

Bariatric Surgery – a guide for patients¹

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1. Is obesity surgery effective?

Obesity surgery is also called bariatric surgery.

Yes it is effective.....

Obesity is a chronic disease. It can result in difficulties in everyday life, particularly if it is severe such as self esteem, physical activity, social relationships, sexual activity etc. It can also threaten health and lead to disorders such as diabetes, high blood pressure, high cholesterol levels, sleep apnoea, etc.

Obesity surgery helps patients to:

- lose weight in a sustainable way
- improve disorders connected with obesity
- Improve quality of life

But....

- It all depends on you. Surgery on its own does not result in sustained weight loss. It is only an opportunity for you to change eating habits, increase physical activity and commit to lifelong follow up.
- There can be problems, even a long time after the operation. Problems may be related to:
 - The surgical procedure e.g. band slippage, leaking from a staple line. Another operation may be needed.

¹ This document has been compiled from four main sources: patient information prepared by Auckland District Health Board; patient information prepared by Counties Manukau District Health Board, the Obesity Surgery website <http://www.obesitysurgery.co.nz> , and the HAS (Haute Autorite De Sante) website <http://www.has-sante.fr>
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- Missing vital vitamins and minerals. Supplements may need to be taken for the rest of your life to prevent this. Eating a good diet is also helpful.
- The major change you've had. Your body image and the way other people relate to you can take quite a lot of adjusting to.

The decision to have an operation is an important one and requires good preparation.

It is essential to know as much as possible about the operation and the conditions required ensuring success, so that you can participate fully in the decision and commit to the process with full knowledge of the facts. It will help you prepare for the operation and understand and accept the fact that you will need lifelong follow-up.

This information should help you understand the different types of operations, the risks involved and the commitment you will need to make the procedure successful.

It does not replace the information and the medical advice given by your health professionals.

2. Surgical procedures for obesity – Bariatric surgery

Bariatric surgery is a last resort for weight loss, often after exhausting all other methods. It is the most effective treatment for patients with morbid obesity, defined as a Body Mass Index (BMI) of greater than or equal to 40.

Our public system can only offer a limited number of operations. Hospitals select patients who will benefit the most while keeping the operative risk to a minimum. Some people that are referred are found to have health problems representing a high risk for safe bariatric surgery, and surgery can not be offered to these people until these problems have been resolved.

How does it work and what are the pros and cons?

Bariatric surgery acts by limiting the amount of food that gets into the body by the digestive system. The limitation of food can occur in two ways, restriction of the amount of food the stomach can hold or malabsorption. There are a number of different types of surgery. These are done under a General Anaesthetic and usually performed laparoscopically (key hole surgery).

Restrictive procedures – There are two types of surgery 1. gastric banding, and 2. sleeve gastrectomy. The size of the stomach is reduced, initially limiting the amount of food that can enter, resulting in weight loss. In the longer term, these operations work by decreasing the urge to eat and giving a feeling of fullness sooner.

Malabsorptive procedures reduce the normal capacity of the gut to absorb nutrients.

A third type of surgery is gastric bypass (Roux-en-Y). This is both a restrictive and malabsorptive procedure.

How long will I be in hospital and off work?

Time spent in hospital varies from 2-10 days depending on the type of operation and you should plan for 2 weeks off work after you leave hospital as a start.

Your surgery team will advise you about this in detail and also about your follow up appointments.

3. Risks of bariatric surgery

All surgery has risks, especially major surgery. Any stomach operation for obesity is considered major surgery and therefore has a degree of risk associated with it.

Risks during surgery

People have died from having surgery for morbid obesity. This happens rarely.

The risk is higher if the patient is older and or if the patient has other problems related to obesity. Mortality rates for obesity surgery are not zero. Rates are in the order of less than or equal to 1%.

The death rate from banding operations is around 1 in 2000, and 1 in 1000 for sleeve gastrectomy and gastric bypass operations. Heart attacks can occur after the operation, blood clots can form in the leg veins and pass to the lungs, or leakage of stomach joins can cause death. Bleeding can occur after any surgery, but is greatest after stapling operations (1% of people will need a blood transfusion).

Precautions are taken during surgery and whilst in hospital in order to help prevent these occurring. Patients may be given blood-thinning injections prior to surgery, and/or wear compression stockings during surgery and recovery to prevent blood clots forming in the leg veins. You can help reduce the risk by getting out of bed and moving about. This is encouraged as soon as possible after surgery, as is walking as much as possible in the weeks after going home.

Your surgeon will discuss with you the risks associated with different types of procedures.

4. Before the surgery

Preparation is essential and is the start of your commitment. Over some months you will be having a complete assessment of your state of health, your psychological readiness, and you will start on a weight loss programme. You will have various tests to check on your fitness for operation.

The decision about whether to go ahead with the operation comes after the preparation phase. If the decision is that the operation can go ahead you will be given more information and a date for surgery.

If your preparation is not sufficient you may need to do more before a decision can be made.

Sometimes surgery is deemed not suitable after the preparation phase. You may decide that you don't want to go ahead with the surgery.

5. After the surgery; it all depends on you

The success of any obesity operation requires **you** to take responsibility for **your** eating and exercise patterns.

You need to regularly monitor your weight and attend your follow up appointments as part of achieving your goal and staying healthy

Adapting to the new you

Surgery and all the changes you make can be quite something to get your head around. This is life changing. For many people that is all positive. But for others there is significant adjustment to make which can create its own stresses. This is one of the important reasons to stay with your follow up programme in helping support you through these changes.

Eating

After the operation, the consistency of the food you eat will be different from what you are used to, starting off with only liquid food and then soft moist food. During the initial phase of "new" eating patterns and habits, there may be occasional episodes of vomiting or pain if food is eaten too quickly or if the wrong type of food is eaten. This problem can be avoided if you -

- eat small amounts
- chew really well
- take your time

- learn to identify those foods causing you problems.

You should also avoid drinking around meals, as it will flush food without achieving the sense of fullness.

The first year is a critical time to dedicate to changing old behaviours and forming new, lifelong habits. For 3-6 months after bariatric surgery, appetite suppression creates a window of opportunity to change eating habits. By 9-12 months after the operation, a wide range of high protein, moderate fat and low carbohydrate foods can be eaten in entrée sized meals.

New Eating Habits

- Eat small quantities at each meal and chew slowly
- Sit down to eat your meals and do so in a calm environment
- Stop eating at the first gnawing pain and as soon as you no longer have the feeling of being hungry (fullness)
- Do not drink while eating (but drink sufficiently between meals)
- Eat a varied and balanced diet to prevent nutritional deficiencies and increase the chances of losing weight
- Make sure you eat enough protein (meat, fish, eggs, and dairy products)
- Avoid fizzy drinks, sugary drinks, sauces and fried foods, as well as sweet and fatty foods: eating them is likely to prevent you from losing weight

These new eating habits will be adapted to your specific circumstances over time. They can sometimes be restrictive but they do not prevent you from having a social life (meals with friends, meals out) and from enjoying eating. A remarkable effect of bariatric surgery is a positive change in attitudes towards eating. People begin to eat to live; they no longer live to eat.

Exercise

Studies show that people who maintain their weight loss make daily exercise part of their life.

Obesity cripples the body - as weight is lost, the burden on the bones, joints and vascular system is decreased. With proper nutrition and physical motion, the body will rebuild and return to normal. The most effective way to heal the body is to exercise.

The support of others is extremely important to help lose weight and maintain loss following bariatric surgery. Choose physical activities appropriate to your

state of health, your preferences and possibilities. Friends and family can help you adjust to a new way of looking and feeling after weight loss surgery.

Hair Loss

It is common to notice hair loss or thinning. The loss can be due to rapid weight reduction. The body is prioritising the usage of the reduced amount of protein for other processes in the body during this time. It usually is temporary and stops when the weight loss slows and will grow back.

Loose skin

Some people are left with loose skin and skin folds after losing weight. Further surgery may be considered at a later stage if this continues to be a problem. Skin has elastic properties so it is recommended you wait 2 years before skin removal surgery is considered.

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Appendix 1 - What is obesity?

The word morbid obesity may sound negative, but it is simply the medical term for someone whose excess weight poses a health risk. In New Zealand this form of obesity is now the second leading cause of preventable death following smoking.

To define the different levels of obesity, we use a formula called the Body Mass Index (BMI). The BMI is calculated by dividing your weight in kilograms by your height in metres squared.

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)} \times \text{Height (m)}}$$

When the BMI is greater than 35, the likelihood of suffering major medical, physical or social problems is much greater because of weight.

Where excess fat is carried in the body can be another important risk factor with obesity: extra fat carried in the abdomen has a greater impact on health than fat carried on the hips. Waist measurement is therefore a useful measure as well as BMI.

² This document has been compiled from four main sources: patient information prepared by Auckland District Health Board; patient information prepared by Counties Manukau District Health Board, the Obesity Surgery website <http://www.obesitysurgery.co.nz>, and the HAS (Haute Autorite De Sante) website <http://www.has-sante.fr>
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What causes obesity?

Obesity develops when the energy taken in food and drink over a long period is greater than the energy used up in day-to-day activities.

There are a number of factors working together to cause obesity. The main underlying cause is genetic tendency, but this together with hormonal, environmental, social and cultural factors, can produce a situation where there is a very powerful and irresistible drive to eat.

Factors contributing to obesity

- Portion size
- Food choices
- Stress management/emotional
- Addictive behaviours
- Family relationships
- Lack of exercise

The drive to eat is made up by two important factors that can be hard to draw apart; **food addiction** and **insulin resistance**.

Food addiction:

Over time, the brain comes to depend on food as the emotional solution to challenging situations, or as a way to make the good times better. This creates eating habits that are so hard to beat. Trying to overcome the urge to eat is harder than resisting alcohol and cigarettes because we cannot give up food completely. This is what makes dieting so difficult - we are deliberately depriving our brain of something it desperately wants and needs.

Initially the joy of weight loss counteracts this, but when weight loss stops or plateaus, it becomes hard to continue the diet. Any slight stress becomes an excuse to break the diet. Often the resulting weight gain ends up higher than before the diet. This is often referred to as yo-yo dieting.

Insulin resistance:

The normal fat cell has a job to do; when we eat, it is meant to take up fat and sugar and store them. Two hours later, when we have finished digesting our meal and the blood levels of energy reduce, the fat cell is meant to release its stored energy for use by the brain and body.

Patients with obesity have fat cells that do not release their energy properly and so the brain thinks two hours after eating that there is insufficient fuel and makes

them hungry again. The most likely chemical to be causing this blockage is insulin.

Insulin has the job of pushing sugar into fat cells to make fat and prevents breakdown. It also makes us hungry. All people with obesity have higher than normal levels of insulin. The biggest stimulus to insulin secretion is sugar and simple carbohydrates. That is why these foods fail to satisfy and make us crave something to eat again so soon after eating. Yet, these are the very substances that our brain is addicted to!

The combination of food addiction and insulin resistance can produce an overwhelming obsession with food that can take over life completely.

Problems associated with obesity

Shorter life expectancy:

As BMI increases, so does the risk of dying. If the BMI is greater than 35, this is a high risk. At a BMI of 40, the risk is more than twice that of people who have a normal BMI. Above a BMI of 40 this risk rises greatly.

Major health risks:

Obesity is associated with numerous medical conditions, some of which are caused by obesity or made worse by obesity. These include Type2 diabetes, arthritis, high blood pressure, heart disease, asthma, sleep disturbances and even some cancers. Obese people have an increased risk for - gall bladder problems, reflux disease, problems with fertility, and psychological problems such as depression.

Difficulties with day-to-day living:

People with obesity often struggle to do the day to day things others can do. Movement is more difficult and they tend to tire more easily, which generally excludes them from sporting and other physical activities.

Sometimes housework or even employment is a challenge. There can be difficulties associated with getting in and out of cars, bus or aeroplane seats, and access to public amenities. Obesity can also make it difficult to maintain personal hygiene,

Social isolation:

People with significant obesity may feel embarrassed in social situations and in public, eventually they may prefer to withdraw from these situations. Obesity often produces a negative self-image and low self-esteem issues that may lead to depression. Fear of embarrassment and lower physical activity level, can deprive obese people of the opportunity to work and the chance to join family and friends in social activities.

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Appendix 2 - The three types of operation in detail

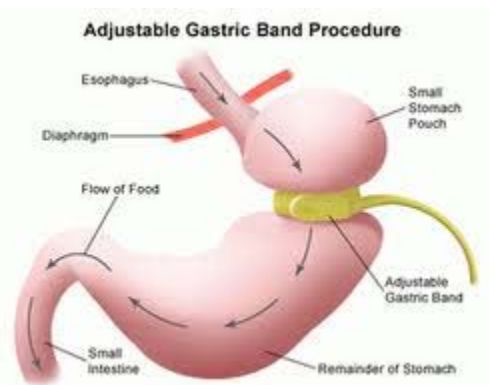
LAPAROSCOPIC GASTRIC BANDING (LAP-BAND®)

A silicone band with an inner circumferential inflatable balloon is placed around the upper stomach via keyhole surgery. When the band works well, a patient feels full after eating only a small amount of food and loses weight through the suppressed urge to eat

The band can be adjusted after the operation by injecting fluid through the skin into a special reservoir (called a port) tucked away under the fat, on the abdominal wall. This port allows the degree of restriction to be changed, depending on the rate of weight loss and any problems relearning to eat.

The operation requires a significant amount of commitment and compliance on the part of a patient. This involves following rules on eating patterns, exercise and lifestyle. The successes are greater in those who follow the recommended rules. The results for those who haven't have shown that weight loss can be minimal, or even non-existent.

The average weight loss after two years with the band has been 50-60% of excess weight.



LAPAROSCOPIC GASTRIC BYPASS (ROUX-EN-Y)

The gastric bypass procedure is usually performed by keyhole surgery however; in some cases it may be necessary to perform an operation through a large cut in the abdomen. This course of action is usually if you have had an open abdominal operation before.

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The gastric bypass operation is an effective way of losing weight and keeping it off. Achieving these results will require lifelong changes to your lifestyle and eating habits.

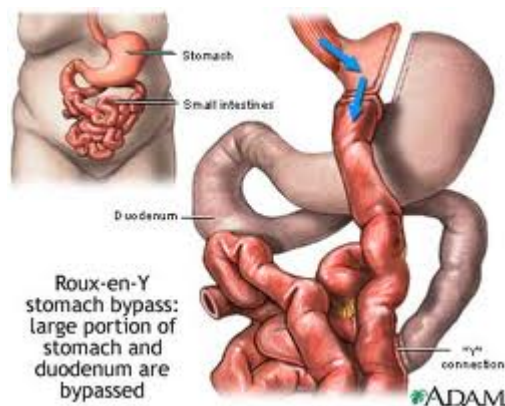
The stomach is completely divided by a stapler to create a pouch that initially measures only 15ml (about one tablespoon). The small bowel is also cut and one end is brought up to the new small stomach pouch. The other small bowel end is joined back to the small bowel about a metre down from the stomach. Apart from the tiny pouch, the stomach is bypassed.

This operation works in two ways: Initially only a small amount of food (1/3 cup) can be eaten in a sitting. The reduction of food initially results in rapid weight loss. Later you can eat an entrée sized meal, and the weight should stay off because of a feeling of fullness.

If undigested high sugar food passes into the small bowel, it causes significant symptoms, known as “**dumping**” such as nausea, sweaty, clammy, dizzy feelings. These symptoms, generally put people off eating the wrong sort of foods. If people don't experience the feelings of dumping, they can eat sugary foods and get back into the addiction cycle. About 30% of people experience dumping long term.

Gastric bypass has a higher complication rate than some of the other types of bariatric surgery, however the weight loss is more consistent and patients can expect to lose more weight quickly. The expected average weight loss is around 70% of excess weight, which is also influenced long-term by physical activity and eating habits. Gastric bypass patients will need to take daily supplements for the rest of their life.

The complications arising from dividing and stapling include bleeding, leaks from joins or staple lines, and bowel blockage.



LAPAROSCOPIC SLEEVE GASTRECTOMY

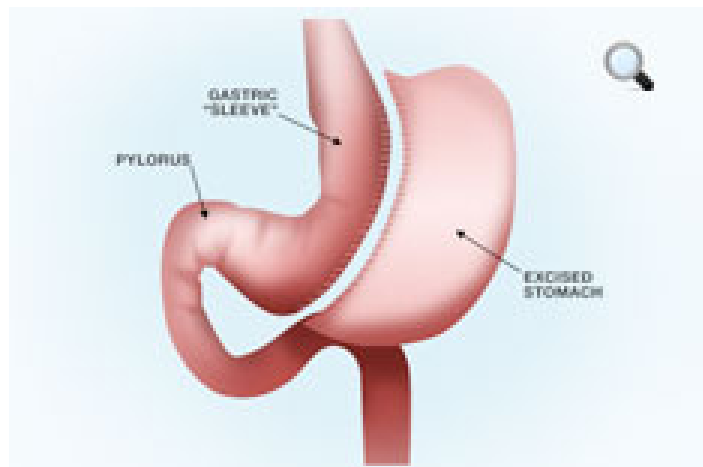
Sleeve gastrectomy is a relatively new technique and is being used more widely. It is an easier operation to perform than a gastric bypass as there are no joins. There is currently less data on long-term outcomes. There is reduced risk of

bowel blockage or ulcers. Complications such as bleeding and leaks from the staple line are similar to the gastric bypass.

The procedure is done by keyhole surgery; a stapler is used to completely trim off the stomach, leaving a thin tube down to a normal outlet. The remaining stomach is removed through a slightly enlarged 12mm incision.

Weight loss after a year averages 60% of excess weight. In the first three months after surgery patients, can be troubled with acid reflux and nausea.

The advantage of this procedure is that there is less malabsorption, so there may be less need for dietary supplements.



www.wyomingvalleybariatriccenter.com

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Appendix 3 - The risks of surgery

Risks immediately after surgery

Stomach fluids normally contained in the gut can leak out into the abdominal cavity, causing pain and infection. This is a rare but serious situation and requires another operation. This will delay your discharge from hospital.

Risks after you go home

Gastric bypass:

After a bypass, excessive healing can occur at the join between the stomach pouch and the small bowel, it causes a narrowing that must be dilated. The narrowing produces an inability to progress to solid food, around the 6-week mark. Correcting the narrowing is very safe and takes very little time to do, but it does require a heavy sedation to pass a telescope down into the stomach and use a balloon to stretch the scar tissue.

Gastric banding:

After banding, there are very few immediate concerns. Occasionally patients do get prolonged pain due to inflammation around the surgical site just under the diaphragm. This causes referred pain, felt in the shoulder, and may require a longer period of pain relief.

Infection in the port is rare (1%), but is an annoying complication - the port has to be removed, three months are needed to ensure all the germs are gone, before a new port can be placed. During that time, the band is deflated and cannot be adjusted.

Long-term risks

Sleeve and Gastric bypass:

Bypass and sleeve operations are associated with a failure of the stomach to produce factors that help absorb Vitamin B12. B12 is a key nutrient necessary for the functioning of the brain and nervous system. With either of these operations, B12 deficiency can occur even years after the operation, so regular blood tests are needed.

Gastric bypass can also cause iron, calcium and other vitamin malabsorption, and supplements **must** be taken for life. Failure to do so can lead to brain

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damage that may not be reversible by restarting supplements. This is a rare and dangerous complication that can be completely avoided by simply following the rules.

Rerouting of the small bowel does create spaces for the bowel to get twisted in and can cause the bowel to die, which can be life threatening. This is rare and completely fixable by re-operating to untwist the bowel.

The small bowel is not designed to receive stomach acid, so ulcers are possible.

Gastric banding:

Long term problems with the gastric band relate primarily to over inflation, causing vomiting and failure to change your eating habits. If the band is too tight, the gullet can eventually give up and stop pushing food through the band.

Too much vomiting can cause the small amount of stomach above the band to expand, giving severe night-time reflux and prevention of solid food going down. As a result softer foods and liquids are more likely to be substituted; unfortunately these tend to be the carbohydrate rich, foods reactivating the insulin problems identified above.

The worst case is when the tight band erodes into the stomach, this is life threatening.

On rare occasions the band may deflate even years after the operation, hunger will rapidly return with weight regain.