



# THE *Change* PROGRAM

a GP-delivered weight loss program  
for adults in primary care

Elizabeth Ann Sturgiss | Sonia Res | Rebecca Kathage | Kirsty Douglas

## GP HANDBOOK







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**GP HANDBOOK**

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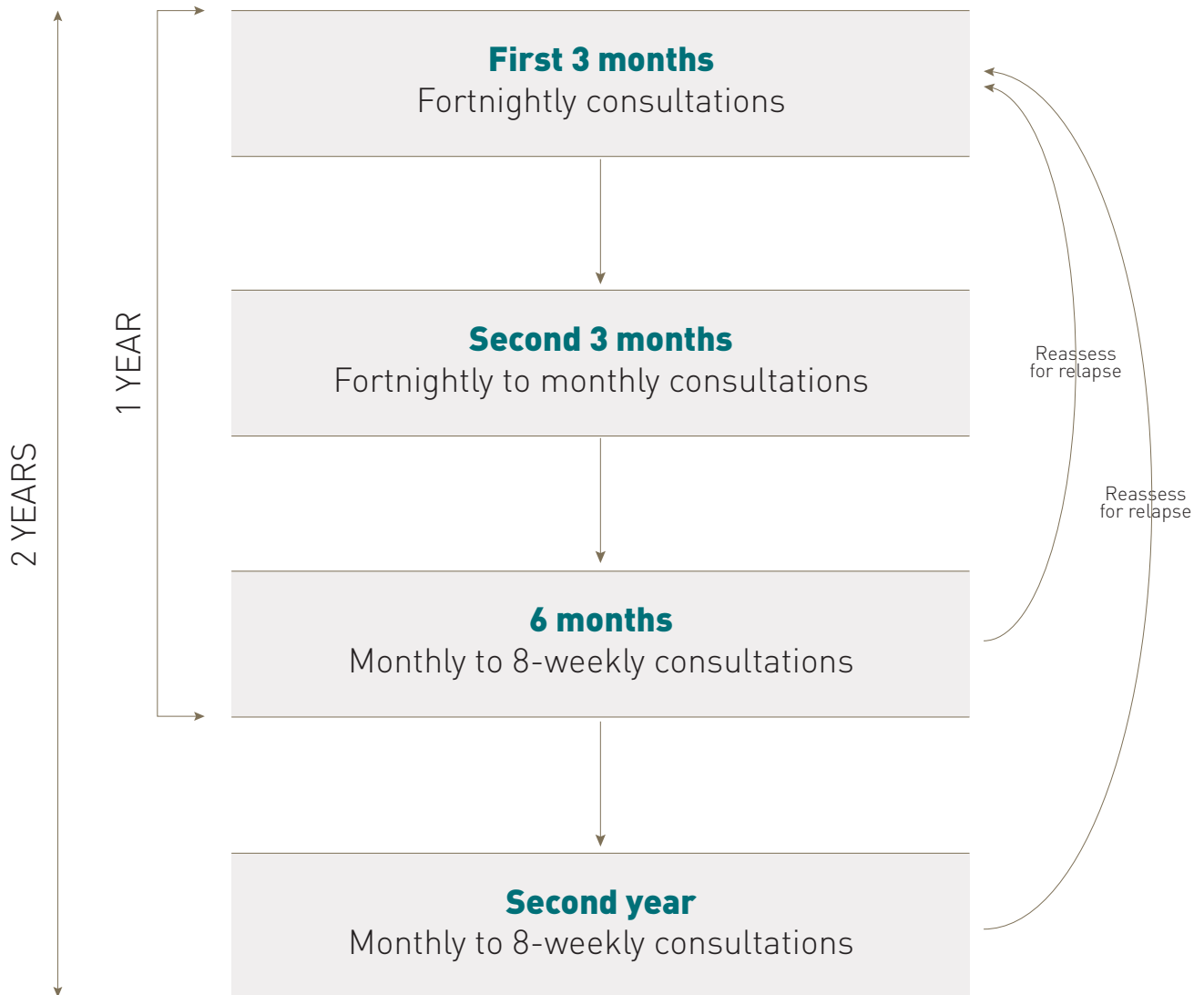
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## The Change Program Suggested consultation schedule



# The Change Program Appointment Planner

It's suggested that consultations take place fortnightly for the first 3 months, fortnightly to monthly for the second 3 months, and monthly to 8-weekly for the next 6 months (see flowchart page v). The remaining 12 months should be discussed between the GP and patient, but it's suggested consultations are held no longer than 3 months apart. Please refer to your computer template in addition to the information below.

Appointment	Agenda
1	<ul style="list-style-type: none"> <li>• Primary Assessment (computer template)</li> <li>• My Measurements and Goal Setting to begin</li> <li>• Suggested reading for patient includes: <i>Why is it so hard to lose weight?</i></li> <li>• Suggested activity for patient includes: Nutrition Diary</li> </ul>
2	<ul style="list-style-type: none"> <li>• My Measurements</li> <li>• Nutrition Diary review</li> <li>• Suggested reading for patient includes nutrition information and worksheets over appointment 2, 3 and 4</li> </ul>
3	<ul style="list-style-type: none"> <li>• My Measurements</li> <li>• Review Goal Setting</li> <li>• Ongoing nutrition review</li> </ul>
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9	<ul style="list-style-type: none"> <li>• My Measurements</li> <li>• Review Goal Setting</li> <li>• Ongoing Behavioural Supports review</li> </ul>
10	<ul style="list-style-type: none"> <li>• My Measurements</li> <li>• Ongoing Behavioural Supports review</li> </ul>
11	<ul style="list-style-type: none"> <li>• <b>REVIEW</b></li> <li>• Review Goal Setting</li> <li>• Consider ongoing Behavioural Supports review and re-doing Nutrition Diary or Physical Activity Diary</li> </ul>



# Chapter 1 - The Change Program

This is a practical weight control program for adults that can be delivered by GPs in a primary care setting. The Change Program requires intensive visits for the first 6 months, initially fortnightly and then monthly. The program provides support for at least a 2-year period.

This program is based on best available evidence and current Australian guidelines for the management of overweight and obesity in general practice (see Appendix B, *Reference List*). The Change Program fits into the 'Assist' phase of the 5As approach as described in the National Health and Medical Research Council guidelines<sup>1</sup>.

The tools for the program consist of:

- A Patient Handbook, where your patient can record ongoing statistics, as well as factsheets and worksheets
- A template that can be opened in your practice software to easily record ongoing visits and makes suggestions for topics to discuss at each visit
- This GP Handbook, which provides concise and relevant information for a GP working with overweight and obese patients.

## Long-term, sustainable change

The therapeutic relationship between a GP and a patient has been used to great advantage in managing other conditions such as drug and alcohol addictions and smoking cessation. You are in an excellent position to provide individualised management advice to patients who are seeking to lose weight.

Australian research suggests that the majority of patients see GPs as having a role in weight management and are keen to seek advice and ongoing support from their GP<sup>2</sup>.

The three domains to be focused on to achieve and maintain weight loss are:

- Physical activity
- Nutrition
- Behavioural change

This is the first practical program developed by Australian general practitioners as a tool for GPs working with patients who are overweight or obese.

We acknowledge the vast amount of experience and expertise held by GPs and aim to complement this with the addition of The Change Program. In keeping with this, the program is designed to be flexible and should be tailored to each patient and GP for the full benefits to be gained.

We hope you find The Change Program to be a useful tool in working with patients who are overweight and obese.

<sup>1</sup> NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.

<sup>2</sup> Tan, D et al. Weight management in general practice: what do patients want? MJA 2006; 185 (2): 73-75.



## Chapter 2 - Who is The Change Program For?

This program is for adult patients who are overweight or obese. It is important to discuss with the patient that the program runs over a 2-year period, with more intensity earlier in the program. A slow transition to a healthier lifestyle is the goal rather than a quick diet change, which is often unsustainable. Encourage your patient to see the program as a lifestyle change that they should be aiming to sustain for the rest of their life.

Long-term, sustainable change

### Body mass index (BMI) categorisation

The proportion of overweight and obese patients seen in general practice in Australia has steadily increased since 1998. The BEACH data set collected information on a subset of patients from 1998 to 2008 regarding their weight status. The prevalence of overweight and obese patients increased from 51.8% (95% CI: 51.2–52.4) in 1998–2000 to 58.8% (95% CI: 58.2–59.5) in 2006–08. It has been estimated from this data that around 3 million patients who presented to their GP in 2006–08 were overweight or obese<sup>1</sup>.

Category	BMI
Underweight	<18.5
Healthy weight	18.5 – 24.9
Overweight	25 – 29.9
Obesity I	30 – 34.9
Obesity II	35 – 39.9
Obesity III	≥ 40

There are times when the BMI is not accurate and you will need to use clinical judgement; for example, with certain ethnicities, age groups and muscular builds (see Chapter 3, Work Up).

<sup>1</sup> Valenti, L. , Overweight and obesity in general practice activity in Australia, priorities and policies 1998 to 2008, H. Britt A. G. Miller, Editors. 2009, AIHW: Canberra.



## Contraindications to The Change Program

Some patients are not suitable for this program, including:

- Pregnant or breastfeeding women
- Persons with a significant, uncontrolled medical issue
- Elderly patients who are frail
- Those who are currently significantly affected by a mental health issue that prevents participation
- Those under the age of 18 years
- Those with a history of anorexia nervosa, bulimia or binge eating disorder

These patients will require a different management strategy to what this program offers.

## What are the benefits of weight loss?

Even with modest weight loss there are clinically significant improvements for patients. These include:

- Reduced systolic **blood pressure** with weight loss of 2 kg or more
- Improved symptoms from **gastro-oesophageal reflux disease**
- Improved pain in **osteoarthritis** of the knee with weight loss of 6 kg or more
- In patients with diabetes, improved **glycaemic control** with loss of 5 kg or more
- Improvements in **chronic kidney disease**
- Reduced symptoms of **obstructive sleep apnoea**
- Improvement in self-reported **quality of life, self-esteem** and **depression** even with only modest weight loss

If some of these benefits are relevant to your patient, they may assist in motivating your patient to consider change.

NHMRC, Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia, 2013

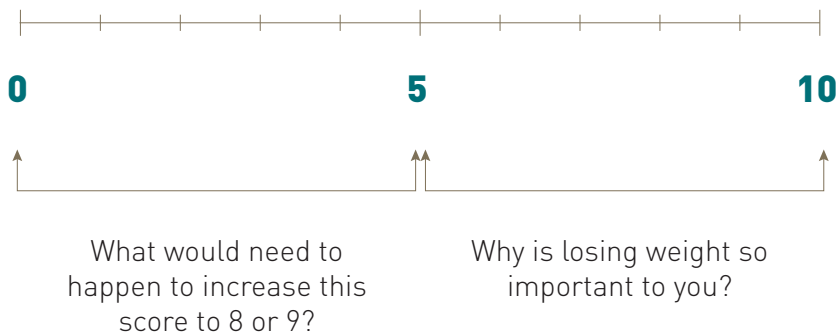
## How to assess if your patient is ready for change

There are a few different scenarios where you might want to offer this program to a patient:

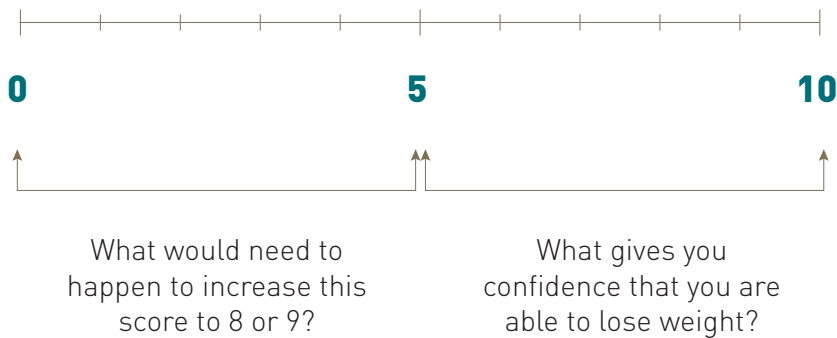
- A patient approaches you for assistance in losing weight
- You identify that a patient is overweight, although they don't realise it
- A patient who you have identified as overweight returns to you for further advice.

To assist your patient in determining their readiness for change, the following questions may help (you will find these in your computer software template as well):

- Would it be OK to discuss your weight?
- How do you feel about your weight?
- How **important** is it to you to lose weight, on a scale of 1 to 10, with 10 being most important?



- How **confident** are you that you can lose weight, on a scale of 1 to 10, with 10 being most important?



The 'Stages of Change' model has been used very effectively to assist GPs working with patients who are trying to change behaviour; for example, smoking cessation. The evidence for this model of practice for weight loss is lacking – but this is due to few quality studies in the area, rather than there being evidence that it doesn't work.

## When should you seek further assistance for a patient?

Guidelines suggest that certain patients should be referred for more intensive therapies. These guidelines should be used in conjunction with your clinical judgement. Note that some patients may still benefit from The Change Program alongside the intensive intervention.

Patient group	Consider referral
BMI > 40 kg/m <sup>2</sup>	Bariatric surgery may be considered taking into account the individual's situation, and should be delivered within a multidisciplinary team with continuing follow-up.
BMI > 30 kg/m <sup>2</sup> who have poorly controlled type 2 diabetes and increased cardiovascular risk	Bariatric surgery may be considered taking into account the individual's situation, and should be delivered within a multidisciplinary team with continuing follow-up.
BMI > 35 kg/m <sup>2</sup> and a serious medical comorbidity that may improve with weight loss	Bariatric surgery may be considered taking into account the individual's situation, and should be delivered within a multidisciplinary team with continuing follow-up.
Very low energy diets (VLEDs) may be considered in adults with BMI > 30 kg/m <sup>2</sup> , or with BMI > 27 kg/m <sup>2</sup> and obesity-related comorbidities	Consider the individual's situation – purchasing VLED items can be costly for individuals; monitoring is required by a health professional who may be a GP, dietitian or specialist nurse depending on availability in your area.
For adults with BMI > 30 kg/m <sup>2</sup> or adults with BMI > 27 kg/m <sup>2</sup> and comorbidities	Orlistat may be considered in combination with lifestyle interventions, taking into account the individual's situation. Orlistat is currently the only medication approved for the management of overweight and obesity in Australia. It is not listed on the Pharmaceutical Benefits Scheme.
When a medical cause for obesity is suggested (see Chapter 3, Work Up)	This will depend upon the possible underlying cause but often involves an endocrinologist.

Intensive interventions, in NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.



# Chapter 3 - Work Up

The information in this chapter has been included to assist GPs who are unfamiliar with weight management or are new to the area of obesity.

## How and what should we measure?

There are no perfect clinical measures for overweight and obesity, but the most useful indicator of risk is a combination of body mass index (BMI) and waist circumference.

The following formula is used to calculate BMI:

$$\text{Weight kg} / (\text{Height m}^2)$$

### BMI categorisation:

BMI	Classification	Implication
<18.5	Underweight	
18.5 – 24.9	Healthy weight range	
25 – 29.9	Overweight	Increased disease risk
30 – 34.9	Obesity I	High to very high disease risk
35 – 39.9	Obesity II	High to very high disease risk
≥ 40	Obesity III	Extremely high disease risk

Some people may feel sensitive about being weighed. Please negotiate this with your patient.

## What are the limitations of the BMI?<sup>1</sup>

- It is less accurate in people with high muscle mass (such as athletes). In these cases a higher BMI threshold should be considered for increased health risk
- Women have more body fat than men at equivalent BMIs
- People lose lean tissue with age so an older person will have more body fat than a younger one at the same BMI
- Central deposition of fat and decreased muscle mass with age may lead to no overall change in weight or BMI, but an increase in health risk
- It confers different risk depending on ethnicity:
  - › Aboriginal people: Waist circumference may be a better predictor of health risk in this population. Aboriginal people have a relatively high limb to trunk ratio, so a lower BMI threshold may be considered for increased health risk.
  - › South Asian, Chinese and Japanese populations: These populations may have more body fat at lower weight and so a lower BMI threshold (such as > 23 for overweight) may be considered. A waist circumference of  $\geq 90$  cm for men and  $\geq 80$  cm for women should be considered at risk.
  - › Pacific Islander populations (including Torres Strait Islander people and Maori) tend to have a higher proportion of lean body mass, so a higher BMI threshold may be considered overweight or obese.

## How do I measure waist circumference?

Waist circumference is a proxy for chronic disease risk. An adult's waist circumference is measured halfway between the inferior margin of the last rib and the crest of the ilium in the mid-axillary plane over bare skin. The measurement is taken at the end of normal expiration.<sup>2</sup>

### Waist circumference categorisation:

Category	Waist circumference (female)	Waist circumference (male)
Healthy	< 80 cm	< 94 cm
Increased risk*	80 – 87.9 cm	94 – 101.9 cm
High risk*	$\geq 88$ cm	$\geq 102$ cm

\*Risk for chronic disease such as type 2 diabetes, hypertension and cardiovascular disease

<sup>1</sup> NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.

<sup>2</sup> WHO (2000) Obesity: Preventing and managing the global epidemic. Report of a WHO Consultation. WHO Technical Report Series 894. Geneva: World Health Organization.

### What investigations are necessary?

Investigations assess overall cardiovascular risk; they are not for assessing 'obesity' per se. Pathology investigations should be directed by the patient's age, history and risk for chronic disease (e.g. diabetes and cardiovascular disease). Basic bloods that may be considered include:

- renal and liver function
- fasting lipid profile
- fasting glucose.

More specific tests may be considered if a secondary cause of obesity is suggested from clinical findings (see Appendix A, *Medical Causes of Obesity*).

### Communication

Discussion about weight can be anxiety provoking for both the GP and patient. Even though the patient may have come to you for help with their weight, they may be sensitive about language and examinations. The patient may have experienced discrimination in the past because of their weight.

Practical tips that may help with this issue:

- Ask the patient what language they are comfortable with and avoid language that may be discriminatory or stigmatising. For example, you may want to use "increased weight" or "weight associated with health risks"
- Ask if the patient is comfortable being weighed – negotiate how you might get around this
- Explain to the patient the importance of these questions you are asking and the examinations that you wish to conduct
- Communicate with a non-judgemental attitude that recognises the influences of social context on health behaviours
- Consider the involvement of other professions (e.g. Aboriginal Health Worker) as appropriate
- Ensure that your surgery is appropriately set up for the patient (e.g. consider suitable weighing scales and bariatric chairs).

### Motivational interviewing – communication to assist behaviour change

Motivational interviewing is an approach that seeks to influence a person's own motivation to change. It is different to giving unsolicited advice. The questions you ask can prompt your patient to think about their current lifestyle and behaviours, and why they want (or need) to change. Your role is to help the patient examine and resolve their ambivalence.

Here are some examples of questions that might be used in motivational interviewing:

- Why do you think you need to change your lifestyle?
- What would be good about changing your current eating patterns?
- What might your life look like in 5 years if you change your lifestyle now?



- If you didn't change, what is the WORST thing that could happen?
- If you do change, what is the BEST that could happen?

Courses in motivational interviewing are available for health professionals, and you can find information and resources online (e.g. Principles and Techniques of Motivational Interviewing, Australian Institute of Professional Counsellors at <http://www.aipc.net.au/articles/principles-and-techniques-of-motivational-interviewing/>).

Upskilling in this area will also assist you in helping patients change other behaviours (e.g. smoking cessation, drug and alcohol addiction).

### **Being realistic**

The most common unrealistic goal for patients is the amount of weight loss over time. A sustainable weight loss is 1–4 kg per month or 1–4 cm off waist circumference per month (see Chapter 4, *Why is it So Hard to Lose Weight*). If you have this discussion early in the program you may save disappointments and discouragement.

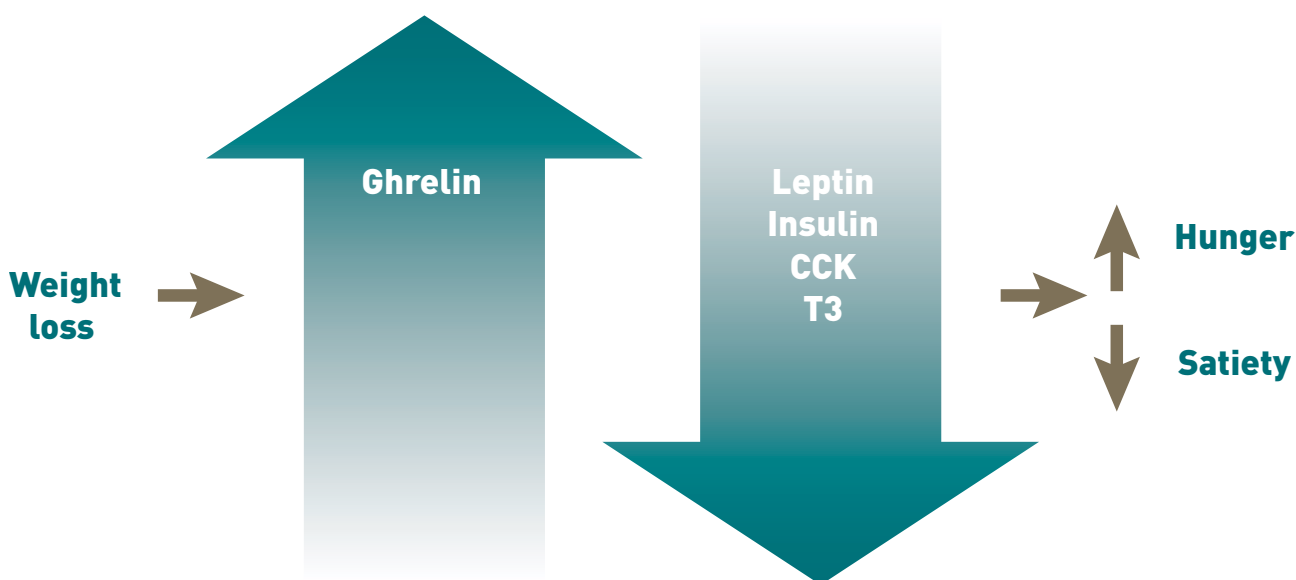
## Chapter 4 - Why is it So Hard to Lose Weight?

There are many hormonal and environmental drivers for weight gain. By making our patients aware of these drivers, we can assist them in persisting with long-term, sustainable lifestyle changes.

### Weight homeostasis

As a general rule, the **first 5% of body weight can be lost relatively easily** with changes to nutritional intake and physical activity levels. We can then expect a plateau of weight loss at best, or weight regain at worst.

The reasons for this are complex and varied, but are not entirely explained by the patient returning to previous lifestyle habits. There are a complex series of metabolic changes that occur in the patient's body as they lose weight. As weight is lost, hormones such as leptin, insulin, cholecystokinin (CCK) and triiodothyronine (T3) all decrease and the hormone ghrelin is increased. The result of these hormonal changes is a **decrease in the feeling of satiety** and an **increase in a feeling of hunger** – these changes drive the patient to regain weight<sup>1</sup>.



Often patients (and their GPs!) have an unrealistic expectation on the weight they should aim to lose. **Around 5–10% of body weight is a realistic goal for weight loss in the short to medium term.** This modest amount of weight loss leads to metabolic and functional benefits for the patient. For longer term goals a sustainable weight loss is no more than 1–4 kg per month, or 1–4 cm off waist circumference per month<sup>2</sup>.

The hormonal system in the body is carefully designed to protect against weight loss, rather than prevent weight gain. It can take **many months** for these hormonal changes to settle and the new weight to become the new normal 'set point' for the body. These strong biological drivers make it even more difficult for patients to resist returning to previous lifestyle behaviours.

<sup>1</sup> NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.

<sup>2</sup> Parrat, R et al. (2009) Implementing lifestyle change: Facilitator guide, Managing weight. NSW: National Heart Foundation of Australia and The Royal Australian College of General Practitioners.

## Weight regain

Weight regain is so common because of the hormonal drivers that are pushing the body to regain weight after approximately 5% of body weight is lost. These hormonal changes reduce satiety and increase hunger and make it doubly difficult for patients to resist returning to previous lifestyle behaviours. Even if they continue with their new nutrition and physical activity, these hormonal changes may alter how energy intake is stored in the body, leading to weight regain.

**A weight plateau phase is common after 5–10% weight loss**

This information is **empowering for patients** – it takes away the **guilt** that is often associated with a weight plateau and can give them extra resolve to combat feelings of hunger after initial weight loss.

## The obesogenic environment

Obesity is now seen as a multifactorial disease of modern day living, rather than purely a result of an individual's choices. For example, urban environments are not conducive to active transport, longer working hours leave less time for meal preparation and there is easy access to fast, energy-dense foods.

**5–10% of body weight is a realistic goal for weight loss**

It is important to discuss this with your patient, as patients can have substantial guilt around their weight. Acknowledging the difficulties faced in modern day living can help open up discussion about specific issues.

The obesogenic environment has been defined as:

**“... the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations.”<sup>1</sup>**

For wide-scale change, these areas need government-level intervention. However, for an individual, it may be a matter of education about the hazards of the environment and ways to combat these as an individual.

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<sup>1</sup> Swinburn, B. and G. Egger, Preventive strategies against weight gain and obesity. *Obesity Reviews*, 2002. 3(4): p. 289-301.

Practical tips could include:

### Transport

Opt for walking, or park and walk as much as possible

Always take the stairs when available

### Work environment

In the workplace, put your rubbish bin in the kitchen area only and walk to it if needing to put something in the bin

Use a sit/stand workstation instead of sitting at a desk all day

Have walking meetings

### The media

Be mindful and think critically about any advertising

Avoid commercial TV that may increase temptation at certain times (such as after dinner)

### The food sector

Learn to read food labels and be wary of health claims on food packets

Avoid the confectionery aisle

Plan snacks to take with you when going out

## Discussing weight regain with patients

In the longer term preventing weight regain is just as important as considering initial weight loss.

These are some important facts to discuss with your patient:

- After weight loss, the body is “hardwired” to encourage weight regain, so **hunger may increase**
- **Preventing weight regain** can be even more challenging than losing weight, especially during the first year
- Weight regain is common and is **not a sign of failure**
- **Benefits of weight loss persist** even if a small amount of weight is subsequently regained
- It may be helpful to **set a weight regain limit** and have an action plan (see *Relapse prevention* and the *Relapse prevention action plan*, pages 71–72 in the Patient Handbook)
- If weight is regained, it is important to continue to make **sustainable lifestyle changes** and possibly consider one or more intensive interventions.



## Aiming for long-term weight loss

Maintaining a healthy weight is a **long-term goal**. “Yo-yoing” of weight is very common and caused by the hormonal drive that pushes the body to regain weight after approximately 5% of body weight is lost.

There are a number of lifestyle and behavioural factors that are associated with more successful weight loss in the longer term. They include:

- **Sustainable** changes in **nutrition**
- Regular **physical activity** of increasing duration
- **Behavioural techniques** that deal with over-eating
- Regular **monitoring** of behaviour

After initial weight loss, patients are likely to regain the weight unless they are supported and monitored with relapse prevention strategies in place (see *Relapse prevention action plan*, page 71 in the Patient Handbook). A long-term relationship with a regular GP provides an opportunity for this ongoing care.

**Weight regain is common because of hormonal and environmental drivers**

# Chapter 5 - Nutrition

## This is not a diet

Patients are bombarded with advertisements for fad diets, food supplements and miracle weight loss diets – in magazines, TV, radio and social media.

For long-term health and weight loss we need to discuss with patients how to approach their nutrition differently – the aim is for a diet that is **sustainable in the long-term**.

Can they start eating in a way that is healthy AND sustainable over a lifetime? For most fad diets, the answer to the sustainability question is 'no', and they do not lead to long-term change for the patient.

### Nutrition that can be sustained over a lifetime

## An approach to nutrition with the overweight/obese patient

These overall principles can guide discussion about nutrition with patients<sup>1</sup>:

1. Consider the patient's **degree of overweight/obesity** when discussing their nutrition (if rapid weight loss is required, e.g. prior to surgery, consider a very low energy diet; see Chapter 2, page 6)
2. Consider the **dietary preferences** of your patient and their household; this may include considering **cultural factors**
3. Consider the **availability, affordability and storage options** of food for your patient
4. Consider supporting your patient to **gradually change** their eating patterns aiming for **long-term sustainability** rather than rapid change.

## Why is nutrition so important?

Patients will often ask, "what is more important, nutrition or exercise?" It is clear that without reduced caloric intake, physical activity will not lead to weight loss. It is difficult (if not impossible) to enough physical activity to compensate for poor nutrition. For more information and a case example, see Chapter 6, Physical Activity.

Generally, a patient needs to have a 2500 kJ (approx. 600 cal) deficit between their food intake and energy output to lose weight. As an example, one chocolate-covered biscuit or a scoop of vanilla ice-cream contains around 400 kJ (approx. 100 cal). It is easy to see that **small dietary indiscretions can add up over the course of a day** (see *Let's talk kilojoules and calories*, page 17 in the Patient Handbook).

### EQUIVALENT MEASURES

100 kJ = 24 cal  
418 kJ = 100 cal

There needs to be a **2500 kJ (approx. 600 cal) deficit between intake and output to lose weight<sup>1</sup>**

One chocolate-covered biscuit and one scoop of vanilla ice-cream are both 400 kJ (approx. 100 cal)



One cup of strawberries is only 160 kJ (approx. 40 cal)



**Without reduced caloric intake, physical activity is unlikely to lead to significant weight loss.<sup>1</sup>**

<sup>1</sup> NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.

## What are some tips I can give to my patients when thinking about nutrition?

### Australian Dietary Guidelines (page 22, in Patient Handbook)

These guidelines were published by the NHMRC in 2013. They give an outline for healthy eating and food choices for all Australians. Here are two of the points from the guidelines that you may want to discuss with your patient:

#### Enjoy a wide variety of nutritious foods from these five food groups every day:

- **Vegetables and legumes/beans:** eat plenty of vegetables of different types and colours
- **Fruit**
- **Grain** (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
- **Lean meats** and poultry, fish, eggs, tofu, nuts and seeds, and **legumes/beans**
- **Milk**, yoghurt, cheese and/or soy/rice/cereal-based alternatives, mostly reduced fat.



And drink plenty of **water**.

#### Limit intake of foods containing saturated fat, added salt, added sugars and alcohol

- Limit intake of foods high in saturated fat, such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips, crisps and other savoury snacks
- Replace high-fat foods that contain predominately saturated fats, such as butter, cream, cooking margarine, coconut oil and palm oil, with foods that contain predominately polyunsaturated and monounsaturated fats, such as oils, spreads, nut butters/pastes and avocado
- Limit intake of foods and drinks containing added salt
- Read labels to choose lower sodium options among similar foods
- Do not add salt to foods in cooking or at the table
- Limit intake of foods and drinks containing added sugars, such as confectionery, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, and energy and sports drinks.

The guidelines provide a comprehensive overview of appropriate nutrition and are interspersed with many helpful, practical tips. They are available free online at [www.eatforhealth.gov.au](http://www.eatforhealth.gov.au).

## Think about drinks (page 23) and Having a drink? (page 24, in Patient Handbook)

Drinks are a form of nutrition that is commonly overlooked by patients. It is easy to drink a large number of calories in a short period of time. For example:

- 200 mL wine (2 standard drinks) = 500–600 kJ (approx. 120–140 cal)
- 200 mL reduced-fat milk (size of small skim coffee) = 400 kJ (approx. 100 cal)
- 600 mL sport drinks = 630 kJ (approx. 150 cal)
- 375 mL cola soft drink = 675 kJ (approx. 160 cal).



Encourage your patient to think about what they are drinking during the day – can they swap some of their drinks for water? Can they change to a low-fat milk?

Assess alcohol intake and compare to the national guidelines – is your patient aware of how energy dense alcohol is? Are they able to reduce the amount of alcohol they consume each week and therefore reduce their overall caloric intake?

For healthy men and women, drinking no more than two standard drinks on any day reduces the lifetime risk of harm from alcohol-related disease or injury.

## Lose easy kilojoules (page 18, in Patient Handbook)

Snacking is a time when high-energy, nutrition-poor food is often consumed. When aiming for an overall energy intake deficit, cakes, biscuits, chips and other junk food add up quickly.

Can your patient swap some of their unhealthy, energy-dense snacks for more nutritious alternatives?

Here are some healthier snack options, that are around 400 kJ (100 cal):

- 200 g of natural low -fat yoghurt
- 2 crispbreads and a slice of cheese
- A small handful of nuts (approx. 20 g)
- 3 oatmeal biscuits



Again, talk about sustainability with your patient – is it sustainable to say that “I will never eat cake and biscuits ever again!” Probably not. There may be occasions when it is important to have these foods, for example at birthday parties and family get togethers. But they are not foods that should feature in your everyday life; they are more a marker of a special occasion.

Discuss with your patient small changes that they can make gradually, that will be **sustainable** for their lifetime nutrition.



### Let's talk about portions (page 25, in Patient Handbook)

The amount of food we eat on average has steadily grown over time. In comparison to the meal sizes our grandparents ate 50 years ago, we are eating far more. In addition, the food on our plate is more energy-dense than what was available 50 years ago – for example, meat, cream, butter and sugar are more readily available now.

Discuss some of the following tips with your patient to see if any would work for them:

- Make sure your plate, particularly for the main meal of the day, is filled with at least 1/2 vegetables, 1/4 with a lean source of protein (e.g. lean steak, skinless chicken, fish or tofu) and 1/4 with some lower GI carbohydrates (e.g. corn, sweet potato, pasta or basmati rice).
- After dishing out your meal, put leftovers into a container immediately and place in the fridge once the steam has disappeared. This may prevent the temptation to have seconds.
- Use smaller plates and bowls to help reduce your portion sizes.



### Food labels (page 31, in Patient Handbook)

Food labelling can be overwhelming. The implementation of front-of-packet “Health Star Rating” may improve the ease of finding a healthy packaged product.

Also discuss with your patients that generally, any packaged food should be eaten less.

**Increasing fruit and vegetables** in the diet is better than the “best” packaged food.

### Meal plans (page 37, in Patient Handbook)

Encourage your patient to look more closely at what they are eating. Provide them with ideas for healthy nutrition choices for each part of the day. Encourage your patient to eat less energy-dense junk food and emphasise the importance of eating a wide variety of fresh fruit, vegetables and protein sources. Draw their attention to the 7 day meal plan from Australia’s Healthy Weight Week (page 37 in the Patient Handbook).

#### General nutrition tips to give your patients:

- Think about gradual change in nutrition that is sustainable over a lifetime!
- Eat slowly and enjoy each mouthful (see *Thoughtful eating*, page 32 in the Patient Handbook)
- Avoid eating while doing other things such as watching TV or reading (see Chapter 7, *Behavioural Interventions to Support Weight Loss*)
- Try to identify times when you eat but are not hungry, such as when you’re bored, tired or upset. A walk or doing something active can be a helpful distraction (see *Thoughtful eating*, page 32 in the Patient Handbook)
- Eat a variety of different foods within each food group
- Have the occasional treat and enjoy it!

# Chapter 6 - Physical Activity

## Benefits of physical activity

There are **clear benefits for increasing physical activity levels** in overweight and obese patients. There are improvements in metabolic profiles and functional status, with the most benefit in those who are completely sedentary who begin to do some physical activity.

These benefits can occur independently from actual weight lost, and so it is important to **encourage patients to remain active even if weight is not lost**.

When discussing current physical activity levels, and goals for improving this, there are three key areas where physical activity can be incorporated: **work (paid and unpaid), leisure and transport**.

## Physical activity or diet?

Many patients feel overwhelmed when thinking about weight loss and may ask you “What is more important, diet or exercise?” In the community it is often thought that for weight loss you need to exercise heavily – this is often perpetuated by advertising, media and social forums.

However, for most patients, they will not be able to exercise enough to overcome problems in their nutritional intake. There is **no effect of physical activity on weight loss unless it is combined with reduced caloric intake**, but there are protective health benefits of exercise at any weight level<sup>1</sup>.

If patients are overwhelmed by the changes needed and say they can only focus on one area of their life at a time, it would be more important to guide them to focus on their nutritional intake.



Physical activity at any weight level has protective health benefits.

<sup>1</sup> NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.



**Case example:** A 34 year old woman with a BMI of 32 was attending the gym on a daily basis, exercising for at least 60 minutes at a moderate to vigorous intensity. Despite keeping up this regime consistently for 6 weeks she did not lose any weight. She attended her GP one day with lower mechanical back pain and her GP advised symptomatic management and a short break from her gym program. Two weeks later at a review appointment for the back pain both the patient and GP were surprised to see she had lost 3.5 kg. When discussing what she had done differently the patient recognised that she had been very careful with her nutrition as she hadn't been able to exercise as intensely – and she also realised that after each gym session she had rewarded herself with an energy-dense chocolate-covered ice-cream. This reward was probably cancelling out any energy she had burnt in the gym session. With this new realisation the patient continued her gym program but combined this with a more careful approach to her nutrition, including cancelling the ice-cream treat after gym sessions.

## How much physical activity?

There is a dose response between physical activity and weight loss, with a good general rule being “A little is better than none and more is better than a little” (Heart Foundation). The NHMRC recommends **300 minutes of moderate intensity activity, or 150 minutes of vigorous activity accumulated over the week**<sup>1</sup>.

Exercise does not need to be all done in one session – it can be done in smaller amounts over a day; for example, cycling to and from work (total 30 minutes), brisk walk at lunchtime (10 minutes), throwing a ball around with children (20 minutes).

For improved metabolic outcomes it is better to do some exercise on most days of the week, than lots of exercise on just a couple of days a week.



<sup>1</sup> NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.

Physical activity at high levels (e.g. 60 minutes every day of moderate to vigorous intensity) may be helpful in preventing weight regain over the longer term.

### Levels of intensity of physical activity<sup>1</sup>

Intensity	Description	Example
<b>Sedentary</b>	Activities that involve sitting or lying down, with little energy expenditure	<p><b>Occupational</b> – sitting at work</p> <p><b>Leisure</b> – watching TV, reading, sewing, computer games, social networking</p> <p><b>Transport</b> – sitting in a car, bus or train</p>
<b>Light</b>	Activities that require standing up and moving around in the home, workplace or community	<p><b>Occupational</b> – working at a standing workstation; housework (hanging out washing, ironing, dusting)</p> <p><b>Leisure</b> – active video games (e.g. Wii)</p> <p><b>Transport</b> – gentle walk to nearby shops or bus stop</p>
<b>Moderate</b>	Activities that are at an intensity that requires some effort, but allow for a conversation to be held, but not singing (depending on fitness)	<p><b>Occupational</b> – active jobs such as builder or gardener; working at a treadmill workstation</p> <p><b>Leisure</b> – brisk walking, gentle swimming, social tennis</p> <p><b>Transport</b> – cycling to work, brisk walk to work/ bus stop</p>
<b>Vigorous</b>	Activities that lead to harder breathing, or puffing and panting (depending on fitness)	<p><b>Occupational</b> – jogging to deliver pamphlets</p> <p><b>Leisure</b> – aerobics, jogging and some competitive sports</p> <p><b>Transport</b> – jogging to work, cycling (uphill) to work/ shops</p>

<sup>1</sup> Adapted from NHMRC Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia



## How to measure physical activity?

It is difficult to measure physical activity with a patient in consultation. In the Patient Handbook, the *Physical Activity Diary* (page 59) and *Where is my energy going?* worksheet (page 49) may be helpful in identifying current physical activity levels and areas for possible improvement.

These common activities are good examples of different activity levels:

- Watching TV – sedentary
- Sitting at a work desk – sedentary
- Organised physical activity, such as a gym class or team sport – moderate to vigorous
- Walking – light to moderate
- Brisk walking – moderate
- Jogging, cycling – moderate to vigorous
- Dancing – moderate to vigorous
- Gardening – light to moderate





## What type of physical activity?

Any activity that increases movement and reduces time spent sitting is beneficial. Discuss with your patient what type of activities they might prefer over the longer term, as these may be more sustainable. Consider your patient's age, any symptoms and comorbidities when discussing physical activity with them. It would be wise to **start slowly and build up the level of activity gradually to reduce the likelihood of musculoskeletal injury**.

Non-weight-bearing activities (e.g. cycling, swimming, aqua aerobics) may be better for people with locomotor difficulties (e.g. joint pain).

**Opportunistic activity built into the everyday lifestyle is beneficial** – for example, taking the stairs, walking to the shops, walking/cycling to work, using public transport instead of the car, parking the car further from the destination to walk. Assisting to incorporate physical activity into your patient's everyday lifestyle may make increasing physical activity goals more attainable.

## How much weight loss to expect with physical activity?

Increasing physical activity alone, without any change in nutritional intake, is unlikely to lead to any weight loss<sup>1</sup>.

It is unclear what the appropriate length and duration of exercise for weight loss is. This is because of the high variability in a patient's day-to-day activities, nutrition and lifestyle factors.

It is clear that **increasing physical activity is good for a patient's general health** – with the most benefit for people who are completely sedentary who become more active.

Increasing muscle-strengthening activity may lead to initial weight gain – this is due to increasing muscle mass, which weighs more than fatty tissue. However, an increased muscle mass also leads to a higher base metabolic rate which may lead to more rapid weight loss.

## How to assist patients to make physical activity goals?

Tips for discussing physical activity goals with your patient:

- Goals for physical activity need to be **individualised** for your patient. Consider what you know about them personally – their medical history, home situation, work situation.
- Encourage the patient to consider **small changes** in their daily physical activity. Make any goal **specific and realistic**.
- Consider changes that could continue into the longer term and would therefore be a **sustainable** change. Planning physical activity that is incorporated into their **everyday life** may make things more realistic.
- Think about including increased physical activity into the three domains of **work, leisure and transport**.
- Often, planning to participate in an activity with a **partner, friend or group** increases motivation and sustains the activity for the longer term. Suggest this to your patient.

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<sup>1</sup> NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.

The Patient Handbook has a *Goal setting* section (page 5). Some goals that might be appropriate for your patient include:

- Using the stairs instead of the lift
- Holding “standing or walking meetings” at work
- Not having a rubbish bin at the desk – walking to the kitchen instead
- Going for a walk with a friend in your lunch break
- Consider a standing workstation
- Walking up escalators, and not standing still.

If goals are very specific, it is easier for the patient to measure achievement. Here are some examples of very specific goal setting (other examples are included in the goal setting table in the Patient Handbook):

<b>My goal</b>	<b>How will I achieve this?</b>	<b>How will I know when I've done it?</b>	<b>Achieved (date)</b>
To go for a daily walk	Walking with John in the morning before work, starting with a 10 minute gentle walk	When I've walked every morning for one month; I want to build up to 30 minutes of walking	
To increase my activity getting to work	Park my car at the far end of the car park; I will have to leave 15 minutes earlier for work	When I can walk to work from the car park without too much effort	
To increase my physical activity on the weekend	Go for a half-hour bike ride with the kids (on the flat ground) on Saturdays	When I can ride my bike for 30 minutes without stopping for a break	

### **Key points**

- Any activity that increases movement and reduces time spent sitting is beneficial to the patient
- Physical activity is beneficial even if weight is not lost – encourage your patient to stay active even if this is not accompanied by weight loss
- Build up physical activity slowly to reduce risk of musculoskeletal injury
- Think about incorporating physical activity into work (paid and unpaid), leisure and transport
- Without a change in nutritional intake, increasing physical activity alone is unlikely to result in weight loss

# Chapter 7 - Behavioural Interventions to Support Weight Loss

## What are behavioural interventions?

Behavioural interventions are strategies that are used to support patients in changing their lifestyle. They can be very simple and GPs often employ these strategies in their day-to-day work without even realising they are doing it!

For example, when you educate a smoking patient about the harms of smoking, this is a behavioural intervention. When you assist a patient to think about ways they can overcome work stress, this is a behavioural intervention. When you teach a relaxation exercise to a patient with anxiety, this is a behavioural intervention.

## What is the evidence for behavioural interventions?

Behavioural interventions can result in weight loss when combined with lifestyle support and change. Alone they are not usually successful in helping patients to lose weight.

The Change Program focuses on three important aspects of patient care – **nutrition, physical activity** and **behavioural interventions**. These three aspects working together are more likely to result in sustainable, long-term weight loss for the patient.

## Aren't these interventions too difficult for a GP to do?

Many of the techniques discussed here are already used on a daily basis by GPs working with patients with a range of health conditions. Health education, motivational interviewing, goal setting and problem solving are all behavioural interventions. Formalising them in this program ensures that they occur alongside the lifestyle changes.

The worksheets in the Patient Handbook will assist you in leading a patient through the techniques. Many of them don't take a long time to do – they can be discussed briefly in a consultation, given to the patient to take home to complete and then re-visited at the next consultation.

## What are some behavioural interventions that can be used with patients?

### Goal setting (page 5, in Patient Handbook)

The beginning of the Patient Handbook has a section for patients to record their goals.

When discussing a goal with your patient it is important to follow the SMART principles:

- **S**pecific
- **M**easurable
- **A**ssignable (who is actually going to do it?)
- **R**ealistic
- **T**ime based

Encourage your patient to make goals that are based on lifestyle changes (e.g. nutrition or physical activity) rather than goals solely about losing kilograms. The most common unrealistic goal is the amount of weight a patient wants to lose over time – a sustainable weight loss is no more than 1–4 kg per month, or 1–4 cm off waist circumference per month (see Chapter 4, *Why is it So Hard to Lose Weight?*).

My goal	How will I achieve this?	How will I know when I've done it?	Achieved (date)
To go for a daily walk	Walking with John in the morning before work, starting with a 10 minute gentle walk	When I've walked every morning for one month; I want to build up to 30 minutes of walking	

Each patient will have goals that are unique to them – with your knowledge of their medical and social history you may be able to assist them in setting appropriate goals. If patients are stuck for ideas on goals, here are some you could discuss with them:

- To reduce snacking
- To cut out or cut down on sugary drinks
- To reduce alcohol intake
- To increase physical activity – think about options for getting to work
- To walk at lunch
- To be aware of when I am over-eating
- To reduce my portion sizes
- To recognise emotions that make me eat
- To eat a healthier lunch



## Self-monitoring

These techniques encourage patients to be more aware of their eating and activity patterns.

The following handouts are useful to direct your patient to:

- *Nutrition Diary* (page 65, in Patient Handbook)
- *Physical Activity Diary* (page 59, in Patient Handbook)

Discuss with your patient when they might like to do these activities – they are usually helpful to do early on in the program. Focusing on nutrition first is probably useful for most patients (you could also ask your patient to do a ‘photo’ nutrition diary on their smartphone).

When the patient brings their completed diary to you, discuss with them any patterns that emerge. Relate any eating or activity patterns that emerge back to their goals – which behaviours are not going to help them reach goals they have set themselves?

It may be useful to repeat the *Nutrition Diary* or *Physical Activity Diary* at different times during the program. This may be especially helpful if you are finding that your patient is regaining weight – it may identify any problems that have crept back into the lifestyle (see *Weight homeostasis, why weight regain happens so readily*, Chapter 4).

Looking at any unhelpful eating or physical activity behaviours may then lead into discussing problem solving with your patient.

## Problem solving

The *Nutrition Diary* and *Physical Activity Diary* may have identified behaviours that are unhelpful for reaching the goals the patient has set themselves.

It is not your job to solve the problem for the patient – self-management requires the patient to come up with the solution with your guidance. You are there to act as a mentor and information source, and to offer your encouragement!

Areas for discussion might include:

- Avoiding takeaway meals – meal planning
- Avoiding buying junk food – petrol station, grocery shops
- Avoiding drinking wine after a long day at work
- Avoiding eating mindlessly – for example, in front of the TV, in the car, at the work desk
- How to manage unhealthy foods at work – the tea room, morning teas, etc
- Meeting up with friends and family – are there healthier ways to socialise?

The *Problem solving* worksheet (page 51, in Patient Handbook) guides the patient step by step – you may want to work it through with them, or they might do it in between sessions.

Social eating pressures can be a problem when trying to lose weight – the problem solving exercise is a good opportunity to discuss this with your patient.

## Stimulus control

Stimulus control techniques help identify aspects of the environment that are contributing to current behaviours; for example – snacking in front of the TV, eating in the car, having unhealthy foods in the pantry.

The following worksheets in the Patient Handbook are useful to direct your patient to:

- *Look in your pantry* (page 27)
- *Let's go shopping!* (page 28)
- *Where is my energy intake coming from?* (page 48)
- *Where is my energy going?* (page 49)
- *Road blocks and obstacles* (page 35)
- *Thoughtful eating* (page 32)

Aspects of environment and behaviour might then feed back into a problem solving exercise (see *Problem solving*, page 51 in Patient Handbook). You might find that as patients become more comfortable with goal setting and problem solving they may not need to formally work through the worksheet, but will be able to talk through the issues with you.

Self-regulation and intuitive eating are related processes that encourage people to pay attention to their bodily signals to determine how much food they consume. 'Mindfulness' is a practice that stems from Buddhism that promotes full attention to the present moment. Being aware of these processes may assist some patients to alter their current eating behaviours (see *Thoughtful eating*, page 32, in Patient Handbook).

## Cognitive restructuring

It is normal for people to be overwhelmed with negative thoughts when they are trying to lose weight. Some examples of thoughts that lead to unhelpful behaviours include:

"Oh well, I had one chocolate biscuit, I'm such a failure, I'll just chuck it all in."

"I missed the gym today, might as well give up."

You might find it helpful to discuss the *Mind boggling* worksheet (page 30, in Patient Handbook) with your patient. There are examples of different thinking patterns that can be unhelpful for a patient trying to lose weight. Encourage your patient to be aware of thinking patterns and how they influence their behaviour.





## Social support

Helping our patients to identify people in their life who will support them during The Change Program is important.

As a formal exercise you could direct your patient to the *Who and what is helping me along the way?* worksheet (page 50, in Patient Handbook).

There may be other supports in your community, for example:

- Heart Foundation walking groups
- Other social walking groups (e.g. parents' groups; church groups; bush walking groups)
- Online weight loss support groups through social media
- Workplace based support groups



# Chapter 8 - Trouble Shooting

## My patient isn't losing weight:

Weight loss can be expected to decrease or plateau after initial weight loss as a result of physiological adaptation (see Chapter 4, *Why is it So Hard to Lose Weight?*). However, if a patient has had no weight loss (less than 1% body weight or no change in waist circumference) in a 3-month period, underlying causes (see Appendix A, *Medical Causes of Obesity*) need to be reviewed. More intensive weight loss interventions (e.g. medications, bariatric surgery and very low energy diets) may need to be considered. **But it is worth reviewing lifestyle behaviours prior to this and reviewing goals with your patient.**

Also discuss with your patient the qualities of their lifestyle that have changed – have they improved their nutritional choices? Are they doing more physical activity in their week? Are they feeling more energetic? Reviewing your patient's 'wellbeing scores' may help to highlight these changes.

## My patient loses weight then puts it back on

Self-monitoring and instituting a '*Relapse prevention action plan*' can be helpful (see *Relapse prevention* and *Relapse prevention action plan*, pages 71–72, in the Patient Handbook).

Thresholds may include:

- Weight regain limit
- Waist regain limit

Action the patient can put in place may include:

- Review with the GP
- Discussion with a trusted friend / family member for motivation
- A change in physical activity / nutrition to compensate

Discuss with your patient factors associated with successful weight loss in the longer term:

- **sustainable** changes in **nutrition**
- regular **physical activity** of increasing duration
- **behavioural techniques** that deal with over-eating
- regular **monitoring** of behaviour.



## My patient has lost motivation

This can be a common scenario, particularly in the plateau phase (see Chapter 4, *Why is it So Hard to Lose Weight?*). Some of these tips may be helpful:

- Review your patient's current goals with them. Discuss why they have these goals, and whether they need to make new goals.
- Review the 'stages of change' questions with your patient (see Chapter 2, *Who is The Change Program For?*).
- Educate the patient about the physiological adaptations that occur with weight loss that can make it harder to lose weight and keep it off (see Chapter 4, *Why is it So Hard to Lose Weight?*).
- Explore with the patient if there are particular problems or obstacles that are overwhelming them and help them to find a solution (see the *Road blocks and obstacles* worksheet, page 35, and *Problem solving* worksheet, page 51, in the Patient Handbook).
- Remind the patient of the benefits of a low but steady weight loss amount.

## My patient is dissatisfied with their weight loss attempt

Remind patients to be realistic about weight loss goals. Patients can expect to lose 5–15% of body weight (average 8%) over 12 months through lifestyle modification. Patients can be strongly advised that modest weight loss reduces cardiovascular risk factors. Be positive and congratulate them on the progress they have made!

It may help to remind your patient of the health benefits of even small amounts of weight loss<sup>1</sup>.

- Reduced systolic **blood pressure** with weight loss of 2 kg or more
- Improved symptoms from **gastro-oesophageal reflux disease**
- Improved pain in **osteoarthritis** of the knee with weight loss of 6 kg or more
- In patients with diabetes, improved **glycaemic control** with loss of 5 kg or more
- Improvements in **chronic kidney disease**
- Reduced symptoms of **obstructive sleep apnoea**
- Improvements in self-reported **quality of life, self-esteem** and **depression** even with only modest weight loss

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<sup>1</sup> NHMRC (2013) Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council.

## Appendix A: Medical Causes of Obesity

Only a very small proportion of patients will have a medical cause for their overweight or obesity.

### When should you suspect a medical cause for obesity?

The following is a list of causes and features that may suggest a medical cause. This list is by no means exhaustive and if a medical cause is seriously considered, further specialist consultation maybe needed.

It may be important to review this section again if lifestyle changes have not led to weight loss for your patient.

Cause	Features	Comment
<b>Endocrine</b>		
<ul style="list-style-type: none"> <li>Cushing Syndrome</li> </ul>	Central obesity Hypertension Fat pad to neck Glucose intolerance/diabetes Abdominal striae Irritability/depression	Review medications for oral steroid use
<ul style="list-style-type: none"> <li>Hypothyroidism</li> </ul>	Tiredness, weakness Dry skin Feeling cold Difficulty concentrating Constipation Diffuse alopecia Weight gain with poor appetite Puffy face, hands, and feet (myxedema)	
<ul style="list-style-type: none"> <li>Pseudohypoparathyroidism</li> </ul>	Short stature Stocky habitus Developmental delay Round face Dental hypoplasia Brachymetacarpals Brachymetatarsals Soft tissue calcification/ossification	Familial link
<ul style="list-style-type: none"> <li>Type 2 Diabetes</li> </ul>	Polyuria, polydipsia, polyphagia Blurred vision Lower-extremity paresthesias Yeast infections (balanitis in men) Acanthosis nigricans	Familial link



Cause	Features	Comment
<b>Central Nervous System Disorders</b>		
<ul style="list-style-type: none"> <li>Hypothalamic tumours</li> </ul>	Somnolence Disturbed sleep cycles Hypothermia Emotional outbursts	Clinical features dependent upon the exact region affected
<ul style="list-style-type: none"> <li>Trauma to or inflammation of the hypothalamic region</li> </ul>	Hyperphagia	Clinical features dependent upon the exact region affected Ask for history of surgery to the region
<b>Other</b>		
Medications including but not limited to: <ul style="list-style-type: none"> <li>Atypical antipsychotics</li> <li>Beta blockers</li> <li>Insulin</li> <li>Lithium</li> <li>Sodium valproate</li> <li>Sulphonylureas</li> <li>Thiazolidinediones</li> <li>Tricyclic antidepressants</li> <li>Anabolic steroids</li> </ul>	Will depend upon the medication used	
<ul style="list-style-type: none"> <li>Binge eating disorder (BED)</li> </ul>	Frequent episodes of eating unusually large amounts of food accompanied by feeling loss of control	Patients with BED do not frequently engage in behaviour to compensate for binge eating (unlike bulimia nervosa) Increased rate of depression and anxiety in those with obesity and BED compared to those with obesity alone

Cause	Features	Comment
<ul style="list-style-type: none"> <li>Bulimia nervosa</li> </ul>	<p>Are typically normal weight but maybe overweight</p> <p>Binge eating behaviour followed by purging behaviour (which may include vomiting, abuse of laxatives or diuretics or other compensatory behaviour)</p>	<p>Self-imposed caloric intake can often lead to hunger and over-eating</p> <p>Often associated with depressed mood</p>
<ul style="list-style-type: none"> <li>Polycystic ovarian syndrome</li> </ul>	<p>Hirsutism</p> <p>Acne</p> <p>Infertility</p> <p>Diabetes</p> <p>Obstructive sleep apnoea</p>	<p>Increased risk of development of metabolic syndrome</p> <p>Weight management may include metformin but other principles will be similar to those for primary causes of obesity</p>

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