Upper GI Surgery

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# Complete Guide to Weight Loss Treatments

Medical treatment

Laparoscopic gastric band

Sleeve gastrectomy

Laparoscopic gastric bypass

SADI Procedure

Revision/corrective surgery

Robotic surgery



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# About the author

Associate Professor Michael Talbot started working as a consultant upper gastrointestinal surgeon in 2003, having completed 10 years of training following his internship in 1992–93. He started performing gastric band and gastric bypass surgery in 2003, and in 2004 was one of the first in Australia to perform sleeve gastrectomy and laparoscopic gastric bypass. Since then he has developed a large practice in bariatric and complex upper gastrointestinal surgery.

The surgical practice he works in is one of few in Australia regularly performing gastric band, bypass, sleeve gastrectomy, endoscopic sleeve gastroplasty and revision/corrective surgery for all procedures.

The practice also offers expertise in gallbladder and hernia surgery, repair of complex abdominal wall defects, endoscopic management of gallstones (ERCP), endoscopic oesophageal and gastric tumour therapy and state-of-the-art Barrett's oesophagus treatments. We have a specialised laboratory for the investigation of complex swallowing disorders and reflux, and are involved extensively in research.

We work with other doctors and health professionals as part of an interdisciplinary team to create a work environment focused on patient care, innovation and excellence. It is clear that patients do best when they have a range of people helping to look after them. This booklet is a document that will change over time as we learn more from our patients and from each other.

A/Prof Michael Talbot

Dr Jason Maani

Dr Daniel Chan

Dr Jennifer Matthei

**Essential information about this booklet**

This booklet is intended to explain the procedures and any issues that you may have before and after the operation. It is not supposed to replace advice given by your doctor or other healthcare professionals, but rather to add to it.

If you have any questions or worries that you wish to discuss with your doctor, please write them down in the space provided. It is important that you understand as much as possible before and after the operation, to aid your weight loss and ensure a healthy lifestyle.

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# About obesity and obesity surgery

The treatment of severe obesity has been transformed dramatically over the past decade. Where surgery was once the only consistently effective treatment, we now have highly effective pharmacological therapies — in particular, the GLP-1 receptor agonists (such as semaglutide) and the newer dual GIP/GLP-1 receptor agonists (such as tirzepatide) — that can produce substantial and clinically meaningful weight loss without an operation.

Surgery remains the most durable and powerful treatment option. For patients with significant obesity-related illness or BMI above 40, surgery offers weight losses of 25–40 per cent of total body weight, sustained at 5 years in most patients. The choice of treatment is now considerably more nuanced than it was a decade ago.

This booklet has been updated to reflect the full range of options available in 2026. Reading it carefully before your consultation — and raising the treatment options that interest you — will allow us to find the best approach for your individual situation.

## Obesity in Australia: most Australians have a weight problem

According to the Australian Bureau of Statistics 2022 National Health Survey, approximately 75 per cent of adult men and 60 per cent of adult women are now overweight or obese. One in three Australian adults (32 per cent) is classified as obese (BMI 30 or above), a figure that has more than doubled since 1995. Australia now ranks among the most overweight nations in the developed world. The social and economic costs are enormous: obesity-related illness accounts for more than $12 billion annually in direct Australian healthcare expenditure.

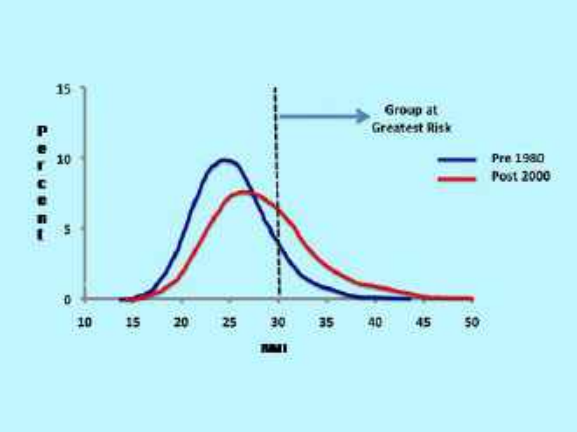


**Figure 1. Obesity in Australia: before 1980 and since 2000.**

The proportion of people above ‘ideal weight’ (that is, those whose body mass index or BMI is greater than 25) and in the obese range (BMI greater than 30) is increasing. Overweight and obese people now outnumber those in the healthy weight range. That is, it is no longer normal to be a healthy weight.

Ethnic background also influences the ideal BMI for a person. For example, for people of Asian ancestry the BMI at which a person is considered overweight is 22.5, which is lower than that for people of European ancestry (25).

## Defining obesity

These days the word ‘obesity’ has negative connotations, but it is simply a medical term describing people for whom excess weight poses a health risk. Rather than focusing on a person’s weight alone, we often prefer to measure a person’s weight in relationship to their height. This measurement, the **body mass index (BMI)**, is calculated by dividing weight (kg) by height (metres squared), or BMI = kg/m$^2$. This allows us to compare someone’s weight with the weight of other people of a similar height, in order to calculate how much he or she is overweight, or their **excess weight**. We know that the risk of medical problems is related to how much excess weight someone carries, so the BMI also

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allows us to estimate some of their risks. Using the BMI also allows us to calculate an ideal weight for someone, based upon his or her height.

*For example*

- Someone who weighs **150 kg** and is **180 cm** (5' 11") tall has a BMI of **46.3.**
- This person's theoretical ideal weight is **81 kg** (calculated as BMI of 25) and they have an excess weight of **69 kg**.
- The healthy weight range for someone of this height is **65 to 81 kg** (BMI 20–25), but it is not essential for people losing weight to aim for weights that are this low.

Every person being assessed for any type of weight treatment will generally have a calculation of their BMI, ideal weight, and excess weight performed, as this allows the patient and their doctor to set treatment goals.

### Waist circumference

In people who have relatively mild weight problems, but have weight-related diseases (such as diabetes, hypertension (high blood pressure) and high cholesterol), fatty tissue may be distributed around their abdomen, which is the riskiest place to carry fat. Measuring waist circumference may give some people a better idea of the severity of their problem than relying on weight or BMI alone.

| Classification | BMI (kg/m$^2$) | Waist circumference |
|---|---|---|
| Normal range | 18.5–24.9 | |
| Overweight | 25–29.9 | greater than 94 cm male<br>greater than 80 cm female |
| Obese | greater than 30 | greater than 102 cm male<br>greater than 88 cm female |
| Class I | 30–34.9 | |
| Class II | 35–39.9 | |
| Class III | greater than 40 | |

**Risk of medical problems related to BMI. In people who are moderately overweight (BMI between 25 and 29.9), an increased waist circumference indicates an increased risk of medical problems.**

#### *My measurements*

BMI = Weight (kg) divided by height (in metres) to the power of 2.

[kg/m$^2$]

**Your BMI =**

**Your waist circumference =**

## What causes obesity?

This is a complex condition, and the causes and contributors are also complex. In order for obesity to occur in an individual, two factors need to occur:

1. a genetic predisposition towards obesity. Some people have a greater risk than others, and this familial tendency is usually easy to observe.

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2. a period or periods of calorie excess (where excess calories eaten are stored as fat). This can be associated with periods of reduced exercise.

There is a misperception that weight loss is simply a matter of eating less for a while and doing some exercise. If this were true, obesity as a disease wouldn't exist. (After all, who would choose to be obese if reversing the condition were simply a matter of eating less until you have 'used up' the extra calories you had eaten?) Unfortunately, obesity is irreversible. Once you have gained weight, and kept that weight on for a while, it becomes your new set-point weight (your normal weight). In order for someone to lose weight they need to eat less than most people they know, and unfortunately to keep that weight off they have to continue eating the same way. Someone wanting to lose weight permanently is facing a lifetime of eating far less than they are used to doing, and they have to sustain these eating habits in an environment where food is readily available and those around them are often eating more than they are, with seeming impunity.

## Weight and health

Obesity is associated with a number of medical and lifestyle complications. The number and severity of these complications are directly proportional to the severity and duration of obesity and vary with the distribution of body fat (see Figure 3).

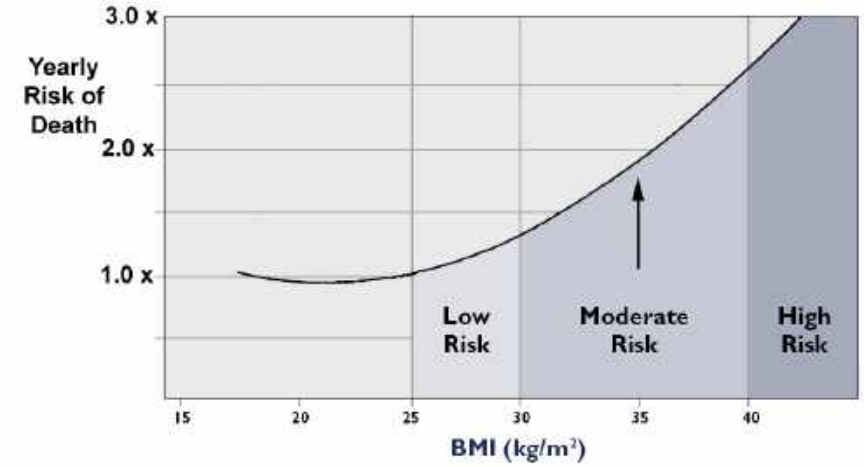


**Figure 2. The yearly risk of death from all causes *doubles at a BMI of 35* and rises considerably above this.**

### *What those excess kilos are doing to you*

Most patients with morbid obesity (BMI greater than 40) suffer from at least one of the following conditions. Look at these lists and see if any of these problems apply to you. Losing weight will help you gain control of many of these. Most people seeking surgery are doing it as much to improve their health and quality of life as to shed kilos and reach a particular goal weight. Becoming healthy and being able to participate in normal activities are far more meaningful.

| Medical conditions | Yes | No | Worried |
|---|---|---|---|
| Diabetes | | | |
| Hypertension | | | |
| High cholesterol | | | |
| Gall bladder disease | | | |
| Gastrointestinal disorders | | | |
| Menstrual irregularities/infertility | | | |
| Degenerative arthritis/joint pain | | | |
| Venous stasis ulcers/lymphoedema | | | |
| Intertrigo and other skin infections | | | |

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| | | | |
|---|---|---|---|
| Pulmonary hypoventilation syndrome, sleep apnoea, snoring | | | |
| Coronary artery disease and arterial sclerotic disease | | | |
| Increased incidence of malignancy in the ovaries, cervix, uterus, breasts, prostate, and gall bladder | | | |
| Increased risks with any surgery | | | |
| Accident proneness | | | |
| Pseudotumour cerebri | | | |
| **Social conditions** | **Yes** | **No** | **Worried** |
| Clothing limitations | | | |
| Limitation in performing activities of daily living, poor hygiene and sanitation | | | |
| Limited access to chairs, seats and passageways | | | |
| Limitation in walking, climbing stairs, public transport | | | |
| Social withdrawal | | | |

| **Economic conditions** | **Yes** | **No** | **Worried** |
|---|---|---|---|
| Cost of dieting | | | |
| Cost of treating various medical conditions due to obesity | | | |
| Lack of insurance coverage or increased premiums | | | |
| Cost of special clothing and devices for activities of daily living | | | |
| High rate of school drop out | | | |
| Difficulty obtaining a good job | | | |
| Cost of extra food consumed | | | |

| **Psychiatric conditions** | **Yes** | **No** | **Worried** |
|---|---|---|---|
| Depression | | | |
| Eating disorders | | | |

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# Treating obesity

### Fixing obesity is good for you!

Losing weight is an effective treatment for the medical conditions that obesity causes. The majority of the significant diseases that obese people suffer from, such as diabetes, hypertension, high cholesterol, sleep apnoea and depression are either controlled or significantly improved by weight loss.

## Treatment options

The aim of medical and surgical treatments for obesity is to encourage people to consume fewer calories than they are burning, which means they then use up their fat stores. If people need to keep weight off permanently, the reduction in calories must be ongoing. Most people cannot exercise enough to compensate for overeating, so the bulk of our focus will usually be on what you eat and the amount you eat.

The key to selecting a treatment for your weight problem depends on your goals. If you are overweight but not obese, there is no doubt that dieting and exercise will enable you to lose enough weight to help (see below). But if you are significantly overweight, this may not be the case and you may be a candidate for surgery. If, following consultation with your doctor, you do decide on surgery, keeping focus on your goals will often help you determine which type of operation is suitable for you.

### Medical treatments

Anyone who is thinking about weight loss surgery will have tried a number of diets in the past. While there are many types of diet, they all work by reducing food intake sometimes combined with increasing exercise.

| **Weight loss tools** | |
|---|---|
| **Reduced-energy diet**<br>Supervised by a dietitian; aims for an energy deficit of between 500 and 1000 calories per day, or alternatively a total intake of 1500 calories per day for women and 1800 calories for men.<br>The composition of the diet is probably unimportant, and an average of 3–5 kg weight loss maintained at 2–3 years is expected. | **Very low energy diet (VLED)**<br>Replaces meals with commercially available drinks or bars. Used alone provides 600–800 calories per day, or in combination with a normal meal provides 1200 calories per day.<br>Used frequently by specialist weight loss clinics, but requires supervision. For long-term results is best given as part of a diet plan that will have the patient moving onto a supervised reduced-energy diet with exercise.<br>Is the one of the easiest and most reliable methods of rapid weight loss available if patients can be compliant, and is associated with the best long-term results. |
| **Psychological therapy**<br>While the myth that Obesity is a psychological disorder has been well and truly dismissed, Obesity and mental health conditions can exist side by side.<br>Patients with drug and alcohol problems often do very badly after weight-loss surgery and need to be in remission prior to treatment.<br>Patients with eating disorders can still have surgery, but they need to have them managed in concert with their Obesity therapy in order to avoid problems and weight regain. Patients with other mental health conditions will also need to have these discussed, in order to avoid problems, esp if people suffer from weight regain or side effects after surgery. | **Exercise therapy**<br>3–4 hours of walking per week will provide 2–3 kg of weight loss; combined with a significant calorie reduction will give only 2–3 kg more weight loss. This degree of exercise causes a 1000–1500 calorie deficit per week, which is less than one takeaway meal, but the beneficial effect on health will far outweigh the minimal effect on weight.<br>About 30 minutes of moderate intensity exercise (able to raise heart rate) on most days of the week will confer significant protection from cardiovascular and other diseases, so this should be the **stated goal** for all weight management patients. More prolonged or intensive exercise should only be encouraged in patients who have managed this amount of exercise over a significant time period.<br>About 5 hours of moderate-intensity exercise per week is required to prevent progression of overweight to obesity, and 7–10 hours a week to maintain someone in the reduced obese state, that is, to prevent weight gain after a diet. |

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*Results*

Diet and exercise treatments for obesity (lifestyle interventions) aim to reverse the trends that have led to weight gain (calorie excess and inactivity). The best of these types of treatments place the dieter at the centre of the process, so that they can learn about the positives and negatives of their usual food and exercise habits. Learning to eat and exercise in a healthy and sustainable way (lifestyle change) is an excellent goal for dietary treatments. Unfortunately however, the drive to be healthy is often abandoned in the drive to seek more weight loss, more quickly. This means that patients can often end up heavier and unhealthier at the end of a diet than they were at the beginning.

**Updated pharmacotherapy for obesity — 2026**

Drug therapy for obesity has been revolutionised since this guide was written. The original table listed three medications (phentermine, orlistat, fluoxetine); these have largely been superseded by agents that are dramatically more effective. The following replaces that section.

Orlistat 120mg (Xenical) — fat absorption inhibitor: Daily oral medication. Mean weight loss approximately 2–3% total body weight above placebo. Common gastrointestinal side effects. Still prescribed where injections are not tolerated.

Phentermine (Duromine) — noradrenergic appetite suppressant: Short-term use only (up to 12 weeks). Mean weight loss approximately 3–5 kg. Largely replaced by newer agents.

Semaglutide 2.4mg (Wegovy) — GLP-1 receptor agonist: Once-weekly subcutaneous injection. Mean total body weight loss approximately 15% over 68 weeks (STEP 1 trial; Wilding et al., NEJM 2021). TGA-approved for obesity. The most significant advance in obesity pharmacotherapy in two decades.

Tirzepatide 15mg (Mounjaro) — dual GIP/GLP-1 receptor agonist: Once-weekly injection. Mean total body weight loss approximately 21% over 72 weeks (SURMOUNT-1; Jastreboff et al., NEJM 2022). Approved for type 2 diabetes; obesity indication under active regulatory review in Australia.

Retatrutide 12mg — investigational triple GIP/GLP-1/glucagon agonist: Phase 3 trials ongoing; not yet TGA-approved. Mean total body weight loss approximately 24% at 48 weeks in Phase 2 data (Jastreboff et al., NEJM 2023).

Critical limitation: Most patients regain 50–70 per cent of lost weight within 12 months of stopping a GLP-1 agonist. These medications must be continued indefinitely — a fundamental difference from surgery. Ongoing cost (approximately $250–$500 per month in Australia; limited PBS coverage) is a major practical consideration.

Combining medication with surgery: These approaches are not mutually exclusive. Pharmacotherapy before surgery can reduce operative risk; after surgery, medications can supplement outcomes if significant weight regain occurs. We have found that patients who try GLP1 agonists lose an extra 8-12% weight loss, often at 50% normal dosing, and that weight regain after they stop the GLP1 is slow because patients after bariatric surgery already have small stomachs.

**The primary goal of any weight loss intervention always has to be health**

At the end of a diet it is ideal if patients focus on eating and exercising healthily, rather than focusing too much on their weight. Carrying a few extra kilograms can be frustrating, but it is no barrier to being healthy. (To find out more about this, do an internet search on Health at Every Size.)

Based on evidence from thousands of patients in lifestyle intervention trials, diet and exercise alone — without medication — can reliably achieve 5 per cent total body weight loss in most compliant patients, and up to 10 per cent in approximately one in six. These figures apply to lifestyle interventions only; pharmacotherapy substantially increases achievable weight loss, and surgery produces the greatest and most durable results. Even modest losses of 5–10 per cent produce clinically significant improvements in blood sugar, blood pressure, cholesterol, and sleep quality.

For context on the full spectrum of weight loss available in 2026: lifestyle intervention alone 5–10%; GLP-1 receptor agonists (semaglutide) approximately 15%; dual GIP/GLP-1 agonists (tirzepatide) approximately 21%; investigational triple agonists approximately 24%; bariatric surgery 17–35% total body weight at 5 years, depending on procedure.

*Compliance and adherence*

When you go on a diet, you are usually asked to follow instructions (eat this, don't eat that, etc.). If you are able to follow these instructions beyond a couple of days or weeks and lose some weight, it means that you have been able to comply with the instructions.

Because it is more or less inevitable that returning to your old (pre-diet) eating and exercise habits will lead to your returning to your pre-diet weight, the key to continuing weight loss will be your ability to maintain compliance with the diet. Continued compliance is referred to as **adherence**.

If you have lost weight by following a diet it indicates compliance (which most people can do for weeks or months). The problem is that most diets are complex and difficult to stick to, so people regain their weight due to difficulty in adhering to the diet permanently. In Figure 3 below you can see the issue of compliance and adherence: about 50 per cent of patients can successfully start a diet and stick with it for 10 weeks (compliance), but most of these patients cannot continue and fewer than 10 per cent are still continuing at a year (adherence).

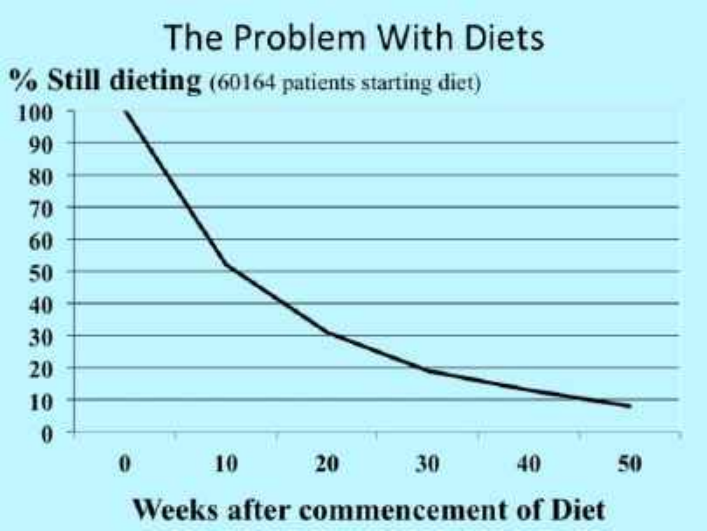


**Figure 3. The problem of compliance and adherence with weight loss diets.**

**The aim of all weight loss treatments is to keep patients** consuming fewer than **1500–1800 calories per day**, **lifelong.**

**If a weight loss of** more than **20 kg is wanted**, **then the aim is a diet of 1100–1400 calories daily.**

**If a diet can be managed permanently, it will be successful**.

*Notes:*

- What diets and other methods have I tried?
- How much weight did I lose and for how long?
- Why did it fail?

| |
|---|
| |
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| |

## Surgical treatments: obesity (bariatric) surgery

Obesity surgery has been shown to provide effective long-term weight control in the majority of morbidly obese patients who undergo it (95 per cent short term, 75–85 per cent long term in patients who continue follow-up). Obesity surgery is recognised by Medicare and insurers as being a medical (not cosmetic) treatment. Obesity surgery has been recommended for morbidly obese people by the major health policy agencies in Australia, the United States of America and the United Kingdom. The effect of surgery has been followed up for as long as 20 years and has been shown to reduce disease and death rates, to improve body image and social function and to reduce personal and community costs over this time.

*How does surgery work?*

For obesity surgery to work, a couple of things need to happen. A safe and effective operation is obviously very important but, once the operation is over, the key to success rests with the person who has had the procedure. Surgery does not cure obesity, because removing someone's stomach or altering how their stomach works won't prevent them from overeating. Nor will it force them to make the right food and lifestyle choices.

Surgery drastically reduces someone's capacity to eat and their hunger, but if this isn't coupled with a lifestyle that leads to the person 'eating to live' rather than 'living to eat', they are likely to continue with the poor choices that led to them having a weight problem in the first place. A person who has weight loss surgery must accept the fact that obesity is due to chronic overeating without sufficient exercise, and in order to restore the balance they need to alter their approach to food so they spend the rest of their life eating significantly less than they are accustomed to.

Getting people to make fundamental and permanent change is difficult, and while we use surgery as a catalyst and a crutch to help patients lose weight and gain health, we need a team approach to maximise the chance of success. The **team** we provide includes surgeons, physicians, nurses, dietitians and psychologists. The **team** a patient brings are those people who support their decision to change, such as a spouse or partner, friends, co-workers, and their general practitioner (GP). Once patients lose their excess weight, they seem to have a good chance of maintaining this weight loss in the long term (20 years or longer) and every effort needs to be made after surgery to make sure this happens!

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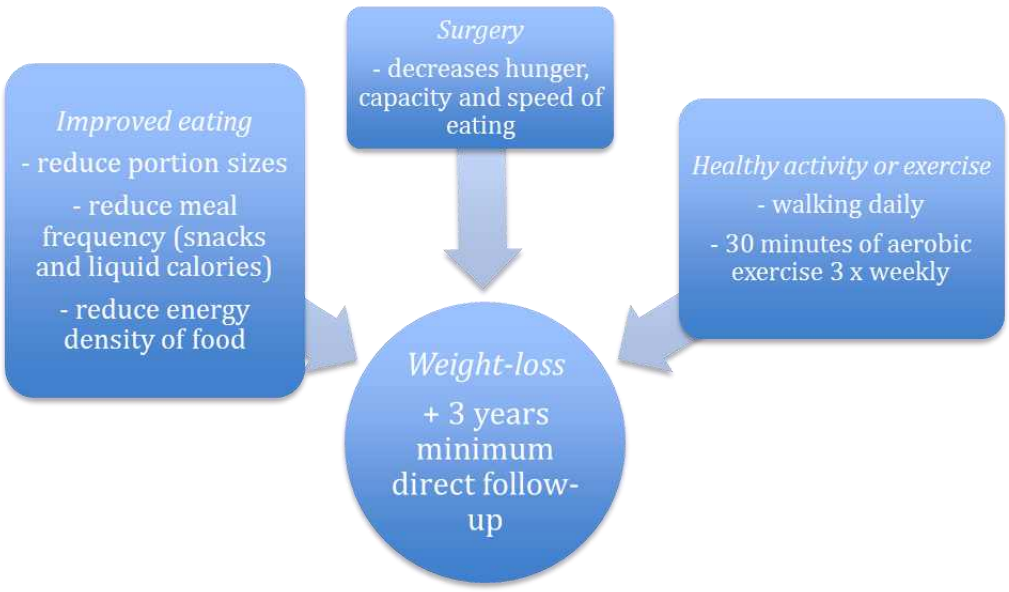


**Figure 4. The elements of successful long-term weight loss.**

*What surgical treatments are available?*

Surgery for obesity has a lot in common with non-surgical treatment, in that the aim is to encourage patients to eat healthy food, reduce their calorie intake and do sustainable exercise. The main difference relates to the magnitude of weight loss, and the mechanisms that assist in achieving and maintaining it. Surgery changes the way you eat and process food so that the effort required to lose weight is significantly less than with dieting. Because of this, the average weight loss with surgery is 5–10 times greater than the average weight loss with a diet.

The range of effective surgical and endoscopic procedures has expanded considerably since 2003. The following describes the options available in Australia in 2026:

**Established bariatric procedures**

**Laparoscopic sleeve gastrectomy (LSG)** — the most commonly performed bariatric procedure in Australia. Removes approximately 80 per cent of the stomach, reducing hunger and food capacity. Mean 5-year total body weight loss approximately 26.5 per cent.

**Roux-en-Y gastric bypass (RYGB)** — the historical gold standard; excellent long-term data; particularly effective in patients with type 2 diabetes and gastro-oesophageal reflux disease. Mean 5-year total body weight loss approximately 30.7 per cent.

**One anastomosis gastric bypass (OAGB / mini gastric bypass)** — now fully established, with registry data showing superior average weight loss to RYGB. A technically simpler operation with comparable safety. Mean 5-year total body weight loss approximately 34.9 per cent.

**Single anastomosis duodeno-ileal bypass with sleeve gastrectomy (SADI)** — a sleeve-plus-bypass procedure offering the highest weight loss of any commonly performed single-stage bariatric operation, with additional metabolic benefits in type 2 diabetes. There are other “sleeve Plus” operations available as well, including Transit Bipartition, Non-divided SADI and others. Please ask if you have any questions about these other options.

**Laparoscopic adjustable gastric band (LAGB)** — less commonly recommended now due to high long-term complication rates (approximately 40–50 per cent explantation at 10 years). Still offered to carefully selected patients. Mean 5-year total body weight loss approximately 17.6 per cent.

**Revision and conversion surgery** — for weight regain, complications, or conversion between procedures.

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**Endoscopic and emerging procedures**

**Endoscopic sleeve gastroplasty (ESG)** — a non-surgical procedure performed through a flexible endoscope, reducing stomach volume with sutures. Approximately 15–18 per cent total body weight loss at 2 years. Suitable for patients who prefer a non-surgical option or as a bridge to surgery.

**Intragastric balloon** — still available; produces 10–15 per cent weight loss over 6 months. Useful as a bridge to surgery or for patients not yet ready for a definitive procedure.

**Biliopancreatic diversion with duodenal switch (BPD-DS)** — the most effective but most complex procedure; reserved for extreme obesity (BMI 60 or above) where maximum weight loss is essential.

Note: Laparoscopic gastric plication and banded sleeve plication are no longer routinely recommended. Long-term evidence has not supported their continued use.

Apart from the intestinal bypass operations, all of these operations lead to weight loss by encouraging patients to eat less. These procedures change the way your stomach and hunger hormones work, so that most of the day you have no hunger, and when you do feel hungry a small plate (bread-and-butter plate or entrée-sized meal) will be enough. As with all diets, the key is consistent caloric reduction; it's just that the surgery makes this a lot easier. (More than 85 per cent of patients will succeed.)

*Surgical outcomes: Goal setting*

Surgery brings a realistic possibility of remission of type 2 diabetes, high blood pressure, high cholesterol, obstructive sleep apnoea, and non-alcoholic fatty liver disease. Patients who do not achieve full remission will require significantly less medication.

**Updated 5-year outcomes — Australia and New Zealand Bariatric Surgery Registry (Brown et al., ANZ J Surg 2025; n=3,566 patients):**

Laparoscopic adjustable gastric band: mean 17.6% total body weight loss (SD 11.8%).

Sleeve gastrectomy: mean 26.5% total body weight loss (SD 10.3%).

Roux-en-Y gastric bypass: mean 30.7% total body weight loss (SD 9.5%).

One anastomosis gastric bypass (OAGB): mean 34.9% total body weight loss (SD 8.7%).

Individual results vary considerably. Most patients do not reach a BMI below 25, and this should not be the primary goal. The aim is meaningful weight loss that improves health, reduces medications, and improves quality of life — outcomes which the majority of surgical patients achieve and sustain over the long term.

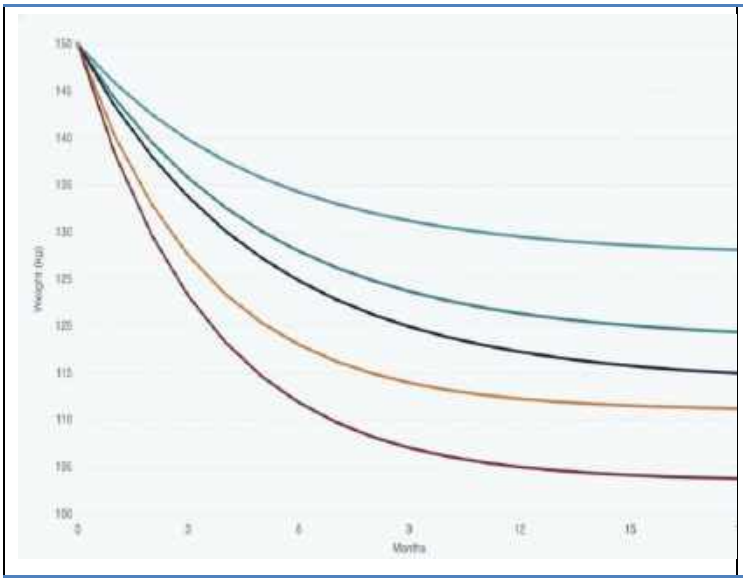


**Figure 5. Projected weight loss over 18 months for a person weighing 150 kg at 180 cm (BMI 46).**

**The upper 3 lines are maximal dose GLP1 agonists, the lower 2 are sleeve and bypass. Most patients who stop the GLP1 will regain weight. Gastric bypass weight loss has been shown to continue out to beyond 20 years**

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## What can obesity surgery achieve for you?

List the obesity-related problems that you wish to overcome, the life goals you wish to meet, and the minimum weight loss you would wish to maintain long term.

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# Obesity operations

**Not every operation is the same and not every person is the same; you should take the time to choose the best treatment for you.**

Weight loss operations work by helping patients limit their food intake. While all these procedures can be successful, results vary from operation to operation, from person to person and from surgeon to surgeon. Because of their differing nature, the different types of operation have varying positives and negatives. Most people, following consultation with their doctor, are able to choose what suits them the best. When choosing a surgeon**,** you should ask which type of operations they perform (and how many), as it may be difficult for them to offer an opinion on an operation that they do not perform routinely, and quite risky for them to practise it.

When choosing an operation, it may be useful to speak to other people who have undergone similar procedures. Try to find out about as many of the options as possible, and have a look at blogs and social media to get a feel for the range of experiences that patients can have after this type of surgery. Remember that more than one option will exist for you!

There is no guarantee of weight loss, nor is there any ability to correctly judge how a patient will fare with one particular operation over another.

*Surgical management*

- For the majority of patients, we aim for a calorie target of about 800 to 1000 calories per day (most days) for 12 to 18 months, and then an 1100 to 1300 calorie intake after this (permanently).
- Patients are to eat normal, healthy food, but smaller amounts (bread-and-butter plate serves), three times per day.
- Vitamin and mineral supplements will be tailored to the individual on a lifelong basis.
- Lifelong follow-up is essential. If someone cannot come back to the surgeon for follow-up, care of the person post-surgery should be formally handed over to whichever doctor they are seeing on a long-term basis.

## Non-surgical operations

Endoscopic (non-surgical) procedures for weight loss have advanced considerably since this guide was written. Several are now well-established treatments rather than experimental options. They are performed through a flexible telescope passed through the mouth, without any incisions.

The intragastric balloon is the most commonly performed of these procedures. This works by suppressing appetite and causing fullness after a few mouthfuls of food. While the patient is placed under a light anaesthetic, the balloon is placed through their mouth into their stomach using a flexible endoscope, and inflated to fill up the mid-part of the stomach, in the same way a large meal would fill it. The device is left in place for up to six (and sometimes 12) months. This procedure is ideal for people who:

- are perhaps not heavy enough to be considered for regular weight loss surgery
- are heavy enough to undergo regular weight loss surgery but do not wish to commit to something permanent
- need to lose weight quickly for medical reasons (such as for a joint replacement) but find it hard to do so.

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**Figure 6. Intragastric balloon. The device 'floats' in the stomach and causes a feeling of fullness.**

*Diagram courtesy of Allergan Health.*

Because the balloon is removed after six months, its effect is not permanent. It is hoped that the intensive retraining that occurs after balloon placement can help the patient keep weight off in the long term. Of the patients who undergo this treatment, 25 per cent will maintain their weight loss.

**Advantages:** Very low risk of long-term complications. Rapid initial weight loss for most patients.

**Disadvantages:** Between two and five per cent of people do not tolerate the balloon and need to have it removed before it has had any useful effect. Nausea is common for the first few days. Average weight loss (20 kg) is less than that achieved through surgery, and risk of weight gain is high unless significant lifestyle changes can be maintained after balloon removal. More than 75 per cent of people will regain weight by 3–5 years post-procedure. Heavier people can find it especially hard to maintain weight loss after the balloon has been removed.

### Endoscopic sleeve gastroplasty (ESG / EndoSleeve)

The endoscopic sleeve gastroplasty (ESG) — sometimes called the EndoSleeve — involves placing a series of sutures inside the stomach through an endoscope, reducing the stomach's volume and slowing food passage. No incisions are made and no tissue is removed. It produces approximately 15–18 per cent total body weight loss at 2 years, with a complication rate significantly lower than surgical procedures. It is now a fully established procedure with 5-year outcome data and is performed at this practice. It is best suited to patients who prefer to avoid surgery, or as a bridge to a definitive surgical procedure.

## Surgical operations

### Laparoscopic adjustable gastric band (LAGB)

The band is placed at the upper part of the stomach, creating a small pouch above it. Patients feel satisfied after eating small amounts and must eat slowly and carefully. The band is adjustable via a port placed under the skin, allowing the restriction to be tightened or loosened over time. It is the least invasive of the surgical weight loss procedures and is fully reversible.

Advantages: The operation is reversible and adjustable. No part of the stomach or bowel is removed or permanently altered. Vitamin deficiencies are uncommon because no bowel is bypassed. Hospital stay is short (usually one night) and recovery is rapid.

Disadvantages and important update — 2026: Long-term outcomes have been disappointing compared to sleeve and bypass procedures. Australian and international registry data show that approximately 40–50 per cent of patients require band removal within 10 years due to slippage, erosion, port problems, or failure to achieve adequate weight loss. Mean 5-year total body weight loss is approximately 17.6 per cent — significantly lower than sleeve or bypass. For this reason, the band is now offered only to carefully selected patients and is no longer routinely recommended as a first choice. Patients with an existing band who are experiencing problems, or who have had inadequate weight loss, should discuss conversion to a sleeve, bypass, or OAGB with their surgeon.

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## Laparoscopic sleeve gastrectomy (LSG)

The sleeve gastrectomy removes approximately 75–80 per cent of the stomach, creating a narrow tube (sleeve) along the lesser curve. This significantly reduces the stomach's capacity and — crucially — removes the fundus, which is the main site of ghrelin production. Ghrelin is a hormone that stimulates hunger; reducing it is a major mechanism of the sleeve's effectiveness beyond simple restriction. The sleeve is now the most commonly performed bariatric procedure in Australia.

Weight loss is substantial, with a mean total body weight loss of approximately 26.5 per cent at 5 years in Australian and New Zealand registry data. Weight regain can occur over time, particularly if eating habits are not maintained, and conversion to a bypass or OAGB is possible if this occurs. Approximately 20–30 per cent of patients develop or worsen reflux (GORD) after sleeve gastrectomy, and patients with pre-existing significant reflux or Barrett's oesophagus should discuss whether a bypass procedure may be more appropriate.

**This operation is well suited for:**

- patients seeking substantial weight loss without the complexity of a bypass or the long-term intestinal bypass of a SADI
- patients who wish to minimise vitamin supplementation requirements (though supplements including B12, vitamin D, and calcium are still recommended)
- patients who may initially be too unwell for a bypass but are expected to require more weight loss later — sleeve can be a staged approach, with conversion to OAGB or SADI planned if needed

Because part of the stomach is permanently removed, the sleeve is irreversible. Patients should consider it a permanent procedure. Conversion to a bypass or OAGB is possible and commonly performed if weight loss is inadequate or reflux becomes problematic, but this is a more complex second operation.

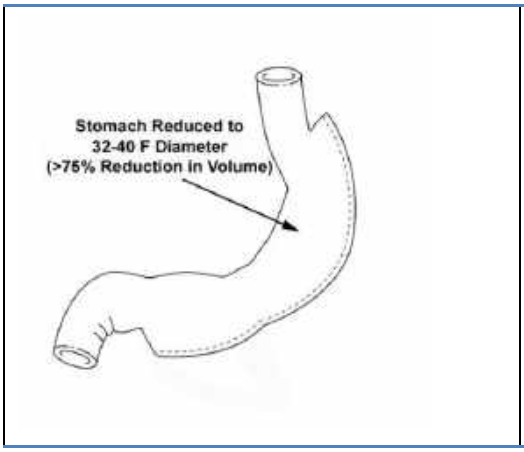


**Figure 9. Sleeve gastrectomy. A narrow stomach tube is created and the outer part of the stomach discarded. This can be done as a stand-alone operation, or it can be made stronger with more weight loss by changing it to a bypass months or years later.**

## Laparoscopic Roux-en-y gastric bypass (RYGBP)

The Roux-en-Y gastric bypass creates a small stomach pouch (approximately 30 ml) by dividing the stomach near the top, then connects a limb of small bowel directly to this pouch. Food bypasses the remainder of the stomach and the first 100–150 cm of small intestine. This reduces calorie intake through restriction and leads to important hormonal changes — including favourable shifts in gut hormones — that improve satiety and metabolic function well beyond what simple restriction alone would achieve.

RYGB has an excellent combination of effectiveness and durability, with mean total body weight loss of approximately 30.7 per cent at 5 years in Australian registry data. It is particularly effective for type 2 diabetes remission, with remission rates of 60–80 per cent in suitable patients. RYGB is the preferred procedure for patients with significant gastro-oesophageal reflux disease (GORD) or Barrett's oesophagus, as it reliably resolves reflux — unlike the sleeve, which can worsen it.

The published evidence base for RYGB is the most extensive of any bariatric procedure, spanning more than 30 years of follow-up data. It was the procedure on which most government health agency

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approvals of bariatric surgery were based. The newer OAGB (omega loop / mini bypass) achieves slightly higher weight loss with a simpler anastomosis and is now an equally valid alternative for most patients without significant reflux; the choice between them should be individualised.

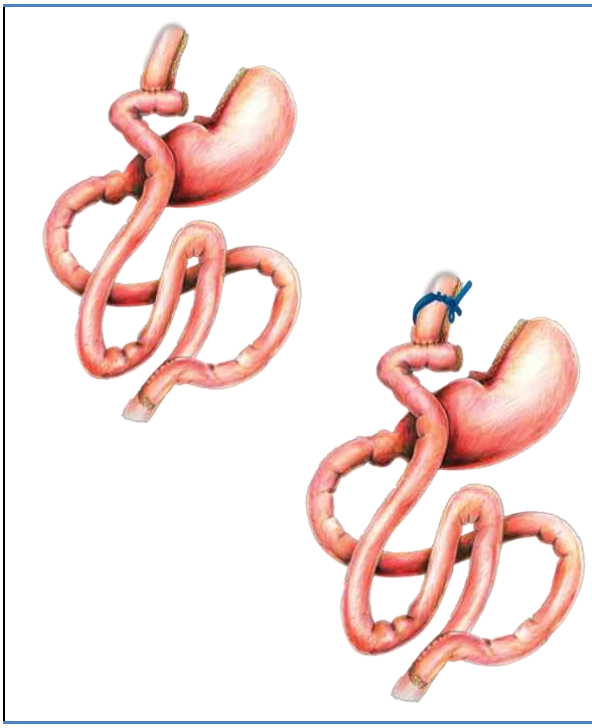

**Figure 10. Gastric bypass. Has a small-volume gastric pouch, a narrow outlet from the divided stomach, and bypass of part of the small bowel.**

In some patients, a ring or band can be placed around the stomach pouch during the operation (banded bypass or Fobi procedure) to limit the risk of the pouch stretching over time. This is less commonly performed than previously, as evidence for long-term benefit over standard RYGB is mixed, and band-related complications can occur. It may still be considered in selected patients at high risk of weight regain.

### Banded gastric bypass (Fobi procedure)

In larger patients, or those who are habitual large-meal eaters, a ring can be placed around the gastric pouch to prevent it softening due to forceful eating. Pouch softening may otherwise lead to increased capacity and later weight regain. Due to the ready availability of a high-quality band, I now perform the banded bypass as my routine procedure, unless technical or patient factors make this unwise.

## One anastomosis gastric bypass (OAGB) / Omega loop bypass / Mini gastric bypass

The one anastomosis gastric bypass (OAGB) — also known as the omega loop bypass or mini gastric bypass — has become one of the most commonly performed bariatric operations in Australia and internationally, and is performed more frequently than the Roux bypass.

How it works: A long narrow gastric pouch is created along the lesser curve of the stomach, similar to a sleeve, but extending down towards the pylorus. A single loop of small bowel is then brought up and joined to the bottom of this pouch (the 'omega loop' or single anastomosis), bypassing approximately 150–200 cm of the small intestine. Unlike the Roux-en-Y bypass, there is only one join (anastomosis) rather than two, which makes the operation technically simpler and somewhat shorter.

Weight loss outcomes: OAGB produces among the greatest average weight losses of the commonly performed bariatric procedures, exceeding sleeve gastrectomy and Roux-en-Y gastric bypass. In the Australia and New Zealand Bariatric Surgery Registry 5-year data, OAGB patients achieved a mean total body weight loss of 34.9 per cent — exceeding both sleeve gastrectomy (26.5%) and Roux-en-Y bypass (30.7%). Remission of type 2 diabetes is also excellent, comparable to or exceeding RYGB.

Advantages: Single anastomosis makes the operation technically simpler with a shorter operating time than RYGB. Very effective for weight loss and metabolic disease. The pouch can be revised more easily than RYGB if needed. Well-suited to patients with diabetes.

Potential concerns: Because it is a loop (rather than a Roux) configuration, there is a risk of bile reflux into the stomach pouch and oesophagus, troublesome bile reflux may require conversion to Roux-en-Y gastric bypass in 5% or more. Patients with pre-existing severe reflux or Barrett's oesophagus may

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be better suited to RYGB. Vitamin and mineral supplements — including iron, calcium, vitamin D, and B12 — are required lifelong. Regular blood tests are important.

Who is it for: OAGB is well-suited to patients seeking maximum weight loss, those with type 2 diabetes, and patients in whom a simpler anastomotic configuration is preferred. It is not recommended as a first choice in patients with significant pre-existing reflux disease.

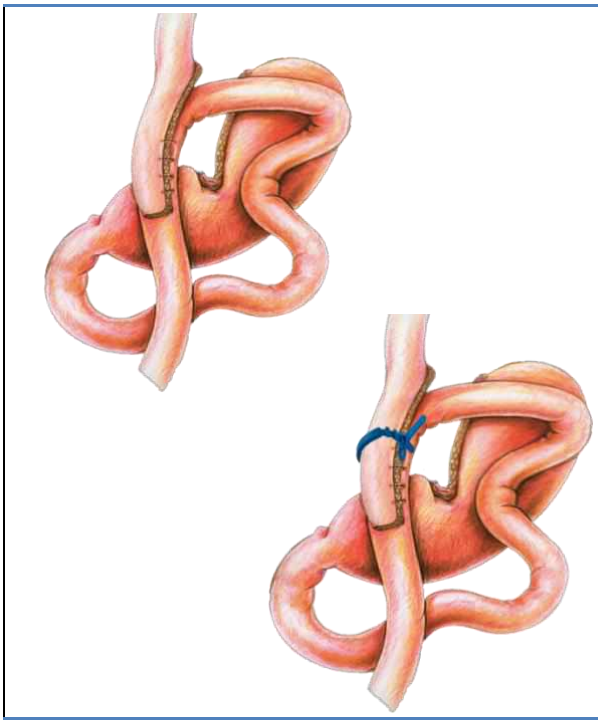

**Figure 11. Omega loop bypass. Has a small-volume gastric pouch, and bypass of part of the small bowel.**

In some patients, a ring or band can be placed around the stomach pouch during the operation (banded bypass or Fobi procedure) to limit the risk of the pouch stretching over time. This is less commonly performed than previously, as evidence for long-term benefit over standard Bypass is mixed, and band-related complications can occur. It may still be considered in selected patients at high risk of weight regain.

## Single anastomosis duodeno-ileal bypass with sleeve gastrectomy (SADI)

The SADI is a two-component operation combining a standard sleeve gastrectomy with a single-anastomosis intestinal bypass. It was developed in Spain as a simplified version of the biliopancreatic diversion with duodenal switch (BPD-DS), and is now performed regularly in Australia, including at this practice.

How it works: The first part of the operation creates a sleeve gastrectomy — removing approximately 80 per cent of the stomach, exactly as in a standard sleeve procedure. The second part divides the duodenum just beyond the pylorus and connects a loop of ileum approximately 250–300 cm from its end directly to the duodenum. This bypasses a large length of small intestine, dramatically reducing calorie and fat absorption. The single anastomosis (like the OAGB) simplifies the operative technique compared to the traditional duodenal switch.

Weight loss outcomes: SADI produces the highest average weight loss of any commonly performed bariatric procedure. Published data show mean total body weight loss of 30–38 per cent at 3–5 years, with exceptional results for type 2 diabetes remission (up to 80–90 per cent), dyslipidaemia, and metabolic syndrome. It is particularly effective in patients with very high BMI (above 50) and those with multiple obesity-related medical conditions. It's one of the "Sleeve Plus" procedures for patients wanting a "bypass" procedure but with a differing side effect profile from the gastric bypass operations. It also has a low risk of causing dumping or ulcers so it's ideal for patients where this is a concern. This is especially relevant for people who need to take a lot of anti-inflammatories or who worry about their ability to stay away from cigarette smoking or vaping.

Advantages: Substantially greater weight loss than sleeve gastrectomy or RYGB. Single anastomosis reduces complexity compared to BPD-DS. Preserves the pylorus, which reduces dumping syndrome compared to bypass procedures. Outstanding metabolic outcomes — particularly for diabetes. The sleeve component is familiar and well-understood.

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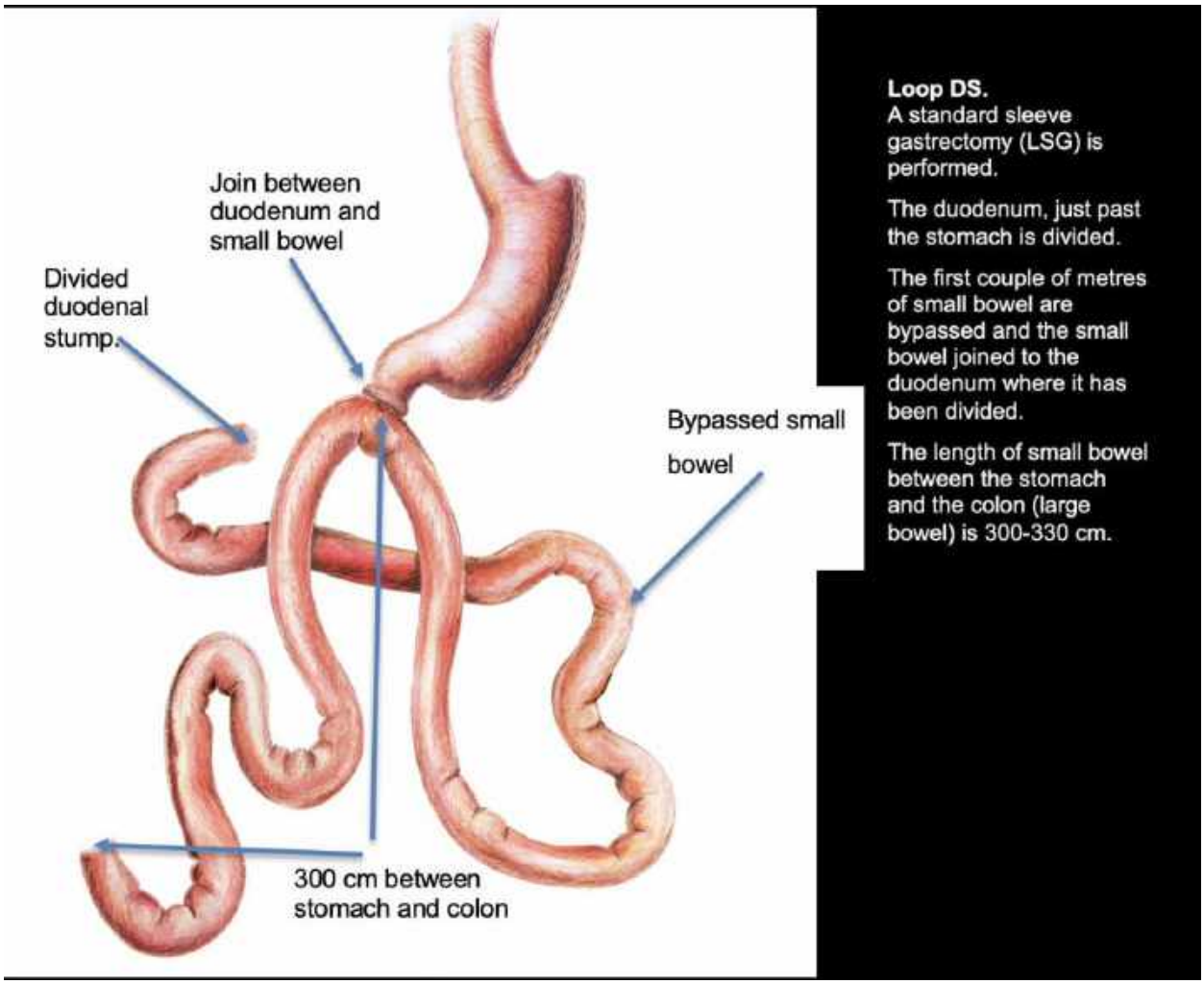
Important considerations: The SADI bypasses a large portion of the intestine, meaning vitamin and mineral absorption is significantly reduced. Patients must commit to comprehensive supplementation — including fat-soluble vitamins (A, D, E, K), calcium, zinc, iron, and B12 — for life, and require regular blood monitoring at least annually. Protein intake must be prioritised, and some patients may require additional protein supplementation to maintain adequate nutritional status. Because of this, SADI is generally reserved for patients with higher BMI (typically above 45–50 kg/m²), those with multiple metabolic comorbidities, or those who have had inadequate weight loss after a previous sleeve gastrectomy.

Who is it for: SADI is best suited to patients with very high BMI, those seeking maximum weight loss, patients with severe type 2 diabetes or metabolic syndrome, and patients converting from a previous sleeve gastrectomy with weight regain. It requires a highly motivated patient committed to long-term supplementation and follow-up. It's one of the options for patients who have gained weight after a sleeve as well.

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*Notes:*

- Do I know anyone who has had a weight loss operation?
- What operation did they have?
- Were they happy with their result?
- What are my own weight loss goals?
- What questions should I ask?

## Robotic surgery

Robotic-assisted surgery uses a console and articulated robotic arms to give the surgeon enhanced precision, 3D vision, and a greater range of movement than standard laparoscopic instruments. The surgeon controls all movements at all times — the robot does not operate independently. Robotic assistance is now standard practice for many complex bariatric and upper gastrointestinal operations.

We offer robotic-assisted surgery for patients considering this option. The equipment at this practice includes the latest generation of robotic platforms available including the da Vinci MultiPort and Single-Port (SP) systems, and the Medtronic Hugo™ RAS.

- The surgeon still does the procedure, so having a robot cannot make up for any lack of skill in the surgeon.
- Only some operations are better done robotically than laparoscopically. If using the robot makes the procedure easier for the surgeon by reducing the surgeon's fatigue, or by allowing the surgeon to get into a part of the body that is hard to reach, this makes a keyhole operation more likely to be successful and can make the difference between choosing an open procedure and a keyhole method.

Robotic assistance is particularly well suited to complex revision surgery (converting a band or sleeve to a bypass or OAGB), SADI and duodenal switch procedures, hiatus hernia repair combined with bariatric surgery, and reoperative cases where scarring from previous surgery makes conventional laparoscopic dissection more difficult. For routine primary sleeve gastrectomy, the outcomes of robotic and standard laparoscopic surgery are equivalent; the robotic advantage is most evident in technically demanding operations.

The main practical consideration for robotic surgery is cost. Robotic equipment carries higher capital and running costs than conventional laparoscopy, and some of this is reflected in out-of-pocket expenses for patients if you are not in a Health Fund.

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## Revision/redo surgery

All surgical procedures for obesity, both old and new, are designed to change how the person processes food. Although all of these procedures are designed to be permanent, in reality not all the effects of the surgery are permanent. Over time, parts of the stomach and oesophagus can stretch and sag, and patients can develop new conditions such as ulcers or reflux. In general, these operations are like anything mechanical: the better you maintain it, the longer it lasts. Unfortunately it is very common for patients to drift away from their initial enthusiasm and gradually stop looking after themselves and their operation. This can lead to weight regain, problems with how the operation works, and complications that require surgical intervention. Unfortunately, being compliant and sensible does not guarantee a hassle-free operation, although it will reduce the risk of problems by about 75 per cent. Many of the older types of operation (stomach stapling, older banding operations) also had design faults that led to problems in their function over time, even if patients did the right thing.

In general, between about 10 and 30 per cent of patients having any type of weight loss surgery will end up needing later surgery to treat complications or weight regain. One of the main reasons patients should return to their surgeon for follow-up is to reduce the risk of repeat surgery, and to notice and treat any problems early.

## Surgery for complications

### Lap band

Patients who have their band too tight, or who experience frequent vomiting or reflux, should have the band loosened (deflated) promptly rather than continuing to manage symptoms. Persistent symptoms despite adjustment, significant weight regain, band slippage, or erosion may require conversion to a sleeve, RYGB, or OAGB. Band removal without conversion typically results in substantial weight regain and a post-removal weight management plan should be considered. While many patients request a Sleeve after band removal, we know from experience that Sleeve gastrectomy after LAGB is often associated with a high rate of conversion to gastric bypass later on.

### Sleeve gastrectomy

Acute complications after sleeve gastrectomy are uncommon. The most serious is a staple line leak (approximately 1–2 per cent worldwide and under 1 in 500 at our practice), which can lead to infection and may require reoperation, drainage, or endoscopic stenting. Bleeding from the staple line occurs in approximately 0.1–0.5 per cent of patients. Long-term, the most common significant issue is gastro-oesophageal reflux — affecting up to 20–30 per cent of patients at 5 years — which may require medical treatment or, in severe cases, reoperation and sometimes conversion to a bypass procedure. Overall 30-day mortality for sleeve gastrectomy is approximately 0.1–0.2 per cent, comparable to laparoscopic cholecystectomy.

### RYGBP and OAGB

Acute complications after gastric bypass are uncommon. Anastomotic leak — a join that does not heal properly — occurs in approximately 1 in 500 patients (0.2 per cent) and can be serious, requiring reoperation or radiological drainage. Bleeding occurs in approximately 1 in 500 as well. About 1 in 50 patients will develop a narrowing (stricture) at the anastomosis in the months after surgery, which is usually treated by endoscopic balloon dilatation. Overall 30-day mortality for Roux-en-Y bypass is approximately 0.1–0.3 per cent in experienced centres — broadly equivalent to elective cholecystectomy.

Longer-term bypass-specific issues include internal hernias (bowel slipping through the surgically created gaps in the mesentery, occurring in approximately 2–3 per cent over 10 years and usually requiring laparoscopic repair), ulcers at the stomach-bowel join (more common in smokers and patients who take anti-inflammatory medications or aspirin), and dumping syndrome (lightheadedness or nausea after eating sweet or high-fat foods, affecting approximately 10–20 per cent to some degree). Vitamin and mineral deficiencies — including iron, B12, calcium, and vitamin D — are common without supplementation and require lifelong monitoring.

## Surgery for weight regain

Revision surgery is quite common. To date I have performed over 1000 re-operations on weight loss patients – I usually do one or two of these operations per week.

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All weight loss operations suppress appetite and make the patient eat slowly. If the person learns to eat small, regular meals (three meals a day) and avoid snacking and liquid calories, they will generally do well in the long term.

For most patients with weight problems, the tendency to snack, graze and comfort eat was a major contributor to their original weight problem. If these behaviours persist after surgery we expect their weight problem to come back. Some weight regain occurs in the large majority of patients after surgery, usually due to snacking rather than to eating large meals.

Thankfully, many patients seek help when they start to regain weight, and can get back on track relatively easily, but there are others who only seek help after they have regained large amounts of weight. This group probably accounts for about 75 per cent of the patients who need redo surgery after a previous weight loss operation. They can be easily identified because they have previously stopped coming in for follow-up, they have stopped taking their vitamins and have recommenced bad lifestyle choices. In the other 25 per cent of patients requiring redo surgery, weight regain is due to the development of a technical problem with their operation. If they present before they have had massive weight gain, solving the problem is fairly straightforward.

## Options for redo surgery

All patients with weight regain need:

- assessment of the **anatomy** of their operation, in order to make sure that it is correct (this might involve barium x-ray, CT scan or endoscopy)
- assessment of their **eating behaviour** (binge eating, grazing, night eating disorder, alcohol, high energy snacks)
- assessment of the **physiology** or function of their operation (hunger, reflux, food capacity).

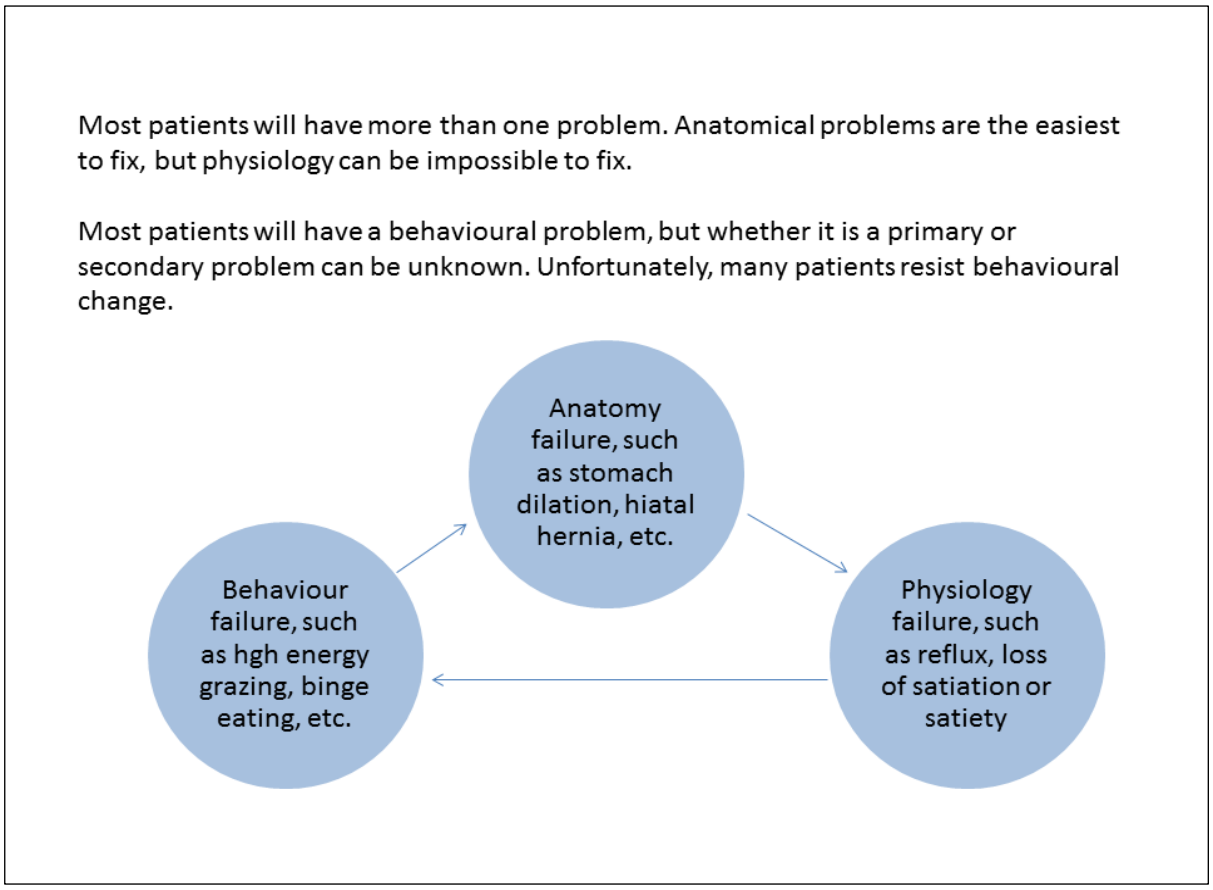


**Figure 11. Longer-term problems following gastric surgery.**

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If a patient needs redo surgery we can then create a solution that is specific to your particular problem that a patient has. Redo surgery can be planned to:

- fix a complication with an operation
- repair or fix an operation that is no longer working
- change an operation to another procedure (band/sleeve/bypass).

In some circumstances it is preferable to reverse the original operation and decide on further treatments later on.

As the options above are so wide and varied, it is very important to take the time to find the right solution for each person as an individual.

# Comparison of Weight Loss Treatments

The table below summarises the full range of currently available weight loss treatments, from lifestyle intervention through to the most advanced bariatric surgical procedures. All figures represent approximate averages; individual results vary considerably depending on adherence, starting weight, and medical history.

| Treatment | Weight Loss (% TBWL) | T2 Diabetes Remission | Reflux Effect | Reversible? | Lifelong Supplements |
|---|---|---|---|---|---|
| ***Non-Surgical Treatments*** | | | | | |
| **Lifestyle + diet alone** | 5–10% | Modest benefit | No change | N/A | None |
| **GLP-1 agonist (semaglutide)** | ~15% | Good (drug-dependent) | No change | Yes | Ongoing medication |
| **Dual agonist (tirzepatide)** | ~21% | Excellent (drug-dep.) | No change | Yes | Ongoing medication |
| **Intragastric balloon** | 10–15% | Minimal | No change | Yes | None |
| **Endoscopic sleeve (ESG)** | 15–20% | Modest benefit | No change | Yes* | Multivitamin |
| ***Surgical Treatments*** | | | | | |
| **Adjustable gastric band** | 17–20% | Limited | May worsen | Yes | Multivitamin |
| **Sleeve gastrectomy** | 25–30% | Good (60–70%) | May worsen (20–30%) | No | Multivitamin + iron + B12 |
| **Roux-en-Y bypass (RYGB)** | 30–32% | Excellent (70–80%) | Reliably improves | Yes* | Multivitamin + iron + calcium + B12 |
| **One anastomosis bypass (OAGB)** | 33–36% | Excellent (75–85%) | Monitor for bile reflux | Yes* | Multivitamin + iron + calcium + B12 |
| **SADI** | 36–42% | Exceptional (80–90%) | Monitor for reflux | No | Comprehensive (A,D,E,K + protein + iron + Ca + B12) |

* Technically reversible in that no tissue is removed; however complete reversal to “normal” is difficult. If needed# conversion to a different procedure is possible. T2 diabetes remission figures represent remission off medication at 3–5 years in suitable patients. % TBWL = percentage total body weight loss.

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# Getting ready for surgery

## Tests and consultations

We believe in being thorough in our assessment of your health, and in giving you information appropriate to your situation. This cannot be done effectively if it is done quickly. Obesity is a complex, chronic condition requiring long-term engagement with us after surgery. We like to take the opportunity to personalise your treatment, and introduce you to our team members who will help look after you in the months to years after surgery. After an initial consultation you will have some blood tests done, so we can assess your sugars, thyroid, blood count and vitamin levels. You will then need one or more further consultation. We should obtain approval from your GP, as they will wish to be involved in your post-operative care. Even if you are unsure about whether your GP supports your decision to have weight loss surgery, you should discuss it with them. Patients with a good support team do the best, and a GP, spouse/partner, friends and family who are all supportive are invaluable. Patients who choose to go it alone will not fare so well.

We will talk about your dieting history and assess any medical problems you have. Some medical problems may require further assessment and treatment to make you as fit as possible before your operation. In general I prefer a patient to have at least two consultations with me or my colleagues prior to surgery.

After we have booked a date for your surgery, you will need to go on a very low calorie diet for 2–4 weeks before the operation. During this time you should lose about 2–4 kg per week.

## Very low-calorie diet

The very low calorie diet consists of three liquid meal replacements per day. This gives your body the minimum energy it needs but has all the nutrition of a balanced diet: macronutrients (carbohydrates, protein, essential fat) and micronutrients (vitamins and minerals). Suitable brands include Optifast, Slimfast, Tony Ferguson, McLeods and Achievit and are available from your local chemist. We will give you instructions about other foods to consume with the program.

### Purpose of the diet

There are three benefits to the pre-operative diet:

- Most of the fat tissue you lose first with these diets comes off your liver and from around your internal organs. Losing this fat makes the operation faster, safer, and significantly less painful. For some very overweight patients (>160kg), non-compliance is likely to lead to your operation being abandoned. Every year we “bail-out” of or cancel surgery in several patients who decide not to start the diet and who therefore don’t lose enough weight.
- Weight loss reduces the severity of weight-related illness very quickly, and significantly increases your cardiovascular fitness. This makes the anaesthetic safer, and a 10 per cent weight loss will reduce medical risks by as much as **50 per cent**.
- The diet will accustom you to the post-operative liquid diet. Having this diet before the operation allows you to find drinks you like while you’re in a less stressful situation.

### Choice of diet drinks

If you don’t like a particular diet drink, try a different brand or switch to milkshakes, soups, bars or desserts. In general the brands with the greatest range of flavours (Dr McLeods and Tony Ferguson) seem to be more popular. If you cannot find something you tolerate you should postpone your surgery and discuss other short-term or rapid weight loss options with a dietitian.

## Seeing a dietitian

You need to see or speak to a dietitian before the surgery. Changing how you eat is central to weight loss, and sometimes people can be confused by the different advice they have received in the past. A dietitian is available to see you before and after the operation, and most people get significant benefit from seeing her. A dietitian can help you set and work towards weight loss goals through meal planning, education on the right eating practices, portion control and exercise.

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## Who else should I see before surgery?

You need to get the go-ahead from your GP before the operation, to ensure your body is healthy enough for the strain of the operation and beyond.

A psychologist is available if you find you have issues that need to be tackled, so don't be afraid to ask.

## Smoking

You should quit smoking before you undergo any surgery, particularly obesity surgery, as smoking increases your risk of blood clots and other complications. At the least, you should stop smoking several weeks before surgery.

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# After the operation

After surgery we want the focus to be on healthy and sustainable eating and exercise habits, and maintenance of nutrition by eating healthy food, taking vitamin supplements and having regular follow-up.

## Exercise and activity

Fads in exercise are like fads in diets. People often ignore basics and go for complex regimens based on unproven theories. The best advice for both is always to go for simple and sustainable methods.

From day 1 after your operation we will ask you to walk. Get in the habit of moving around, and filling your spare time with activity. Exercise is going to be part of your rehabilitation back to health, but aim to make it part of your everyday routine rather than something extra.

There are two main goals we wish you to achieve. Make exercise an automatic part of your life, but make sure it's the type of exercise you can do regardless of how you feel and how busy you are:

1. Incidental exercise. Stop taking the lift. Walk around during the day. Walk during your leisure time.
2. Aerobic exercise (raising your heart rate) for 20–30 minutes, three times a week.

More intensive exercise is usually unsustainable because it takes so much time and can lead to injury and mental or physical exhaustion. Intensive exercise can be useful in the short term to get people to meet certain goals or get through a weight plateau, but it should be tapered down to something manageable once goals have been met.

'Fat-burning' exercises are usually associated with gyms and people selling a product. They promote interval training and other heavily supervised methods, which may be effective in the short term but cannot be integrated into normal life. A more successful and traditional approach is to use community sports that are known to lead to both weight loss and health. The best forms of fat-burning exercise make use of the fact that we start using fat for fuel only after we have exercised for more than half an hour (between 30 minutes and three hours). Distance walking, cycling, distance swimming and social sport activities are ideal. Cycling in particular is an excellent way to burn fat.

## Diet and vitamins after surgery

There are three phases of dietary change after surgery:

- early post-operative phase (first 6–8 weeks)
- weight loss phase (2–18 months)
- weight maintenance phase (18 months and beyond).

Each phase requires different advice in order to get the best results.

### Early post-operative phase

The aim of this phase is to maximise the speed of your recovery and set you up for the next phase of sustained weight loss. The key elements are:

- hydration: Aim for over 1.2 litres of fluids per day including fluid-like foods (eg soup). Any less than this will lead to dehydration, which will cause nausea. You will not be discharged from hospital until you have shown that you can drink this much.
- firstly liquids, then purée, then soft foods. Until you have healed internally (one month), eating solid food will be uncomfortable and can cause injury.
- nutrition, in order of importance:
    i. fluid
    ii. protein
    iii. fibre

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iv. vitamins.

You should have between 1.2 and 1.5 litres of fluid daily. A minimum of 25 grams of protein is needed for health, but aiming for 50 grams is acceptable. Liquid fibre supplements or gentle stool softeners will prevent constipation, which otherwise can be very uncomfortable. We start you on chewable multivitamins, but fluid and protein are always more important. Foods include yoghurt, soups, protein drinks and purées for main meals. Soft food can start at 2–3 weeks.

## Weight loss phase

The aim of this phase is to combine low-calorie eating with regular activity, in order to achieve continuing weight loss for up to 18 months. We are aiming for a diet of between 600 and 1000 calories virtually every day (depending on how much weight you wish to lose). The key elements are:

- regular meals. Three meals per day (usually two simple and one complex meal). Meals should occur when you need them (often your appetite will determine the most appropriate time to eat). The morning meal doesn't have to happen when you wake up, but most people need something by 11 am. Your afternoon meal should occur between 12 noon and 3 pm, and your evening meal can be your social meal. If you go to bed late, do not have an early evening meal because you will simply eat again before you go to bed. Patients who skip too many meals end up grazing and snacking, which will lead to weight regain.
- avoiding liquid calories (fruit juice, soft drinks, yoghurt, milky drinks, alcohol) and other forms of between-meal snacks. Liquid calories are important in the first few weeks after surgery, but once solid food is back on the menu the only liquid foods should be soup or meal replacement drinks.
- protein. 25 grams minimum, but aim for 50 grams. Protein is an excellent appetite suppressant and a far better base for a meal than pasta, bread, and other carbohydrate items.
- low-starch vegetables, salads, and fruit. These are excellent components for meals, in addition to protein. Try to avoid snacking on fruit between meals. Snacks contain pointless calories.
- vitamin and mineral supplements. You need to support your body during this time by making sure you don't miss out on important nutrients while losing weight. Everyone needs a multivitamin daily. Some patients will benefit from vitamin D, iron, calcium, vitamin B12 or other mineral supplements such as zinc and silica.

## Weight maintenance phase (18 months and beyond)

This is the most crucial period, and the one where many patients will run into trouble. If the habits that led to your becoming overweight return, your weight problem will return. We are aiming for 1000–1500 calories a day. Key elements are:

- three meals a day. Patients who have not settled into a regular pattern by this stage are in real danger of weight regain, as they will compensate for missed meals with snacks and liquid calories.
- habitual avoidance of snacks except on special occasions. Most patients who regain weight do so by eating between meals. It is hard to say no to snacks when other people seem to get away with eating them, but this is what you must do.
- daily multivitamin, and blood tests every six to 12 months to determine other requirements (iron, calcium, vitamin D, vitamin B12).
- avoiding or keeping control of problem foods like cheese and carbohydrates.

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**Seven deadly bariatric sins**

These are the highly addictive food habits most commonly associated with failure. Many patients have these habits before surgery. The 20 per cent of patients who fail to lose enough weight with surgery fail because of these foods.

These foods are also responsible for late weight regain, when patients return to old familiar habits after weight loss. Sometimes patients move from one addictive group to another. If you find yourself compulsively consuming these items at any time, you must let us know.

1. Cheese. This is 50 per cent fat. There is no other common food that has so many calories per gram.
2. Milky drinks, especially coffee. Most purchased coffee drinks are just milkshakes.
3. Fruit juice and soda drinks
4. Salty snacks such as crisps and nuts, etc. Men can have problems with these.
5. Cakes, biscuits and other morning and afternoon tea foods
6. Common carbohydrates: bread, pasta, and rice. These stimulate hunger. They should be the smallest component of most meals, but their convenience and price mean they can inappropriately dominate many dishes. Bariatric surgery patients are vulnerable to post-meal hyperglycaemia from eating carbohydrates, which leads to a desire to snack.
7. Alcohol. Regular consumption is 100 per cent likely to lead to failure. Alcohol is high in calories, an appetite stimulant, and leads to poor food choices. Patients who have Gastric Bypass surgery are especially at risk of increased addiction to alcohol, and higher risks of driving “over the limit” if they are careless with their drinking

## So what should I eat?

Ideally you should eat what your family eats. Three meals a day is a healthy routine for yourself and your family as well. Aim for a significant protein component in all meals, with salad/vegetables next and carbohydrates as the smallest portion.

**Breakfast:** Doesn’t have to happen the moment you wake up. Often waiting until 10 or 11 am is easier. Eggs, cereal, porridge, wholegrain toast, fruit and yoghurt are all acceptable.

**Lunch:** Doesn’t have to happen at midday, because by 3 or 4 pm you will probably be hungry again and snacking. Avoid excess carbohydrates, which will promote hunger. Tuna and salad, bean salad, or cold, cooked vegetables are perfectly good. If you are planning a sandwich, try having half the usual small size, or replace the bread with rice crackers, Saladas or Cruskits (for ham, cheese and tomato, or shredded chicken and avocado on crackers).

**Dinner:** If you are up late at night, make sure you have your dinner reasonably late as well. Make a bargain with yourself never to eat after dinner. Meat, chicken or fish and vegetables or salad is perfect. Avoid pasta main dishes; these can be suitable as side dishes only.

**Fast food and snacks:** It can be hard to find time to eat appropriately. Buy pre-packaged, low-calorie main meals from the supermarket to store in the freezer at home and at work for when you cannot be bothered cooking. Tins of tuna salad, cup-a-soups, Optifast (and other brands of VLED) soups, drinks and bars are perfect to leave in the cupboard at home and at work, as are liquid breakfast drinks, because they last for ages. A fruit bowl at work and home is far better than a lolly jar. If you clear out snack foods from your house you will not have to rely on willpower when you are feeling bored. When shopping, buy only what is on your list!

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| | |
|---|---|
| | Breakfast: fruit, yoghurt, nuts, and bran give 180 calories.<br>Some patients will consider this a snack, but it will serve better as a meal. |

| | |
|---|---|
| | Lunch: a baked bean and cheese toasted sandwich gives 420 calories. |

| | |
|---|---|
| | Lunch: half of the same toasted sandwich and an apple gives 250 calories, and is at least as satisfying for a post-bariatric patient |

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**Figure 12. Suggested breakfast and lunch ideas.**

# What goes into food?

In order to lose weight and remain healthy you need to eat well. Having knowledge of the basics helps when selecting what you are going to eat. Try not to make things too complex, and always aim to keep as many fresh foods in your diet as possible.

*Water*
About 50 per cent of the food we consume is made up of liquid. We need a minimum of one litre of water every day, but a lot of this will come from our food. People who are losing weight, people who have problems with constipation and those who are exercising will need to drink more. You need to avoid sweet and milky fluids. Most people who drink these things are not really thirsty – they are just filling in time.

*Protein*
Most of the protein we eat we get from meats, fish, eggs and dairy products. We absorb plant protein less efficiently than we absorb animal protein, and many supposedly high-protein plant foods contain less protein than we think. We need a minimum of 25 grams of protein per day, but it's better to aim for a minimum of 60-80 grams. The following calories and protein are provided by 100 grams of these foods:

- eggs: 150 calories; 13 grams protein
- chicken: 220 calories; 25 grams protein
- beef: 330 calories; 14 grams protein
- fish: 90 calories; 19 grams protein
- canned tuna in water: 110 calories; 25 grams protein
- cheese: 400 calories; 25 grams protein
- sugar: 390 calories; no protein
- cottage cheese: 100 calories; 11 grams protein
- yoghurt (Greek): 60 calories per 100 ml; 10 grams protein
- tofu: 75 calories; 8 grams protein
- baked beans: 150 calories; 6 grams protein
- bread: 290 calories (two-and-a-half slices of toast); 12 grams protein.

*Fibre*
Deficiency in fibre is very common in patients after weight loss surgery. Unless you can get your bowels moving at least every two days you will develop debilitating and permanent constipation. Good sources of fibre include fresh fruits, vegetables and salads. Breakfast cereals with bran can be high in fibre. I recommend unprocessed bran (with breakfast cereal), or using supplements containing soluble fibre (Benefibre) or psyllium (which creates less gas) that you can put into water, such as Metamucil.

*Carbohydrates*
Carbohydrates are crucial for our day-to-day functioning, but they are the food group most commonly associated with the development of obesity and the recurrence of obesity after weight loss. Carbohydrates are the key ingredient in breads, snacks, potatoes, fruit juice, alcohol and sweets. **Eating carbohydrates promotes hunger, which promotes more carbohydrate eating.** 'Low-carb' versions of these foods are still just carbs.

Our minimum requirement is about 50 grams of carbohydrate per day; most people should try to limit their intake to 60–100 grams per day, unless they are doing a lot of exercise. Carbohydrates are converted into sugar, and eating sugar makes us produce the hormone insulin. The combination of insulin and sugar creates obesity. Anyone wanting to lose weight needs to switch his or her body from using sugar as a fuel to using fat. Burning fat is called ketosis. (When you burn fat you turn it into ketones which is an energy source your body can use instead of sugar.) It takes many hours to 'turn on' ketosis, but a small carbohydrate snack will turn it off. Anyone who wishes to lose weight will only do so if they limit their carbohydrate intake and start using stored fat for energy.

*Calcium*
We get calcium from dairy products, meat and fish. While we recommend that weight loss surgical

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patients eat foods that are high in calcium (except cheese), there is no evidence that any form of dietary supplementation of calcium makes any difference to bone strength for many however there are obvious exceptions. Patients with weak bones, a significant family history of weak bones, who are post-menopausal, planning pregnancy or who do not exercise should probably take a calcium tablet daily. It is reasonable for patients to have a bone density scan every three years after surgery.

*Vitamin D*
We create vitamin D in our own bodies when we are exposed to sunlight. It also exists in small amounts in many foods. Vitamin D helps us use calcium effectively to maintain bone strength, and has a role in immunity. It is probably more important than dietary calcium. Vitamin D deficiency is Australia's most common vitamin deficiency. While many people can have low vitamin D levels without harm, it is likely to be a very important vitamin in patients losing weight. Daily supplements, monthly tablets and injections are available. The stronger tablets are probably more effective but overdosing isn't advised.

*Folate*
Folate is a vitamin found in fresh fruit, vegetables and salad. Patients who don't get enough folate usually look and feel sickly. A daily multivitamin will provide sufficient folate for patients after surgery.

*Thiamine*
While present in many foods and all multivitamins, thiamine is a very important vitamin. Post-operative patients who experience **vomiting** and don't take a multivitamin to supplement their thiamine levels are at very high risk of developing **irreversible** neurological injury and dementia. A multivitamin with over 5 mg per day is recommended.

*Vitamin B12*
Vitamin B12 is the second most frequently deficient vitamin in Australia. It is only found in animal protein. If someone is developing a deficiency in B12, the only effective way to supplement it is via injections from your GP (every three to six months). All gastric bypass patients, many sleeve gastrectomy patients, and some lap band patients need these injections.

*Iron*
We get iron from meat proteins. There are small amounts in vegetable protein. Iron deficiency is quite common, and it is significant for two reasons:

- Iron deficiency can lead to a drop in blood production, which will lead to fatigue and reduced exercise capacity.
- Iron deficiency is the first sign of many bowel and stomach cancers.

Patients having gastric bypass often need iron supplements. Patients with other operations sometimes need iron supplements. Patients with unexplained iron deficiency need to be investigated in order to rule out cancer.

*Other minerals: iodine, zinc, selenium, copper*
In Australia our soils are deficient in iodine, so a multivitamin with iodine is advised. These other minerals are also important, and a daily multivitamin will be sufficient for most patients. Patients who have diarrhoea, vomiting, poor diet or are considering pregnancy should probably take a multivitamin twice daily. Zinc, iron and silica may help reduce the risk of early hair loss after surgery.

*Vitamin and mineral deficiencies*
I have seen patients with a number of unpleasant vitamin and other deficiencies after weight loss surgery. They are all a result of the combination of vomiting plus poor-quality diet plus not taking vitamins. Sometimes the illnesses from these deficiencies can be irreversible. A multivitamin a day forever is the minimum requirement for all weight loss surgery patients. Blood tests should be done at least every year for iron, vitamin B12, folate, calcium and vitamin D. Blood count and liver and kidney function should be tested at the same time.

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# Psychology

## Habits, mood, behaviour, eating disorders

Approximately half of our patients have had a diagnosis of a depressive illness or other mood disorder by the time they come to surgery, and many have also had eating disorders or problems managing their eating when they become stressed. Common problems we encounter are binge eating, night eating, and habitual snacking or grazing. These eating behaviours are very common, and most people with a severe weight problem will experience some of the feelings and behaviours associated with an eating disorder.

Because depression and eating disorders are so common, they cannot be viewed as reasons not to undergo weight loss treatment, but they need to be factored into your treatment if you want it to succeed in the long term. Most abnormal eating behaviours have developed as a person has struggled to control their weight over years. That is, the eating disorder arrives after their weight problem, but they will still be at risk of having the eating disorder even if their weight problem has been successfully treated. The majority of patients find that their eating disorders seem to disappear quickly after weight loss surgery, but about 18–24 months after the surgery they are at risk of the eating disorder returning unless they take some steps to treat it.

Many people use eating as a habit to manage stress and boredom. If you have few interests or activities to keep you out of the kitchen (socialising, sport, reading, exercise etc) then you will return to your usual habits (eating) when you have nothing else to fill your time. It is very important to fill the void in your life that food once filled with something else. Unless you can manage this, weight regain is certain.

**Psychologists** with an expertise or interest in weight problems are a core but under-utilised part of weight loss treatments. They are able to help people detect and manage habits and thoughts that could sabotage their progress, and they are good at coaching people in the habits they need in order to succeed. Learning a new habit is like any complex skill: if you try doing it by yourself you will get mixed results, but a coach can give you tips and tricks for doing things the easy way and can help monitor your progress. For people with more complex problems a psychologist can offer proven treatments for eating disorders and treatments, such as cognitive behavioural therapy and mindfulness for those who have difficult emotions associated with food and those whose relationship with food has become difficult over time.

During your pre-op and post-op treatment we will be asking you questions about what and why you eat. It's important that you ask yourself the same questions, and if you cannot think of an answer, or the answer makes you uncomfortable, our psychologist can work with you as a coach, counsellor or therapist. Most patients will need coaching, counselling or therapy at some stage of their journey, but we cannot usually predict exactly what each person will need, or at which stage.

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# Obstacles to surgery

Obesity surgery has been established internationally for more than 20 years as the best method for sustained weight loss in severely obese people. Patients who miss out on surgery die at a younger age and have many more medical conditions and medical costs than those who undergo surgery. Patients who wait until they have permanent conditions such as serious diabetes, renal failure, heart attacks or cancer have worse outcomes if they choose surgery in desperation.

Despite this, the majority of severely overweight patients with an obvious need for surgery do not have it offered to them. Possible explanations include:

- availability: Although Medicare subsidises surgery for privately insured patients, there is extremely limited access to surgery in our state-run public hospital system. Because surgery is not easily available many physicians do not consider it as a treatment option.
- cost: Most patients will be several thousand dollars out of pocket after surgery. However, more than 90 per cent of people will save enough money through lower medical and food costs after surgery for the operation to pay for itself within a couple of years. If someone values their health more than other things of equivalent financial cost, the benefits of surgery are obvious.
- perceptions: Some people do not perceive obesity as a disease, despite the significant medical illnesses it causes. The incorrect belief that morbid obesity is a lifestyle affliction caused by a lack of willpower may lead to treatment not being offered by some doctors.
- risk: There can be a tendency to refuse obese people surgical treatment on the grounds that it is too risky. This unfounded belief has affected the decision making of doctors and patients. Probably more than 20,000 people die in Australia from their weight every year, while death after weight loss surgery is extremely rare, despite some 10,000–12,000 procedures being performed yearly.
- lack of awareness: Some doctors are unaware of the results of surgery, and of which patients may benefit from it. Published recommendations on appropriate surgical treatments can be freely obtained from the Australian Government's health policy advisors (the NHMRC – see References).
- discrimination: Obese patients have often suffered discrimination, feel that they are (or have been told they are) to be blamed for their condition, and have failed so many previous treatments that they fear discussing their weight with a doctor.
- fear: Surgery entails the prospect of risk taking and substantial change, both of which we all resist to some extent.

## Fear of change

Eating is a central part of our existence. What drives us to eat is more complex than just the feeling of hunger. The only way to lose weight is to eat less, and the operations described **reduce appetite and the amount that we can eat**. Eating is a soothing, enjoyable activity that everyone uses as a way of coping with stress and socialising with others. Obesity surgery changes this permanently. The realisation that this coping mechanism may be removed can be a daunting prospect for anyone considering surgery.

The prospect of losing a lot of weight forces people to evaluate their body image and how other people see them. Because overweight people may feel shame, and blame themselves for their problem, they can find it difficult to seek assistance.

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## Risk: How safe is this surgery?

Obesity surgery is **major surgery** requiring a general anaesthetic. As such, it carries a risk of complications or significant problems. These are not common, but deaths have occurred.

The risks can be broken down into five categories:

*Anaesthetic risks*
Anaesthesia is very safe in Australia. Despite people's fears, patients do not die on the operating table, except in extremely unusual circumstances. The risk is so low it is very hard to measure, but is about 1 in 40,000 operations.

*General risks*
Operations involve incisions, which may become infected or heal poorly. Hernias and other wound complications are the most common problems after gastric surgery. Operations also involve changes in bodily functions that put people at risk of chest infections (pneumonia), urine infections and blood clots (like the so-called 'economy class syndrome'). These are the risks that pose the greatest threat to life after major surgery. There is also a risk of bleeding during the operation or immediately following it, so occasionally patients may require blood transfusions or even re-operation.

*Specific risks*
These risks differ according to which operation you have. They may occur early or late following the procedure. For example, the most feared complication in operations that involve the bowel is a leak from the place where the bowel has been divided or joined. Although these joins are all made in a standard way that is repeated again and again from operation to operation, in about 0.2 per cent (1 in 500) people they fail to heal, allowing the contents of the gut to spill out. This causes infection and almost always requires another operation and significantly longer recovery time.

Other risks may be higher for some patients than others, so part of the process prior to surgery is to discuss these with your doctor. The list of rare complications is so long it would be almost impossible to tell you them all, but we can discuss the most common risks and those that are most relevant to you. These issues are best discussed at an individual doctor-to-patient level before you make a decision on having an operation.

*Death*
Just as driving to work involves the remote risk of a fatal car accident, any operation carries a small risk. Most people decide to undergo an operation with this expectation and accept the possibility that things may not go as planned. The risks depend on the type of surgery you are having and your age, weight and health, so your overall risk of death may vary from one in 200 to one in 3000.

*Disability*
While recovering from an operation a person is, in effect, disabled. If they have complications the duration of their disability can be prolonged. Some disabilities may be permanent and some permanent disabilities occur even if no obvious complications have arisen. This is because the effects of any operation vary from person to person. As these operations affect the way your body functions, if a complication affects your quality of life it may be difficult to remedy.

Disability may take the form of prolonged tiredness, abdominal pain, difficulty in eating, vomiting, or nutritional deficiencies. Most of the operations discussed here are to some extent reversible or modifiable, but attempting to fix or reverse the operation may not fix an established problem. **What makes these risks acceptable is the fact that obesity causes disability, psychological distress and risk to life**.

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# Costs associated with surgery

Many patients having surgery must contribute towards the cost of their treatment. In public hospitals these costs are covered by the state government (which seeks to limit its costs by limiting access to all but essential services).

New South Wales is the only state in Australia that does not offer obesity surgery in public hospitals. Approximately 40–50 obesity operations occur each year in NSW public hospitals, compared with 3000–4000 in private hospitals.

In our office we have three surgeons, a physician, two nurses, three administrative staff and a dietitian. We must also meet the general expenses of running a busy office. The bulk of the fees charged for the services we provide are used to cover these expenses and wages.

## Covering the costs of surgery and after-care

Regardless of whether a medical service is provided in the public or private system, the costs are similar. There are many treatments not offered in public hospitals. Patients in public hospitals have their treatment provided to them by doctors that the hospital allocates.

There are a number of options, depending on which category you fall into:

### Self-funded surgery in a private hospital (patients without health insurance)

Patients cover all the costs associated with their admission. Approximate figures for hospital admission include bed costs of up to $800-1200 per day, theatre costs of $1500 per hour and costs of theatre equipment such as staplers and sutures of $800–$8000, depending on the operation. Medicare will contribute a small amount towards your medical costs (usually $1200–$1500).

It is usually impossible to predict exactly how much an admission to hospital will cost, as any extra treatments will incur more costs, for example an admission to the intensive care unit (ICU) may add $3000 per day to the bill.

Hospitals will provide quotes to patients before admission and expect an up-front payment on the day of admission for the estimated amount. In general, smaller hospitals with fewer facilities will charge less for an equivalent procedure. Patients having major orthopaedic operations or cancer operations will usually expect out-of-pocket expenses of $20000-$25,000, while patients having weight loss surgery will have total expenses of $9000–$18,000, of which direct hospital costs comprise up 75–90 per cent (the amount covered by private health insurance if you have it.)

Surgery of some complexity such as weight loss surgery is likely to involve significant hospital costs at the time of the operation as well as a 5–20 per cent chance of readmission for treatment in the 1–3 years after surgery (endoscopy, gallstones, adhesions, hernia, excision of excess skin).

As obesity is a pre-existing condition, private health funds will never cover admissions for surgery until the person has been with them for at least 12 months. This often seems like a long wait for patients, but given the costs covered by the private health funds most people will end up saving $500–$1000 per month over this 12 month period if they delay surgery, rather than paying for the operation as an uninsured patient.

Any money saved can be used to maintain insurance coverage for several years afterwards in case further surgery is required in the future. One of the very real benefits of weight loss surgery is that patients can save thousands of dollars per year in food bills and medical costs, so that money spent on treatment will often be returned into their pockets afterwards.

### Private patient in a public hospital

Being a private patient in a public hospital allows patients to opt for treatment by the consultant of their choice, rather than by more junior staff. It is unlikely that patients choosing this option will be charged ‘gap accounts’ by their treating doctors so it is a very cost-effective option for patients who have medical insurance.

The main problem is that many treatments are not offered in public hospitals, and public hospitals often have long waiting lists (waiting times are determined by a patient’s illness, not their insurance status) which can be over 12 months.

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### Public patient in a public hospital

Hospital treatments are provided free of charge. Patients will be admitted to hospital under a consultant (specialist) but are usually treated by doctors in training, who are employed by the hospital. Costs of treatment outside hospital (medicines and appointments) still need to be paid for, and although Medicare provides a subsidy for these items, patients will usually end up paying a component of their outpatient medical costs.

### Private patient in a private hospital

These patients can choose what treatment they receive, who treats them, and how long they wait until they are admitted to hospital. Their health insurance fund will pay for the costs of the hospital admission and all items used during the hospital stay, and will top up the Medicare fee paid to treating specialists by between 20 and 80 per cent, depending on the fund and the treatment undertaken.

On very rare occasions some funds pay an amount equivalent to the Australian Medical Association (AMA) Schedule of Fees, which is released every year by the Australian Medical Association (https://ama.com.au/node/4387) and is based on what Medicare payments would have been had they kept up with inflation and the CPI.

Because there is a difference between Medicare payments and medical charges, there can be expenses above those met by a patient's health fund. The patient will have to cover these. This occurs because Medicare frequently pays the same amount for a simple procedure as it does for a complex one (for example an operation on a blocked prostate gland, taking about an hour to perform, receives the same fee as total removal of the stomach, which takes five hours).

'Gap costs' indicate the amount that patients have to pay to undergo treatment. We calculate these according to the complexity of the surgery and the time it takes. For weight loss (bariatric surgery) we are happy to offer 'no-gap' surgery, but we charge patients a fee separate from their surgical fee, to cover the expenses of our clinic (nurses, dietitian, psychologist, administration etc.) and to provide follow-up care without charging above the Medicare fee for at least three years after surgery.

In addition, we offer patients the reassurance that should any treatments be required to remedy complications or problems, we will provide these without charging above what the insurance fund and Medicare will pay (hence the value of staying in a fund after surgery).

## Options for paying for out-of-pocket expenses*

There are a number of ways that patients cover their out-of-pocket medical expenses. **The options listed below are not exhaustive and are intended to cover general topics, rather than give advice on which option will be best for a particular individual***. For patients wishing to limit costs, some options that seem convenient (using superannuation, unsecured loans or credit cards) are often the most expensive.

### Money in the bank

Many patients having elective surgery decide on treatment many months before having the procedure (the average time spent thinking about weight loss surgery, for example, is about two years). During this time, setting up a direct debit facility to take money directly out of their weekly pay is the least intrusive and most cost-effective method of payment. Many of us are used to booking and paying for a holiday six months or more in advance, so the principle is familiar to us. In some cases, family members are able to help cover expenses, especially for those who are asset rich but cashflow poor.

### Secured bank loans*

Taking out a mortgage, line of credit or overdraft with a bank or major financial institution can be one of the more affordable ways for those without ready access to funds to borrow money. These types of loans can sometimes be piggybacked onto an existing loan, and usually offer the lowest interest rates and most flexible payment options.

### Unsecured loans*

These include credit cards and other finance options such as Mediplan (www.mediplan.com.au/). The interest and other charges are usually much higher than those offered for secured loans. While these are often simple options to get into, they may not be so easy to pay off fully. In general, patients considering using such unsecured loans are best advised to limit their debts to the smallest amount possible, by starting a direct debit facility before surgery to build up money in the bank.

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## Early access to superannuation

This allows patients with a chronic painful condition, life-threatening illness or cancer to obtain access to funds to cover treatment that isn't readily available in a public hospital. This is probably the most expensive of all the options, as the money taken from superannuation is pre-tax and this can sometimes push people into a higher tax bracket*.

For more information, see the Australian Government Department of Human Services website: (http://www.humanservices.gov.au/customer/enablers/centrelink/early-release-of-superannuation/compassionate-grounds-medical-treatment.)

*** This does not constitute financial advice; patients are advised to consult a qualified professional before making decisions about credit and taxation. We have no relationship with any credit providers.**

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# Candidates for surgery

## Who should consider surgery?

The following criteria reflect the 2022 updated guidelines of the American Society for Metabolic and Bariatric Surgery (ASMBS) and the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO), as applied in Australian practice. These represent a significant evolution from earlier criteria based on 1980s evidence.

**Current criteria for metabolic and bariatric surgery (ASMBS/IFSO 2022)**

BMI 35 kg/m2 or above, with or without obesity-related medical complications.

BMI 30–34.9 kg/m2 in the presence of significant obesity-related illness — particularly type 2 diabetes, metabolic syndrome, obstructive sleep apnoea, or established cardiovascular disease.

BMI 27.5 kg/m2 or above for people of Asian descent, where metabolic risk occurs at lower BMI thresholds.

Prior inadequate response to lifestyle modification and, where appropriate, a supervised trial of pharmacotherapy.

No secondary (hormonal or medication-induced) cause for obesity that would be better treated medically.

Absence of active alcohol or substance use disorder. Treated and stable mental health conditions — including depression, anxiety, and binge eating disorder — are not a contraindication.

Commitment to lifelong dietary modification, vitamin supplementation, and clinical follow-up. An engaged, supportive GP significantly improves long-term outcomes.

Important: The requirement that obesity be present for five or more years has been removed from current guidelines. The key question is whether non-surgical treatment has been adequate and unsuccessful.

## Who is not suited to surgery?

There is no simple answer to this question, except that the decision to go ahead should not be taken impulsively. An operation is only the beginning of a lifelong change that will lead to permanent weight reduction. In order to maximise results a person must work with, rather than against, their surgery. A desire to eat whatever you wish is probably not compatible with the desire to lose weight. Focusing on short-term goals is also not ideal, as people can allow themselves to get into bad habits once they have lost weight (by snacking) as they can feel that they have achieved what they wanted to.

## Making the assessment

*Before surgery*

At least two consultations will be required. It is very important that we have the opportunity to assess both your risks and your desired outcomes from surgery. In order for you to make the best decision on which operation will suit you best, you need a good understanding of how the different procedures may work for you. This will allow you to make decisions that best suit your circumstances. If possible, you should bring a support person to your consultations, as they may be able to ask questions that you forget.

*After surgery*

Everyone's requirements after surgery are different. Most people manage very well with simple verbal and written advice. Some people need more intensive support from our dietitian and psychologist, and may need advice about exercise programs and other matters. As weight loss can trigger significant life changes, some people require professional psychological support in order to adapt. Feeling down or confused should not be taken as a sign of failure.

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# What next?

Think about things and discuss your thoughts with your family. A large number of people having weight loss surgery do not even discuss it with their GP. Although this reflects their belief that others may not take their problem seriously, it also robs them of a significant source of support.

Anyone perusing the internet for information on obesity management should avoid websites with obvious commercial intent. There are good sources of information that can be obtained from neutral government agencies, such as the American National Institute of Health (NIH), the American Society for Metabolic and Bariatric Surgery (ASMBS), the British National Institute of Clinical Excellence (NICE) and the Australian National Health and Medical Research Council (NHMRC). If you visit internet chat sites, blogs or social media, look at those discussing more than one operation. Much internet-based information represents **opinion** rather than evidence, but listening to a range of differing opinions is useful when making your own decisions.

Discuss your options with your GP, who will be aware of your previous medical history. Like us, your GP will prefer you to attempt losing weight by other methods before considering surgery. Your GP will also have a central role in supervising your health following surgery, should you go ahead. As a large number of your current medications will be ceased post-operatively, you will need ongoing contact with someone who will be able to do this in a sensible manner. Take this booklet to your next visit with your GP, to remind you of any questions you mean to ask.

If you are considering surgery and would like to make an appointment with us, **please keep this booklet and bring it to your appointment**. Again it will serve as a useful reference point for discussion.

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# References

**References — 2026 edition**


ABS 2022: Australian Bureau of Statistics. National Health Survey 2022. Canberra: ABS, 2022.

SCALE trial: Pi-Sunyer X et al. A randomized, controlled trial of 3.0 mg of liraglutide in weight management. N Engl J Med 2015;373:11–22.

Semaglutide (STEP 1): Wilding JPH et al. Once-weekly semaglutide in adults with overweight or obesity. N Engl J Med 2021;384:989–1002.

Tirzepatide (SURMOUNT-1): Jastreboff AM et al. Tirzepatide once weekly for the treatment of obesity. N Engl J Med 2022;387:205–216.

Retatrutide (Phase 2): Jastreboff AM et al. Triple-hormone-receptor agonist retatrutide for obesity. N Engl J Med 2023;389:514–526.

GLP-1 cessation and regain: Wilding JPH et al. Weight regain and cardiometabolic effects after withdrawal of semaglutide. Diabetes Obes Metab 2022;24:1553–1564.

ANZ BSR 5-year data: Brown WA et al. Outcomes from bariatric surgery in Australia and New Zealand: 5-year data. ANZ J Surg 2025. (n=3,566: band 17.6%, sleeve 26.5%, RYGB 30.7%, OAGB 34.9% TBWL)

Updated guidelines: Eisenberg D et al. 2022 ASMBS/IFSO indications for metabolic and bariatric surgery. Surg Obes Relat Dis 2022;18:1345–1356.

Obesity disease model: Rubino F et al. Joint international consensus statement for ending stigma of obesity. Nat Med 2020;26:485–497.

NHMRC guidelines: National Health and Medical Research Council. Clinical Practice Guidelines for the Management of Overweight and Obesity. Canberra: NHMRC, 2013 (under revision).

- The Australian National Health and Medical Research Council guidelines for management of obesity, including recommendations for surgery: www.nhmrc.gov.au/guidelines/publications/n57.
- The US National Heart, Lung and Blood Institute guidelines: www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm.
- The US National Institute of Diabetes and Digestive and Kidney Diseases offers helpful information: http://win.niddk.nih.gov/publications/index.htm#public

The UK-based National Institute of Clinical Excellence has a number of documents for patients and doctors: www.nice.org.uk. Specific documents relating to obesity surgery: www.nice.org.uk/cat.asp?c=34789.

- Mini gastric bypass (not used as reference material, but an interesting site): www.clos.net/.
- Australian Institute of Health. Cost of obesity in the National Health Strategy. Inaugural Scientific Meeting, Australasian Society for the Study of Obesity. Sydney, 1992: www.phaa.net.au/policy/obesity.htm.
- 'Difficulties in provision of bariatric surgical services to the morbidly obese.' Michael L. Talbot et al. *The Medical Journal of Australia* 2005; 182 (7): 344–347: www.mja.com.au/public/issues/182_07_040405/tal10771_fm.html.


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