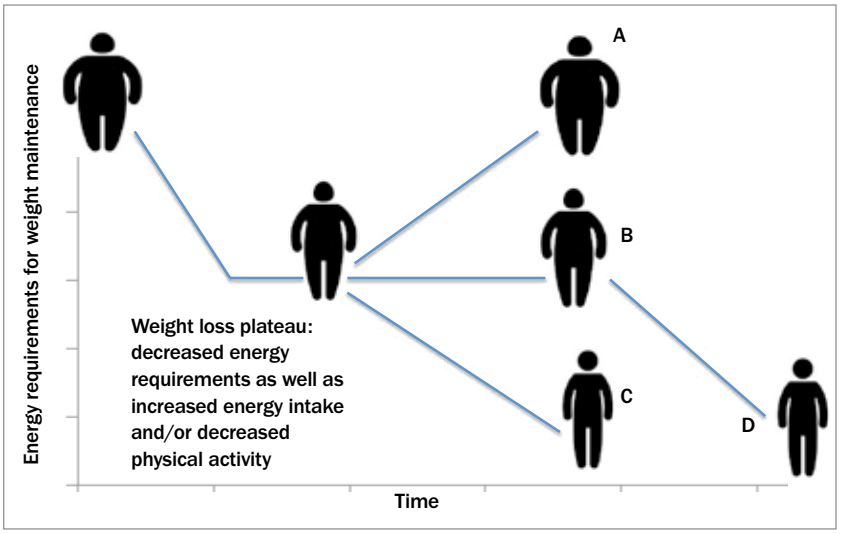

Figure 1. Weight loss scenarios. Most dieters reach a weight loss plateau at about six months. This occurs because people tend to become less restrictive with their eating or reduce the time, intensity or frequency of physical activity they have been doing and consequently their energy balance is no longer in a deficit. Furthermore, as people lose weight their energy requirements are likely to decline due to their being smaller. Physiological adaptions may also occur resulting in a reduction in metabolic rate and increased hunger and food-seeking. At the weight loss plateau people are faced with four options: (A) return to the way they were eating and exercising (or lack of) before and therefore regain the weight (most common scenario); (B) maintain their weight by eating and exercising to match their new requirements; (C) further reduce energy intake and/or increase exercise further to lose more weight; or (D) option B followed by option C.

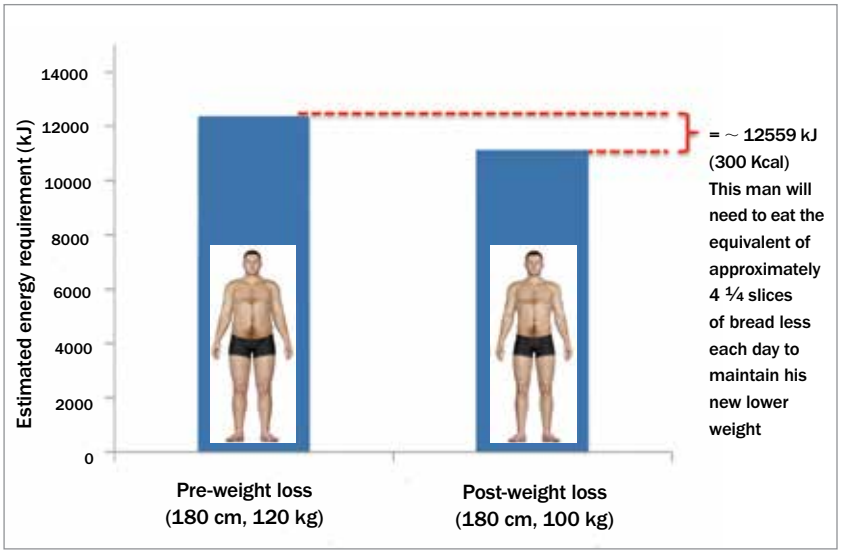

Figure 2. Temporary changes will lead to temporary weight loss. Energy requirements change as a person loses weight. In this example, if a sedentary 45-year-old man who is 180 cm tall and initially weighs 120 kg loses 20 kg, his energy requirements for weight maintenance drop by 1255 kJ (about 300 kcal) per day. In food equivalents, he would need to eat 4¼ less slices of bread per day to maintain his new lower weight. This simple concept – that when people lose weight they will be a smaller person with smaller energy requirements – is important to explain to patients so that they understand that the lifestyle changes they make need to be sustainable to successfully lose weight and keep it off.

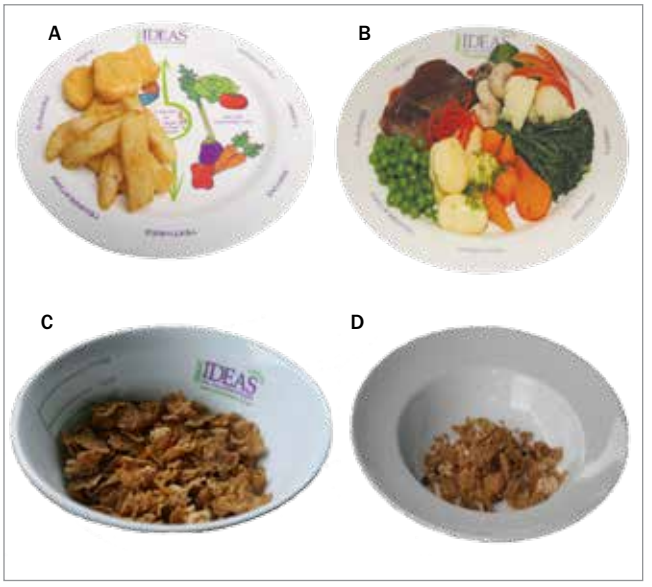

Figure 3. 'Same same but different'. A *vs* B. Both these meals have 1450 kJ (about 350 calories) but one is much more satisfying in terms of perception and physical hunger (as well as healthier) than the other. It is important to realise that we eat as much with our eyes as we do for our hunger. C *vs* D. Using portion distortion as an advantage. We are more likely to serve more into a larger bowl. Reducing bowl (or plate) size will concurrently reduce portion size and will help to make the smaller portion seem like more.

Reproduced with permission from Clark A. Portion perfection: a visual weight control plan, 2013.[13]

the predisposing factors remain, so too does the propensity for weight regain (Figure 2).[11] It is therefore better to encourage patients to make lifestyle changes that are sustainable, as opposed to using a quick fix solution that they cannot continue.

Patients often become frustrated and give up on lifestyle changes when their weight starts to plateau. The World Health Organization recognises that no weight gain is a good outcome in weight loss interventions, particularly in patients who have previously been gaining weight. Helping patients identify benefits of their new lower weight or of not gaining weight may help them to feel less frustrated with weight plateauing. Many dieters believe that if they restrict their intake further then they will lose weight no matter what their bodies are trying to do. The physiological adaptions to losing weight will make people feel more hungry and seek higher energy food more often. Instead of ignoring these adaptions, if people responded to them by increasing their intake only to the point where it took the sensations away, rather than overcompensating (which is common), they would soon be able to go back to a reduced intake and weight loss would continue.

The National Weight Control Registry in the USA (www.nwcr.ws), which is following more than 10,000 people who had lost 13.6 kg or more and kept it off for at least a year, has shown that successful people had the following characteristics: they ate a low-energy and low-fat diet; consistently self-monitored their weight; ate breakfast regularly; engaged in 60 minutes of physical activity each day; watched very little television; and had minimal variation to diet on weekends or when on holidays.[12] The strategies these people used to lose weight were the same as those that helped them to maintain their weight loss.

A practical approach – mental checklist of quality and quantity

There are numerous dietary approaches for weight loss, including low-fat, high-protein and low-glycaemic index diets. However, many of these approaches may be too complex or too time consuming to implement in a very time limited consultation. A more practical approach is a quick mental checklist of quality and quantity.

All the principles given in this approach are also applicable to people with diabetes, even those taking insulin. It is more difficult for people with diabetes to lose weight, but it is possible. Due to the changes in eating and activity, and with weight loss, there will need to be changes to an individual's diabetes treatment regimen.

Quality – eating more for less

Simply put, when losing weight a 'kilojoule is a kilojoule'. However, a person would have to eat a lot more carrots than potato chips to consume 1000 kJ. An important aspect for sustainability of an eating plan is feeling satisfied. Therefore, a useful approach is to get patients to think about kilojoules as if it were money – that is, to feel satisfied on an 'energy budget' they need to 'spend' their kilojoules wisely. By choosing healthier, less energy-dense foods such as fruits, vegetables, wholegrains, reduced fat dairy products and lean protein foods, patients can eat more for less kilojoules (Figure 3).[13] This will also help to establish long-term healthy eating habits for optimal health.

Quantity – portion caution

Many patients may already have good nutritional knowledge and be eating a reasonably healthy diet. However, it is still possible to overeat, even on nutritious foods. The fact that larger portions have more energy may seem intuitive, but most people tend to eat whatever they are served and in today's society we have become accustomed to larger portions. To accommodate our larger portions, our bowls, plates and cups have also increased in size. Therefore, a 'normal' portion is often much more than we actually need to eat.

Environmental factors impacting portion sizes are ubiquitous and can strongly influence the amount we eat or drink.[14] Larger packaging and serve ware have been shown to unknowingly increase the amount served.[15,16] Furthermore, as most people stop eating when the food on their plate is gone, overserving leads to overeating. However, it is also not simply a matter of telling people that the bias exist, even nutrition experts – after being lectured extensively on the topic – still served themselves 56.8% more ice cream when given a larger bowl and larger spoon compared with those who were given a smaller bowl and smaller spoon.[17] Reducing the size of serve ware will concurrently reduce portion size without necessitating vigilance and portion distortion can be used as an advantage (Figure 3).[13]

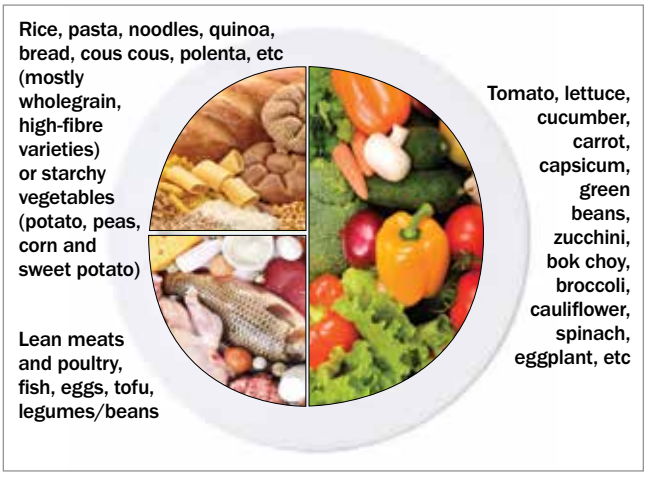

Figure 4. The healthy plate model. A healthy balanced plate should contain ¼ protein, ¼ carbohydrate and ½ nonstarchy vegetables.

A healthy plate model using the *Healthy Eating for Adults* brochure can be a simple way to educate patients on appropriate types and proportions of foods to consume for main meals (see Figure 4 and the box on this page listing useful websites and online resources).

Physical activity

Patients should be encouraged to increase their daily physical activity. The goal is to achieve at least 150 to 300 minutes of moderate or 75 to 150 minutes of vigorous activity per week. Moderate activity is to a level that increases breath and heart rate above normal. Vigorous activity leads to harder breathing (i.e. puffing and panting) and substantially raised heart rate, depending on the level of fitness. People should find the activity somewhat hard or harder. It is also important to encourage patients to reduce their 'inactivity', in particular their sitting time, and to stand more. Recent research suggests that sedentary behaviour that is detrimental to a person is not just the lack of physical activity but also prolonged uninterrupted periods of sedentary time, which is associated with metabolic risk variables (including waist circumference, BMI, triglyceride level and two-hour plasma glucose level).[18,19] Pedometers or smart phone applications may be useful to self-monitor activity and to set daily or weekly targets, which can be gradually increased (see the box on this page). Patients should aim for 10,000 to 14,000 steps (depending on stride length) per day (or 10 km). However, any increase in physical activity is good and should be encouraged even if targets are not met immediately. A dose response occurs with greater activity, leading to increased health benefits, regardless of whether weight loss is achieved.[20,21] Hydrotherapy and/or aqua aerobics are useful alternatives for people with osteoarthritis or those who experience pain on exercise. Referring the patient to an exercise physiologist may also be helpful. The most important factor is finding an activity that the patient enjoys and is likely to maintain in the longer term.

Useful websites and further information on healthy living

Eat for health
www.eatforhealth.gov.au
Includes numerous resources on how to modify recipes, plan meals, eat healthy on a budget, as well as sample meal plans. Also includes pamphlets and resources that can be ordered and displayed in practice waiting rooms. The *Healthy Eating for Adults* brochure is a useful resource for providing dietary advice to patients who are managing their weight.

Dietitians Association of Australia
www.daa.asn.au
Useful website to search for a local Accredited Practicing Dietitian.

CalorieKing Australia
www.calorieking.com.au
This website, pocket book and iPhone application can be used to track energy intake (i.e. 'calorie count').

8700 - Find your ideal figure
www.8700.com.au
A Government campaign website to support the introduction of kJ menu board labelling. Also has useful energy calculators and database of take-away and fast foods.

Swap it, don't stop it
www.swapit.gov.au
A Government campaign website to encourage people to make simple healthier changes (swaps). Resources would be good for display in waiting rooms.

Great ideas in nutrition
www.greatideas.net.au/
Portion perfection book, bowls, plate. Visual weight control plan.

Exercise is medicine
www.exerciseismedicine.org.au
Useful website for exercise resources and factsheets and to search for an accredited exercise physiologist.

Healthy living network
www.healthylivingnetwork.com.au
Useful for identifying quality registered activities, providers and programs in your local area.

Behaviour change – skill power not just willpower

Most people who are of an unhealthy weight do not want to be unhealthy or have excess weight. The problem is that we live in an environment in which it is extremely difficult not to gain weight

Knowing what and how much to eat, and being motivated to do so is only the tip of the iceberg (Figure 5). When people commit to losing weight they often assume that it is simply a matter of deciding to do so. In reality, however, life (work, family commitments, etc) does not stop when people are losing weight, and there are many barriers that can get in the way. This is why simply telling patients they need

Figure 5. 'Skill power' and not just 'willpower' is necessary for weight loss. Knowing what and how much to eat is only the tip of the iceberg in terms of eating healthy and getting enough exercise. Patients need help to make changes, not just to be told.

to 'eat less and move more' is unlikely to result in successful weight loss. They need help to do it by, for example, identifying barriers before they arise and devising strategies to overcome or minimise them.

Self-monitoring by recording food intake and/or exercise can help patients to gain insight into their own eating habits and provide a useful starting point to developing a plan of action. Numerous smart phone applications have been developed for this purpose and can be a useful alternative to traditional pen and paper recording. The key to successful behaviour change is frequent contact and support to ensure that lifestyle changes are sustained. Sometimes simple interventions, although stopping weight gain, may not be enough, and referral of the patient to other health professionals, including psychologists, dietitians and exercise physiologists, may be required for a more intensive intervention or approach. However, ongoing involvement of the clinician in the patient's efforts to initiate and maintain a healthy weight and lifestyle cannot be overemphasised.

Putting it into practice

Using the 5A's approach

The 5A's approach (Assess, Advise, Agree, Assist, Arrange follow up) can be used as a guide to structure weight management counselling, and does not necessarily have to be done all in the one session (Figure 6).[22] This approach is adopted in the latest NHMRC guidelines.[1]

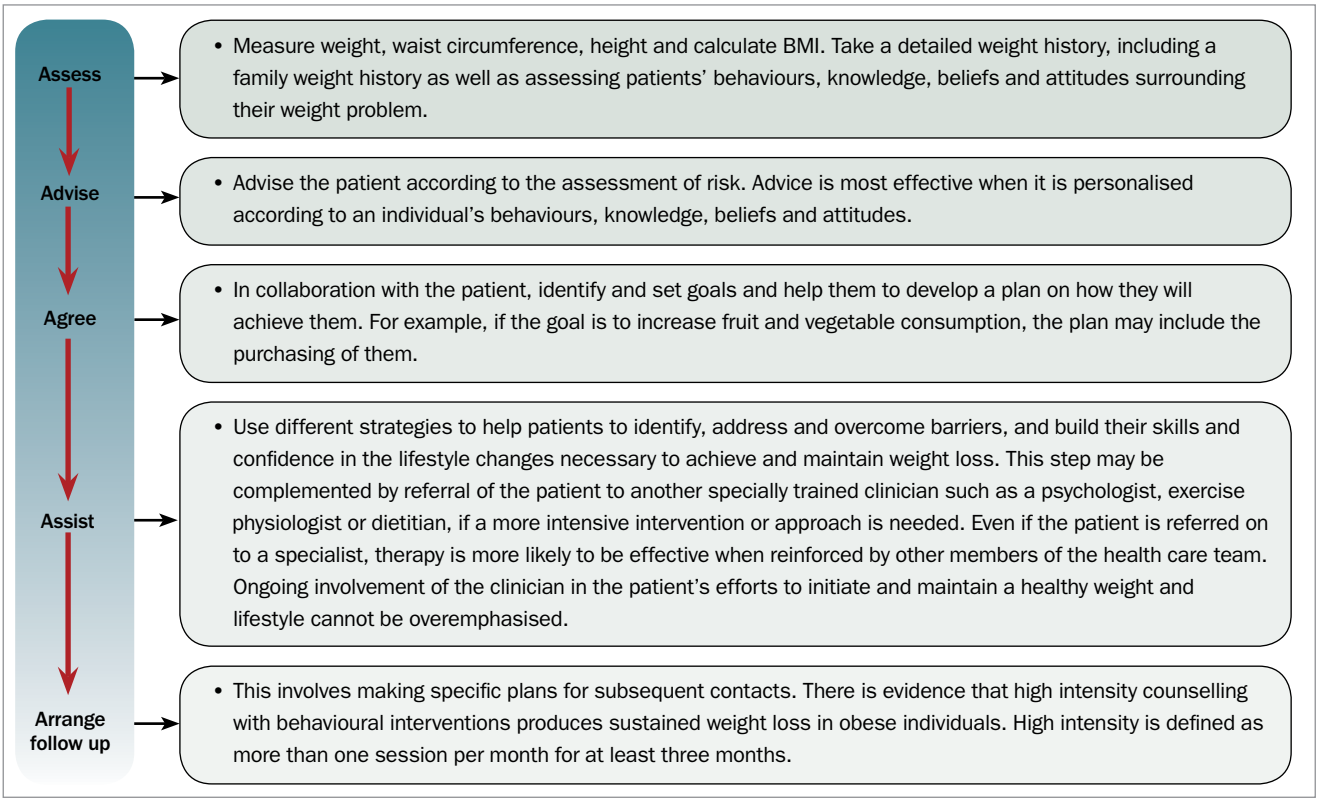

Figure 6. The 5A's approach to weight management in the primary care setting.[22]
Adapted from Goldstein MG, et al. 2004.[22]

A starting point

A useful starting activity when commencing any weight management program is to take a detailed weight history and, if possible, to represent it visually back to the patient, as shown in Figure 7. Discussing or displaying a patient's weight history will help them to think about, understand and identify the reasons for their weight gain or weight regain over time. It will also aid the practitioner in encouraging appropriate and individualised lifestyle changes that will resonate with the patient.

Conclusion

Obesity has extensive medical implications but most patients do not want to lose weight for health reasons. Identifying individual and personal reasons will aid motivation. Focusing on healthy eating, controlled portion sizes, increased movement and reduced sedentary time will all help with weight loss. Obtaining an extensive weight history will make treatment easier and will help patients understand their own weight status. **ET**

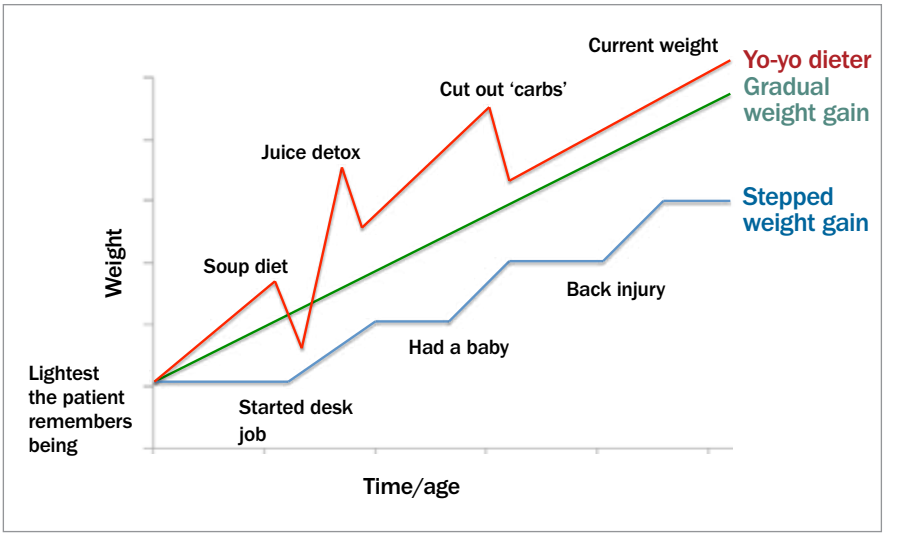

Figure 7. The value of a detailed weight history. Understanding the weight history of patients can provide valuable insight for the clinician and the patient. For people who have been yo-yo dieting their whole lives it will help to reinforce that the dieting approach has not worked for them in the long term as the changes they made were unsustainable and resulted in large rebound weight gain. For people who have had a stepped approach to weight gain it may help to identify events in their life that resulted in changes to their eating or activity patterns that caused them to gain weight. For those who have gradually gained weight over time it can be good for them to reflect on the subtle ways in which their eating and activity patterns have changed over time. These are only three possible scenarios. Each individual will have a different weight history, which will aid the practitioner in encouraging appropriate and individualised lifestyle changes that are more likely to resonate with the patient.

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COMPETING INTERESTS: Professor Caterson has performed and still performs clinical trials of obesity treatment and prevention, some of which have been funded by government and others by the pharmaceutical industry. Current trials are funded by the NHMRC, NovoNordisk, Amylin Corporation, and the Egg Board. He is also a member of a group at The University of Sydney holding an NHMRC Program Grant (2013 -17). He serves on the steering committees of international trials (SCOUT and EXSCEL). For the latter, he received an honorarium. He has given talks for NovoNordisk, Servier Laboratories, Pfizer and iNova Pharmaceuticals in the past three years. He has served on the scientific advisory board of the Sansom Institute for Health Research, University of SA, the board of the Children's Medical Research Institute, and chaired the Executive Management Committee of the bariatric surgical register for the Obesity Surgery Society of Australia and New Zealand. He chairs the Expert Obesity Committee for ANPHA and is on the Preventive and Community Health Committee of the NHMRC. He is on the NHMRC Committee developing guidelines for the management of overweight and obesity. Ms Gibson, Dr Franklin, Ms Partridge and Dr Sim: None.