Weight Loss Surgery

Information for Patients

Auckland
Weight Loss
Surgery

Introduction

This information booklet has been developed to help prepare you for your weight loss operation. It discusses different types of weight loss surgery, what you can expect before, during and after your stay in hospital and helps you with the lifestyle changes you need to make after surgery.

Please ensure that you have had time to read and understand all the information contained in this booklet. It is important that you give yourself adequate time to process this information. We are happy to answer any questions that you may have.

There is plenty of space throughout the book for you to write questions down, and it is advised that you do so in order to remember them when you see your specialist.

Remember this is the beginning of a challenging journey. It is important that you are well prepared with information and determination in order to reap the benefits of surgery.

The Surgeons

Mr Grant Beban

Grant works in both private practice and in public practice at Auckland Hospital. His particular interests are laparoscopic gastric bypass and laparoscopic gastric sleeve procedures, as well as other forms of laparoscopic upper gastrointestinal surgery and surgery for cancers of the upper gastrointestinal tract. He has been involved in Ministry of Health groups looking at management of morbid obesity in New Zealand, and prioritisation of weight loss operations in public hospitals. Research interests include improvements in diabetes control and quality of life after weight loss surgery.

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Mr Richard Babor

As well as his private practice, Richard works as a general, upper gastrointestinal and bariatric surgeon at Counties Manukau District Health Board. His interests include laparoscopic sleeve gastrectomy, gastric bypass and revision of complicated band surgery. Currently he is involved in research on enhanced recovery after bariatric surgery and the effect of bariatric surgery on diabetes.

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Mr Nicholas Evernnett

Nicholas is an Upper GI and Bariatric surgeon who works in both private and public practice at Auckland Hospital. He completed a thesis in paediatric surgery in the Netherlands and London before completing ANZGOSA (Australia and New Zealand Gastro Oesophageal Surgery Association) and OSSANZ (Obesity Surgery Society of Australia and New Zealand) accredited post fellowship training programmes in Upper GI and bariatric surgery.

He offers a wide range of bariatric procedures (including Roux-en-Y gastric bypass, one anastomosis gastric bypass, and sleeve gastrectomy), anti-reflux surgery, gallbladder surgery and hernia surgery. He has a particular clinical interest in minimally invasive surgery for oesophageal and gastric cancer and has successfully implemented a minimally invasive oesophagectomy programme at Auckland Hospital.

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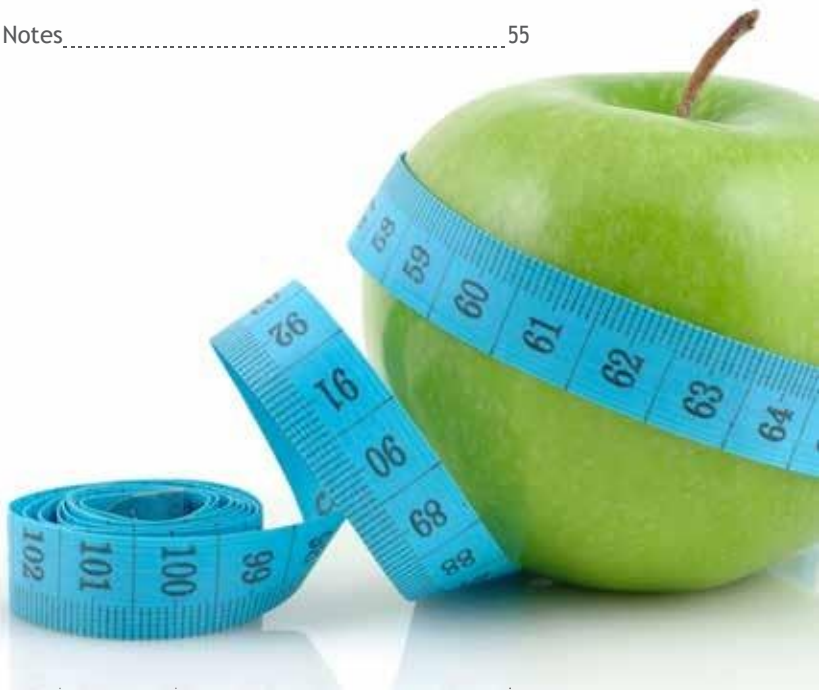


What can surgery for weight loss achieve?

Weight loss surgery - also known as bariatric surgery - is the only current treatment that can reliably provide effective long-term weight control in the majority of obese patients. It is not for everyone. It involves a degree of risk and requires a commitment to lifelong change. Weight loss surgery is recommended for severely obese individuals by health policy agencies in New Zealand, Australia, United States and the United Kingdom.

If you are severely obese, surgery:

- Helps you to lose weight long term
- Improves health disorders connected with your obesity
- Improves your quality of life
- Extends life expectancy, particularly in younger and/or larger individuals.

In addition, surgery can help your self-esteem, give you more opportunities for physical activity, and improve social, professional and sexual relationships.

Surgery on its own does not result in sustainable weight loss.

It is only effective if eating habits are changed, physical activity is increased and you are willing to commit to lifelong medical follow-up.

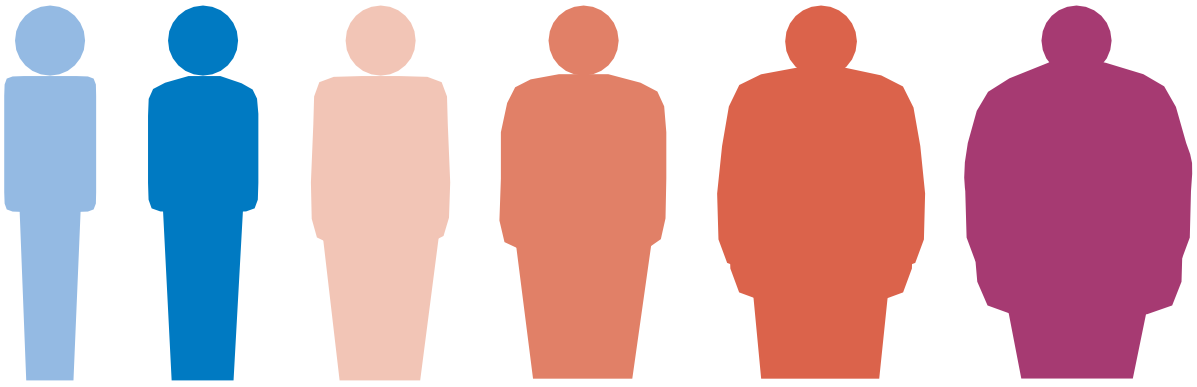
Definition of obesity

The word obesity may have negative connotations, but it is the medical term for someone whose excess weight poses a health risk.

The most useful measurement is weight in relationship to height. Known as the Body Mass Index (BMI), this is calculated by dividing weight (kg) by height squared (m^2).

The BMI allows us to classify whether someone is normal, overweight or obese.

Classification BMI (kg/m2)



Underweight	Normal	Overweight	Obese	Morbid obesity	Super obesity
<18.5	18.5-24.9	25-29.9	30.0-39.9	>40.0 (or BMI 35-39.9 with overweight related illness)	>50.0

The BMI is helpful in several ways:

- It allows us to calculate how overweight a person is.
- Being overweight increases risk of medical problems. BMI helps us to estimate the risk.
- The BMI allows us to calculate an ideal weight for someone based upon their height.

Example
Calculation of BMI, ideal weight, and excess weight allows treatment goals to be set.

Calculated BMI
weight: 150 kg
height: 180 cm

BMI = 46.3

Ideal goal weight

ideal weight: 81 kg
(calculated to BMI of 25)
excess weight: 69 kg

Where excess fat is carried can be another important risk factor with obesity. Extra fat carried in the abdomen has a more negative impact on health than fat carried on the hips. Waist circumference is therefore useful to measure as well as BMI.

NOTES:

What is my BMI?

What is my waist circumference?

BMI = kg/m2

Use our online calculator at www.aucklandweightlosssurgery.co.nz

My BMI = ...

My waist measurement = ...

When could obesity surgery be appropriate?

Obesity surgery may be suitable for adults who have;

- BMI of 40 or greater
- BMI of 30 or greater when it is combined with a significant health condition that could be improved through surgery (diabetes, high blood pressure, sleep apnoea syndrome, joint disorders, etc.)

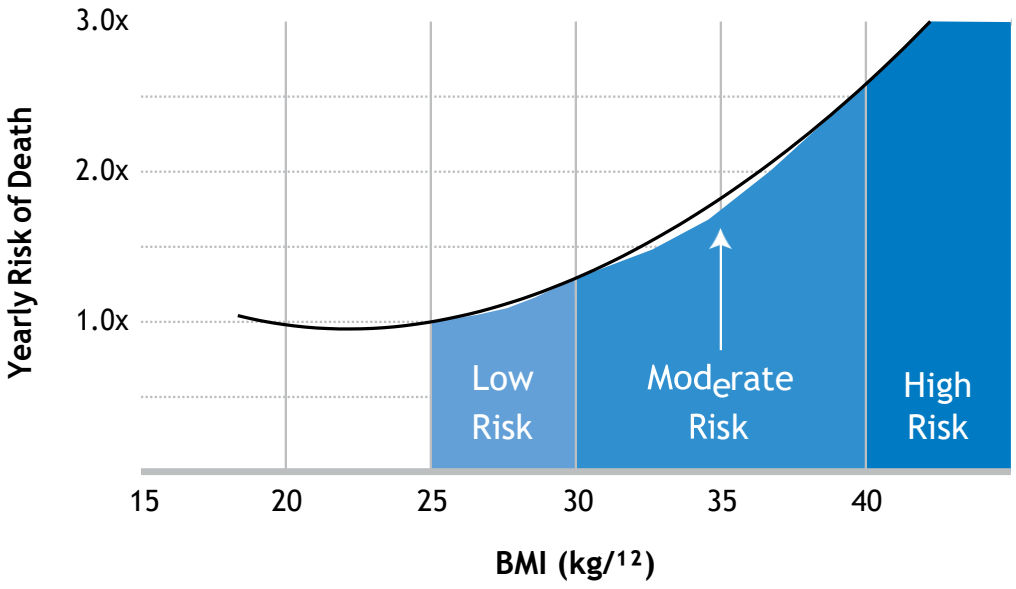
Such patients should have attempted, without success, to lose weight by non-surgical means (including nutritional and physical activity) over several months; and have no contraindications to surgery (e.g. alcohol abuse) or to general anaesthesia.

Health risks from excess weight

Obesity is associated with a number of health problems. The number and severity of these problems are related to the severity and duration of obesity and varies with the distribution of body fat.

Shortened lifespan

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



From: Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults, NHMRC, 2003

Obesity related conditions

Most patients with morbid obesity suffer from some weight-related conditions. Often these conditions improve as you lose weight, therefore you can use them as indicators to monitor your progress after surgery.

Treatments available for obesity

Losing weight is the most effective treatment for the medical conditions caused by obesity.

Many diets and forms of treatment promise to produce significant weight loss but for the morbidly obese, obtaining and maintaining enough weight loss to improve health by any means other than surgery is rare.

Non-surgical methods of weight loss fail because they require daily compliance forever and our bodies are designed to fight weight loss.

A diet makes your body become more efficient in holding on to energy and your brain sends stronger and stronger hunger signals. This explains why it is difficult to maintain a diet and the speed weight is regained at after a diet.

The majority of people seeking surgery for weight control have experienced successful short-term weight loss with diets in the past before regaining it. Regardless of the amount of weight lost, your body will strive to return you to your pre-diet weight.

Cosmetic and reconstructive operations such as abdominoplasty (tummy tuck) and liposuction are not weight loss operations and have no effect on weight in the long term.

Obesity surgery is not cosmetic surgery.

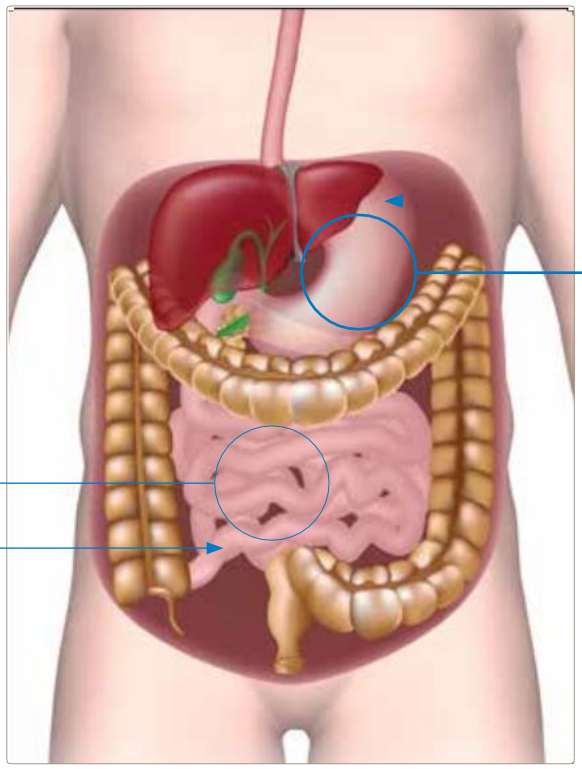
NOTES:
What diets and other methods have I tried?
How much weight did I lose and for how long?

Your notes:

Operations for obesity

Surgeons often define success after an operation as a loss of over 50 per cent of excess weight. Most people after surgery will end up much closer to their ideal weight as predicted by the BMI chart but will still carry some excess weight and loose skin.

Obesity surgery changes the anatomy of the gastrointestinal tract. There are a number of surgical approaches that work by either reducing or restricting food intake (restrictive) and / or by changing the way the body handles the absorption and storage of food (metabolic).



The main surgical techniques are;

Combination of metabolic and restrictive

- Gastric bypass
- Sleeve gastrectomy

There is a newer operation called a "mini" gastric bypass that is a modification of the gastric bypass and works in a very similar way.

Restrictive only

- Gastric banding

Each technique has its advantages and disadvantages, and a patient's needs and risk factors may dictate a particular approach.

Gastric bypass

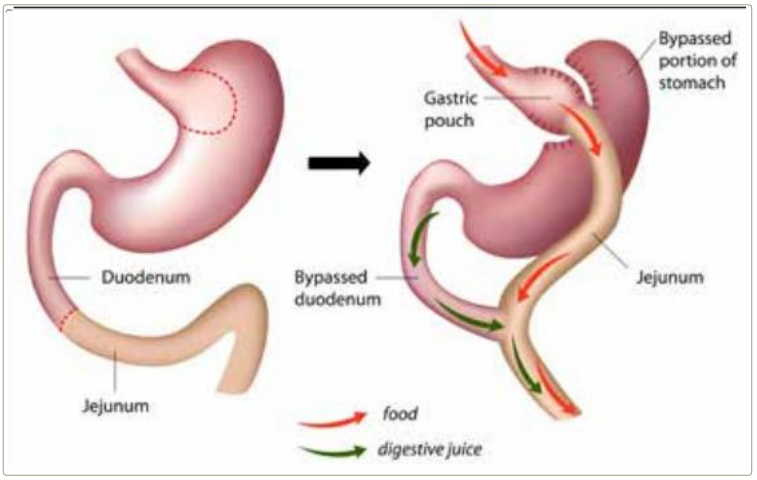
This procedure is regarded internationally as the 'gold standard'. Follow up to 15 years after surgery has shown patients maintain weight loss.

This operation can usually be done laparoscopically (using minimally invasive keyhole surgery).

The operation involves making a very small "pouch" from a part of the top of the stomach.

This is then joined to the small bowel, bypassing the rest of the stomach and about one metre of the small intestine.

This approach works by reducing what can be eaten at a single sitting and reducing hunger, probably by affecting the hormones in the gut and brain. These effects are powerful and result in weight loss in most patients. There is a good balance between its efficacy - the amount of weight lost - and the durability - how long it lasts.



Gastric bypass

Advantages

- Effective, long-lasting weight loss for most people, and most obesity related health problems improve
- Improved quality of life
- Normal, especially healthy food can still be eaten, just in small volumes.

Disadvantages

- Vitamin supplements should be taken daily, and usually iron and calcium tablets
- The risk of gastric bypass surgery is similar to elective hip or knee surgery (1 in 200 to 1 in 1000 risk to life)
- Early complications can occur soon after the surgery due to leaks from where the gut is joined, bleeding, infection or blood clots
- Late complications can occur due to blockages of the bowel
- Not easily reversed
- Not everyone is a candidate for laparoscopic bypass; these people may require open surgery or should consider other options
- Even this operation can be beaten by eating the wrong foods and failing to keep to the necessary lifestyle changes.

Expected weight loss
About 75 per cent of excess weight

Duration of operation
2 to 3 hours

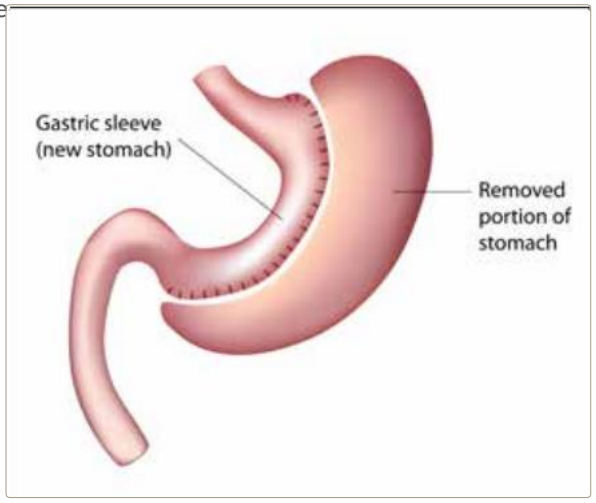
Number of nights in hospital
2 to 3

Recovery period
1 to 2 weeks off work, occasionally up to 4 weeks

Sleeve gastrectomy (or gastric sleeve)

The gastric sleeve is a more recent weight loss procedure. It involves reducing the size of the stomach from a sac to a narrow tube. It is performed laparoscopically (using minimally invasive keyhole surgery).

Weight is lost because the patient feels fuller earlier after eating, largely due to the smaller size of the stomach. The procedure also reduces some appetite simulating hormones produced by the stomach and this has an effect on how the brain controls weight. Apart from this effect, the stomach digests calories and nutrients in an almost normal way.



Sleeve gastrectomy

Advantages

- Effective weight loss for most people and improvement in many obesity related health problems improve
- Normal (especially healthy food) can still be eaten, just in small volumes
- Good option for high-risk patients.

Disadvantages

- Vitamin supplements should be taken daily
- Long-term outcomes uncertain
- Early complications can occur soon after the surgery and be due to leaks from where the gut is stapled, bleeding, infection or blood clots
- Irreversible
- Even this operation can be beaten by eating the wrong foods and failing to keep to the necessary lifestyle changes.

Expected weight loss
About 50 to 75 per cent of excess

Duration of operation
2 hours

Number of nights in hospital
1 to 2

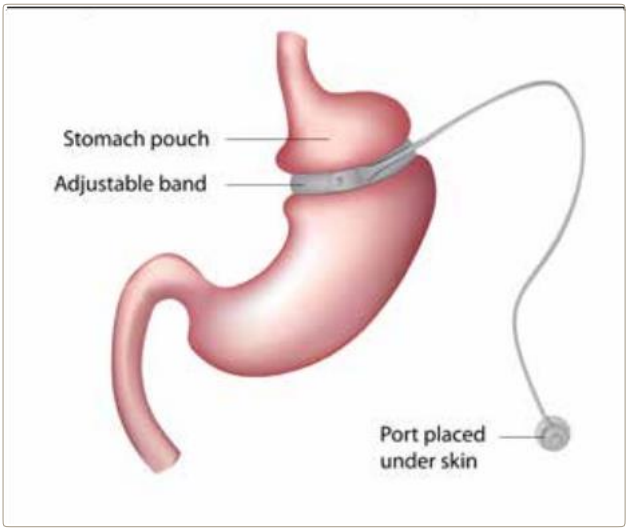
Recovery period
1 to 2 weeks off work.

Gastric band

Gastric banding is an operation that was very popular over the last 10 years. It has largely fallen out of favour in the last 2 years because of poor results.

It involves placing an adjustable band at the upper part of the stomach. The size of the outlet of the upper stomach can be adjusted by adding or removing fluid through a small port placed just under the skin. When working well, this may lessen feelings of hunger, and allows people to feel full after eating only a small amount of food.

Although it is a common procedure overseas, gastric banding does not give the sustainable results of the gastric bypass or the gastric sleeve. Its effect on medical problems associated with obesity is less pronounced than gastric bypass or sleeve gastrectomy, and there is concern internationally about a high late complication rate. For these reasons, Auckland Weight Loss Surgery does not recommend or perform this operation.



Gastric band

Advantages

- Minimal vitamin deficiencies as no part of the bowel is bypassed
- Safety: probably no more risk than elective gallbladder surgery and less risk of early complications
- Shortest inpatient stay (overnight).

Disadvantages

- Diet very restrictive; most patients cannot eat white bread and chicken.
- Sometimes the restriction interferes with the ability to eat other foods that are components of a normal diet and many patients are restricted to only soft or sloppy foods that are often high in fat
- It is possible to easily beat the operation by eating sweets / chocolate / ice cream and some people develop a preference for these foods which leads to failure
- These operations do not work so well for older, larger patients with diabetes
- Ongoing failure rate due to band slip, band erosion or inadequate weight loss causing up to 5% of bands being removed per year
- Weight loss is variable. Average excess weight loss only 45%, many patients fail to lose half their excess weight. This leads to a high rate of dissatisfaction.

Stomach stapling

Vertical banded gastroplasty, also known as stomach stapling, was popular over 20 years ago but it has been largely abandoned by surgeons because of its poor results.

Jejuno-ileal bypass was another early procedure that produced poor results.

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?

Your notes:

Risks of surgery

Obesity surgery is major surgery requiring a general anaesthetic and, as such, carries a risk of complications or significant problems.

Death.

Surgery can result in complications that may be fatal. The risk of death for obesity surgery is less than or equal to 0.1 per cent. To compare this with other common procedures, the risk of death following a gall bladder removal is 0.1 to 0.5 per cent; for hip replacement surgery 0.5-1.0 per cent; for coronary bypass surgery the risk is 1-2 per cent.

Anaesthesia.

This is a very safe procedure in New Zealand, and while there is a risk of death from anaesthesia, it is extremely low; about 1 in 40,000 people.

General risks.

All operations involve incisions that may become infected or may heal poorly. Hernias and other wound complications occur occasionally after laparoscopic (keyhole) surgery and these can be corrected with follow up surgery. Operations also put people at risk of chest infections (pneumonia), urine infections and blood clots. These risks can pose a threat to life after major surgery. The risk of bleeding during the operation or immediately following it is also present; and occasionally patients may require transfusions or a further operation to stop bleeding.

Specific risks.

These are risks that are specific to the type of operation or to the person having the procedure and may occur early or later on after surgery. These risks are discussed later in this information booklet.

Disability.

Disability may take the form of prolonged tiredness, abdominal pain, difficulty in eating, vomiting, or nutritional deficiencies. Taking vitamin, mineral and trace element supplements together with a varied diet will prevent the latter from occurring. Gastric bypass and gastric band operations are to some extent reversible, but reversing the operation may not fix an established problem. The gastric sleeve is not reversible, but usually it can be converted to a gastric bypass if required. Patients are effectively disabled while recovering from major surgery and if they experience complications, recovery can be further delayed. Some disabilities can be permanent and some permanent disabilities occur even when no or only minor complications have arisen. This is because the side effects of any operation can vary from person to person.

What makes these risks acceptable is the fact that obesity itself causes disability, psychological stress and risk to life

What to do now: pre-consultation steps

Think about whether you want to proceed with bariatric surgery and discuss your thoughts with your family. A large number of people having weight loss surgery do not even discuss it with their spouse and although this simply reflects the belief that others may not take their problem seriously, it also robs them of a significant source of support.

If you are looking online for information regarding obesity management avoid websites with obvious commercial intent. Good sources of information can be obtained from neutral government agencies e.g. the American National Institute of Health (NIH), the British National Institute of Clinical Excellence (NICE), the Australian National Health & Medical Research Council (NH&MRC), and www.obesityhelp.com.

Discuss your options with your GP as they will be aware of your previous medical history and they, like ourselves, will prefer you to have had sustained attempts at 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; it will remind you of any questions you mean to ask him or her.

Alternatively, you can contact us directly at Auckland Weight Loss Surgery to book a consultation. You do not require a referral from your GP.

Richard Babor- AWL Surgeon

Lifestyle changes

Eating is essential to our existence and what drives us to eat is more complex than just the feeling of hunger. The only way to lose weight is to eat less in relation to the activity (exercise) we do.

The operations described reduce appetite and the amount that can be eaten. Eating is a soothing, enjoyable activity that everyone uses as a way of coping with stress and/ or socialising with others. Obesity surgery changes this permanently and the realisation that this coping mechanism may be removed, can be a daunting prospect for anyone considering surgery.

Changing how we eat, how we exercise and how we deal with stress is vital to getting the best result from obesity surgery. These operations do not do it all for you; they are best seen as tools that make achieving this lifestyle change possible and more sustainable. The obligation is on each patient to make the best use of this tool.

Before and after surgery

When you elect to have surgery, your care before and after your operation is managed by a multi-disciplinary team comprising of the surgeon, nurse specialist, dietitian and health psychologist. Several consultations with the members of this team are required. If possible, we recommend you bring a support person with you to your consultations.

Helpful Information. Read this prior to meeting with us at Auckland Weight Loss Surgery to discuss your condition and options.

It is very important that you understand what weight loss surgery involves and you will have lots of opportunities to ask us questions to help you to reach the best decision about surgery for you. It is also critical that you are prepared to make the lifestyle changes that are essential to avoid complications from surgery. This will help you to get the best result from your weight loss operation.

You can contact us directly to make an appointment for a consultation. You do not require a referral from your GP.

Do you know enough about obesity surgery?

The following is a useful exercise to complete before you consult your medical practitioner:

Obesity surgery

- What are the different types of operations?
- What are the advantages and disadvantages of the different techniques?
- What are the main risks of surgery?
- Is surgery on its own sufficient for losing weight?

From the notes you have made as you have read this booklet:

- According to your BMI, where do you fit in the obesity scale?
- What are your obesity-related health problems?
- What diets and other weight loss methods have you tried?
- How much weight did you lose and for how long?
- What obesity conditions do you wish to improve?
- What are your long-term weight goals?
- If you know anyone who has had a weight loss operation, which technique was it and what was the result?

Lifestyle changes

- What medical follow-up is required after surgery?
- What changes need to be made to eating habits? For how long?
- What changes need to be made to the amount of physical activity undertaken? For how long?

If you have surgery

- What do you need to do to achieve your goals?

More information on specific weight loss operations

Gastric bypass

Gastric bypass is considered by many surgeons to be the "gold standard" operation for morbid obesity and is commonly done worldwide. It is the operation with which all other weight loss procedures are compared.

Gastric bypass is a more technically challenging procedure to perform than other surgical procedures available but for most people recovery time and risk is similar to the sleeve gastrectomy (also known as the gastric sleeve).

It has grown in popularity because it produces sustainable long-term weight loss in most patients, and many problems associated with obesity such as diabetes and sleep apnoea are improved or completely resolved.

The gastric bypass procedure involves creating a very small pouch out of the stomach and attaching it directly to the small intestine, bypassing most of the stomach and the first part of the small bowel. This small stomach pouch cannot hold large amounts of food, and by skipping the first part of the small bowel, hormones that control our appetite and food absorption and storage are also affected. Together, this results in significant and sustained weight loss. This additional hormonal effect makes it a particularly effective operation for diabetes and other metabolic complications of obesity.

After surgery, patients start on liquids before moving to a pureed diet while the stomach heals. Several weeks after gastric bypass surgery patients progress to eating three small meals a day of normal consistency food. Entree-sized meals are enough to produce a sensation of fullness, making it easier for patients to limit the amount they eat.

Gastric bypass is routinely done by laparoscopic (keyhole) surgery, which involves several very small incisions, rather than by open surgery, which uses one large incision. Harmless carbon dioxide gas is introduced into the abdomen, inflating it, and creating a space for the surgeon to work. The surgeon introduces a long narrow camera and surgical instruments to perform the procedure.

Laparoscopic procedures have the advantages of less pain and shorter hospital stay and recovery, as well as significantly reduced risks of wound infection or hernias. If, for some reason, your surgeon cannot complete the procedure laparoscopically, he can switch safely to the open procedure. The chance of this happening is low and would only be done in your best interests.

Improved health

Gastric bypass reduces the risk of death from obesity. Many obesity related conditions, such as type II diabetes, obstructive sleep apnoea, joint pain from arthritis, high cholesterol and high blood pressure, are either completely resolved or substantially improved.

Long-term weight loss

Most patients achieve good to excellent weight loss results following gastric bypass surgery; typically this is 65 to 75 per cent of excess weight.

Patients lose most of their weight in the first 12 to 18 months, before their weight stabilises. There can be some weight regain after this time, but it is usually minor. There is no amount of weight loss that is guaranteed.

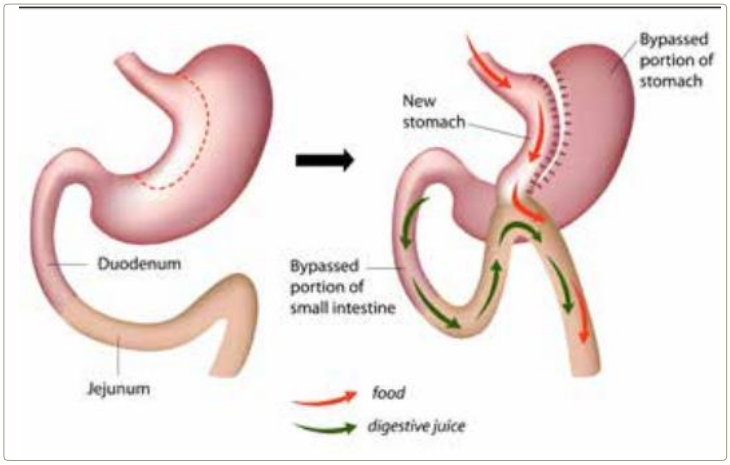
Healthy lifestyle changes, with better diet and regular exercise, lead to a better outcome after the surgery. Gastric bypass is best seen as a tool that makes these lifestyle changes achievable for most patients.

Mini-gastric bypass

"Mini"- gastric bypass is a newer operation that is also called by various other names such as "loop gastric bypass", "omega-loop gastric bypass" or "single anastomosis gastric bypass".

It is a simplified version of the gastric bypass that has recently started to be performed in many countries around the world. Because of its more recent introduction our understanding and confidence in its longer term results is still developing.

It differs from a standard gastric bypass in that it involves the surgeon making only one join between a small stomach pouch and the small intestine. It functions in almost an identical way to the standard gastric bypass. Because of the absence of a second join there is a slightly higher risk that some patients will experience troublesome reflux after this surgery. But also, because this second join is not present, it reduces the risk of longer term complications such as intestinal obstruction. It is also quicker and easier to perform than standard gastric bypass. Many weight loss surgeons around the world are now starting to report their experience with the mini-gastric bypass and the results are very similar to standard gastric bypass and sleeve gastrectomy. We expect that this type of surgery will become more widely used over the next few years.



Mini-gastric bypass

Sleeve gastrectomy

Laparoscopic sleeve gastrectomy is also called a "gastric sleeve" or "vertical sleeve gastrectomy". It is a newer weight loss procedure that reduces the size of the stomach from a sac to a narrow tube. Sleeve gastrectomy is an operation that has been in use around the world for around a decade so its results are known to be quite consistent.

Weight is lost because of early satiety (the feeling of fullness after eating)

The feeling of fullness after eating is largely due to the smaller size of the stomach. Also, some appetite stimulating hormones normally produced by the stomach are reduced by the procedure. This has an effect on how the brain controls appetite and directs food energy storage. Apart from this, the stomach digests calories and nutrients in an almost normal way.

This operation has evolved from other procedures performed in the past.

One of these operations, the vertical banded gastroplasty (also known as "stomach stapling"), was abandoned due to poor long-term results.

These poor results were due to staple line breakdown or blockage at the tight ring placed around the stomach to narrow the outlet. The sleeve gastrectomy is constructed differently to avoid these problems.

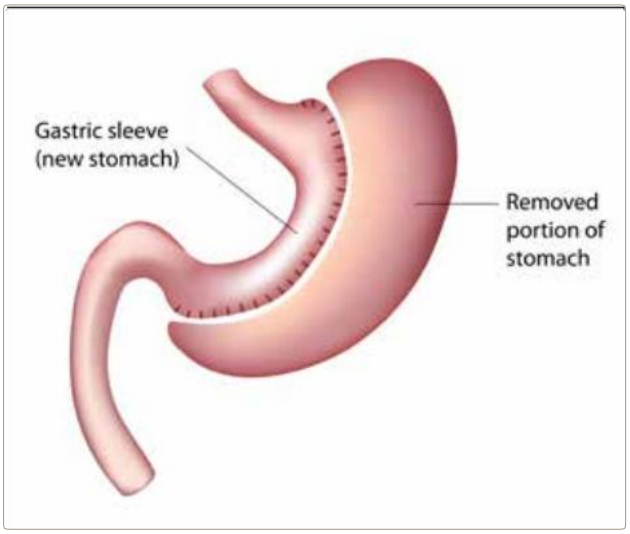
The sleeve gastrectomy was first used as an intermediate step toward gastric bypass or duodenal switch. These are more complicated operations with slightly higher risks of complications. The sleeve would be performed first, and then several months after this, when the patient had lost weight, a second operation converted the sleeve to a bypass or duodenal switch. Surgeons using this strategy to reduce risk soon noticed that patients often didn't need a second operation because they were very happy with the weight loss results achieved by the sleeve alone. Over the last few years, the sleeve gastrectomy has been used as a "stand alone" procedure for weight loss, and in recent years it has become a commonly performed operation for weight loss in New Zealand and around the world.

After surgery, patients start on liquids before moving to a pureed diet while the stomach heals. Several weeks after gastric sleeve surgery patients progress to eating three small meals a day of normal consistency food. Entree sized meals are enough

to produce a sensation of fullness, making it easier for patients to limit the amount they eat.

The sleeve gastrectomy is done by laparoscopic surgery, which involves several very small incisions, rather than open surgery, which uses one large incision. Harmless carbon dioxide gas is introduced into the abdomen, inflating it, and creating a space for the surgeon to work. The surgeon introduces a long narrow camera and surgical instruments and uses these to perform the procedure.

Laparoscopic procedures have the advantages of less pain, a shorter hospital stay, and a quicker recovery, as well as a significantly reduced risk of wound infection or wound hernias. If, for some reason, your surgeon cannot complete the procedure laparoscopically, he can switch safely to the open procedure. The chance of this happening is low and would only be done in your best interests.



Sleeve gastrectomy

Improved health

Bariatric surgery reduces the risk of death from obesity. Many obesity related conditions, such as type II diabetes, obstructive sleep apnoea, joint pain from arthritis, high cholesterol and high blood pressure, are either completely resolved or substantially improved.

Long-term weight loss

Most patients achieve good to excellent weight loss results following gastric sleeve surgery; typically this is 60 to 70 per cent of excess weight. Patients lose most of their excess weight in the first year and can lose more weight over the next six to 12 months. Weight will usually stabilise after this.

There can be some weight regain, but this is usually minor. **There is no amount of weight loss that is guaranteed.**

Healthy lifestyle changes, with improved diet and regular exercise, lead to a better outcome after the surgery. The laparoscopic gastric sleeve procedure is best seen as a tool that makes these lifestyle changes achievable for most patients.

Revision surgery

Revision surgery is surgery that is performed for patients that have developed problems after a previous weight loss operation.

These problems most commonly are:

- Troublesome or intolerable symptoms after weight loss surgery
- Failure of satisfactory weight loss
- Weight regain after good initial weight loss following weight loss surgery

At Auckland Weight Loss Surgery we are seeing an increasing number of patients with problems that have arisen sometimes years after they have had weight loss surgery done elsewhere. We also have a small number of our own patients that have run into problems with weight loss surgery that we have performed.

The most common scenarios encountered are:

- Complications after adjustable band surgery including slippage or erosion of the band
- Failure of weight loss after band surgery
- Troublesome reflux after band surgery, sleeve gastrectomy
- Multiple troublesome food intolerances after band surgery
- Abdominal pain or intestinal obstruction after gastric bypass surgery
- Weight regain after older style weight loss operations such as vertical banded gastroplasty

Revision surgery after previous weight loss surgery is a complex and specialized field. The pre- operative decision making and technical considerations of revision surgery are often difficult and need to be tailored to individual patients and the problems that they may have. Often, a number of pre-operative tests are required before the best option for a particular patient can be chosen.

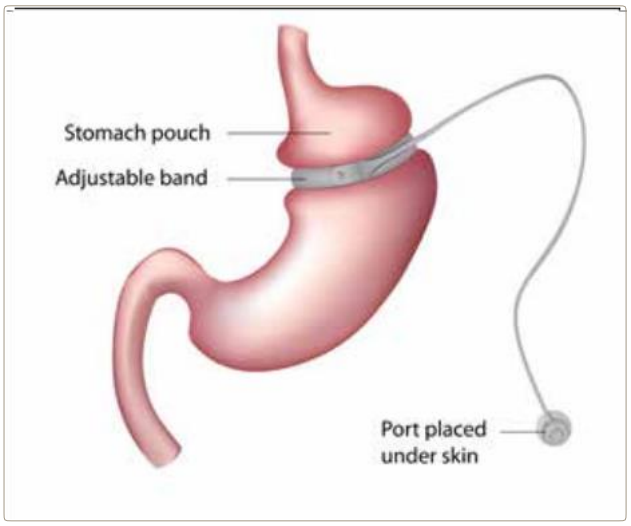
The procedures that are most commonly performed by surgeons in this challenging field include:

- Simple removal of an adjustable gastric band
- Conversion of band surgery to gastric bypass or sleeve gastrectomy
- Conversion of sleeve gastrectomy to gastric bypass
- Reversal of gastric bypass

For patients considering having surgery to change from one type of weight loss operation to another there are several important considerations. The strongest reason to do such a conversion is to improve or resolve severe or disabling symptoms. Usually these are related to reflux or food intolerance. Some patients have conversion surgery, particularly following previous band surgery, because their initial weight loss has been unsatisfactory. It is important to understand that

weight loss following a conversion operation is often less than would be expected with that operation when it is done in a patient who has not previously had surgery. Additionally, the usual risks of surgery are greater in patients having surgery for the second time. The magnitude of this increased risk will vary quite widely from patient to patient and depends on their individual circumstances.

Most revision can be accomplished through keyhole surgery. However, sometimes the surgery is complex and difficult and requires open surgery through a conventional, larger incision. This also increases the risk of complications and prolongs recovery time.



Gastric band

Although conversion surgery is often complex, and has increased risks, with care, good planning and good surgery, most patients can be helped to achieve a result that is greatly improved on the situation they come to us with.

Anaesthesia for surgery

An anaesthetist is a medical specialist just like a surgeon, requiring the same length of training, and you will have a fully trained specialist anaesthetist for your surgery. The anaesthetist will contact you prior to your surgery to ask you about any previous and current health issues. Please feel free to ask about any aspect of your anaesthesia care. It

is important you try to answer all questions fully to enable the anaesthetist to use the best anaesthetic techniques for your surgery.

Specifically, it is very important to tell the anaesthetist about

- any previous anaesthesia problems
- any allergies
- any history of pulmonary embolus (blood clot in the lung) or deep vein thrombosis (blood clot in the leg).

The anaesthetist will arrange for extra tests if they are required to give your anaesthetic safely. If needed, the anaesthetist may ask to see you prior to the day of surgery.

You will usually meet your anaesthetist before your operation on the day of surgery, who will answer any further questions you may have and obtain your informed consent for the anaesthesia. Abdominal surgery requires general anaesthesia: this is a combination of drugs used to put you into a state of controlled and reversible unconsciousness. The anaesthetist monitors you continuously during this time, and you will be given painkillers and anti-emetics (which help prevent nausea and vomiting) while you are asleep. In the recovery room, further medications will be given as needed.

Pain is normally minimal after this procedure, but it can be felt in the small cuts made in the abdomen. Occasionally, the gas used to inflate the abdomen can cause pain in the shoulder tip, but this rarely lasts long and is easily controlled.

If ongoing pain relief is needed, then a PCA pump or "pain pump" (patient controlled analgesia) can be used. You push a button and the pump delivers a dose of painkiller. You cannot give yourself too much; the machine will limit the amount of painkiller it delivers to a safe level. Nausea and vomiting can be troublesome for some people but there are many drugs we can use to prevent this. Your anaesthetist will chart a list of drugs for the ward nurses to give, and we would encourage you to use them as required. The nurses can contact your anaesthetist at any time for advice about pain-relief and any other non-surgical problem.

Your anaesthetist will be involved with your care for two to three days after the operation in co-operation with your surgeon. He or she takes care of pain relief, nausea/vomiting and intravenous fluids, as well as managing most medical problems, such as diabetes, while you are in hospital.

Hospital admission

Day zero

Admission

You will be admitted to hospital on the morning of surgery unless you have specific medical problems that your anaesthetist and surgeon wish to monitor closely overnight. It is understood that you will have had a thorough shower prior to admission, and that you bring along everything you require for your hospital stay. If you have any further questions for your surgeon or anaesthetist, please write them down and bring them with you to hospital. If your operation is in the morning, you should not eat or drink from midnight the preceding day. If your operation is in the afternoon, you may have a light breakfast at 6 o'clock in the morning, but fast after that.

CPAP (continuous positive airway pressure)

If you currently use CPAP for obstructive sleep apnea, please bring your machine with you to hospital.

Medications

Bring in all medications, including over the counter and herbal medications.

Don't stop any medications unless told to do so by your anaesthetist or surgeon. During the admission process your surgeon, anaesthetist, admission nurse and theatre nurse will see you. This will mean that different people ask you the same questions. This is a safety issue, and although it can be frustrating, it is important. Use this time to ask any questions that you may have.

When you have been admitted and changed into your theatre gown and TEDs (stockings to prevent leg clots), you will wait in the preoperative area until theatre is ready. A warming blanket is often used at this time to keep you extra warm. A final check between the theatre staff and the admission staff takes place before you go through into the operating theatre.

You will move onto the theatre bed, which is narrow and firm, and a blood pressure cuff, ECG and an oxygen monitor will be attached to you so your anaesthetic team can monitor you closely throughout the procedure.

Your anaesthetist will place a drip into a vein and ask you to breath some oxygen through a plastic facemask. Your naesthetist will then gently send you off to sleep.

Recovery unit

You will wake up in the recovery unit with monitoring attached to you. You will have a

drip. Occasionally a urinary catheter (tube into the bladder) and/or a drain (tube into the abdomen) is used as well. The PCA pump will be attached to your drip, if required.

Further post-operative care

When you are awake and comfortable you will be transferred to the ward.

Occasionally we keep patients in the high dependency unit (HDU) initially.

Typically, patients who are larger, older, or with medical problems that need closer monitoring will go to the HDU rather than the ward. Whichever location you are in, your nurse will record your vital signs regularly and give medications to control pain or nausea. You will be encouraged to do deep breathing exercises to keep your lungs healthy, and to move into a chair.

We use several means to prevent clots forming in the legs and lungs. Early mobilisation

is important, and your nurse and the physio will help you with this over your stay. You will also have TED stockings on and a FlowTron machine (inflatable stockings). You may be given injections of heparin, which is a blood thinner.

You can start to suck on some ice or to take sips of water on your first night.

Day one

If not already in the ward, you will move there on day one. You will be encouraged to slowly sip your way through one litre of water over the day. When you are able to manage this amount of water your IV can be removed. Do not try to hurry this; have a cup or water bottle to hand and sip slowly and steadily. If you appear to be managing this, your diet will progress to bariatric free fluids (see nutrition information section).

If you have a urinary catheter, this will be removed when you are moving independently. If you have a drain, this will be cut short with a bag fixed over it or removed to allow you more freedom to move. You will continue with measures to prevent blood clots (as described above).

Your surgeon and anaesthetist will see you, as well as your dietitian and physiotherapist. It is important that you get up and move around as soon as you are able, so you will be encouraged to walk around the ward. This allows your lungs to fully expand and the circulation to your legs to return to normal. Moving gently and regularly around your room and the ward is extremely important for a rapid and uncomplicated recovery. Spending time upright also allows gravity to help move fluid down through your new stomach and so makes swallowing easier.

Medications for pain and nausea will continue and will change to tablets or liquid forms so that the drip can be taken away. Do not hesitate to ask for a sleeping tablet if you require help to sleep at night.

Day two

Walking will continue to be encouraged. You will continue to wear the TED stockings all the time. The FlowTron device will be used when you are not moving around.

All your medications should now be taken orally, perhaps crushed or in liquid form. You should be managing bariatric free fluids by this stage, and you can proceed to a bariatric pureed diet as you are able. (Advice on bariatric pureed diet is provided in the nutrition information section.)

Many patients, if they are progressing well, will be able to go home on this day. If you have a drain, it will usually be removed before discharge.

Day three

If you did not leave hospital the previous day, preparations will take place for this today. Your diet should be a bariatric pureed diet (see nutrition information section). Walking as much as possible and deep breathing exercises will be encouraged.

Advice on discharge

You will be reminded to eat three meals a day. This must be by the clock, as often you will not feel any hunger. Remember to take small bites and chew, chew, chew. When you feel full, STOP eating.

In the early days after surgery, you will need to re-learn what your new stomach can manage. Almost every patient will at some stage inadvertently swallow a mouthful of food that is too large or too solid to pass through easily. This usually results in an uncomfortable, dull pain behind the breast bone. The best way to manage this circumstance is to simply wait and stay upright. Gravity will eventually help the food to pass. Sometimes the food will be regurgitated. Do not try to push or flush the food down with more food or fluid. This will only worsen the situation. Do not panic: it is almost impossible to do harm to the operation by swallowing something that does not go down easily.

Swallowing will become progressively easier over the first week or so after surgery. Most patients can easily tolerate small amounts of puree regularly after a few days.

You will be given a prescription for medications to be taken after discharge.

These include:

- analgesia for pain relief, usually for up to two weeks
- anti emetic to help with nausea usually for up to two weeks
- anti acid to reduce stomach acid usually for six weeks
- perhaps heparin for prevention of pulmonary embolism

Occasionally you may be prescribed a laxative, such as lactulose, for help with bowel movements.

You should carry on taking your normal medications that you were on before surgery, unless specifically told to stop. Some tablets taken in the first six weeks after your operation may need to be crushed. We advise you continue wearing your TED stockings for 10 days after your operation. This is especially important when resting in bed but not necessary if you are up and about.

Wearing the stocking will reduce the chance of blood clots that can form in the legs and can go to the lungs.

If you have successfully managed to stop smoking prior to your surgery, then you should maintain this postoperatively. Smoking can slow the healing of the stapled edge of the stomach, and cause ulcers and bleeding.

It is also important that you refrain from alcohol post surgery until you have got used to your new stomach. When you do want to start alcohol again, do so only in moderation: it can have a more potent effect, and contains a lot of calories.

Post operative follow up appointments

Studies show that patients who attend their follow up clinics and have regular reviews with their medical team, achieve better weight loss, maintain this weight loss better and have less nutrition complications.

It is important to have regular follow-ups with your surgeon and your dietitian for ongoing medical follow up, complication management, nutrition monitoring and education. The follow up visits have been outlines for you in the following table. Please contact our clinic on the numbers in front of this book to make your appointments.

When?	What will happen during the clinic visit?
Three Weeks Post Operatively	You will be seen by your surgeon, the Dietitian and the Nurse Specialist. The following will be discussed: • Your medical progress • Fluid adequacy • Nutrition adequacy • Multivitamin supplementation • Diet progress
Three Months	You will be seen by your Surgeon, the Dietitian and the Nurse Specialist. The following will be discussed: • Diet progress and tolerance • Fluid adequacy • Nutrition adequacy • Multivitamin supplementation

When?	What will happen during the clinic visit?
Six Months and Nine Months	You will be seen by members of the AWLS multidisciplinary team. • We will review your blood test results The following will be discussed: • Your medical progress • Healthy long term meal plan • Fluid adequacy • Vitamin and mineral supplementation
Yearly From The Time of Surgery	You will be seen by your Surgeon and discharged to your GP. Full review
	Please remember to collect a blood form, which you will need to do prior to your next visit. Full screening.

Please remember to collect a blood form at 3 weeks and 9 months post op, which you will need to do 2 weeks prior to your next visit.

Potential complications

All surgery has risks, and as any stomach operation for obesity is considered major surgery, it has significant risks associated with it.

People have died from having operations for morbid obesity. It happens rarely, but the risk can never be removed completely. If you are older, or you already have certain health problems related to your obesity, your risk may rise. Heart attacks after the operation

or clots that form in the leg veins, which then pass to the lungs, can cause death in morbidly obese people after surgery. This risk is between 1 in 500 and 1 in 100. Thorough precautions are taken during surgery and your hospital stay to minimise these risks, but they cannot be eradicated altogether.

Other problems that can occur after weight loss surgery include pneumonia and wound infections. Some of these are relatively minor and do not have a long-term effect on your recovery. Other complications may be more significant and require a longer hospital stay and recovery period.

Antibiotics at time of surgery, deep breathing exercises and early mobilisation after surgery are some of the measures taken to reduce the risks of these complications.

After a weight loss procedure, all patients should take multivitamin supplements lifelong, and some need to take iron or calcium supplements as well. Sometimes one or other of these supplements are best given as an injection. Often supplements are given for a short period, particularly in the months straight after surgery but in the longer term can be ceased as eating becomes less restricted.

Complications that can occur with weight loss surgery are listed on the next page.

This list is long, and although most patients have no complications, or minor complications only, please take note and ask your surgeon and team any questions that will help you to understand the risks associated with obesity surgery.

The most serious complication of weight loss surgery is a leak. In sleeve gastrectomy this can occur when the staple line where the stomach has been removed fails to heal properly. In gastric bypass, a leak can occur from one of a number staple lines used to create the stomach pouch or from joins between the stomach and intestines. If a leak does occur it will usually be within a few days of surgery.

Patients often ask "how will I know if I have a leak?". Usually the patient will experience quite severe pain in the upper abdomen that comes on rapidly and is often worse very soon after swallowing food or fluid. The nature of this pain is such that it is immediately apparent to most patients that something is seriously wrong. In this situation contact your surgeon directly without delay.

Comprehensive list of complications

During surgery

- A larger incision may need to be made because of technical difficulty with keyhole approach
- An injury to the bowel or other organs from insertion of keyhole instruments
- Bleeding from blood vessels or injured organs
- Technical difficulty leading to change in operation strategy
- Complications related to placement of intravenous and arterial lines. This includes bleeding, nerve injury, or pneumothorax (collapsed lung)
- Nerve or muscle injury, usually temporary, related to positioning during surgery
- Allergic reactions to medication or anaesthetic agents.

After surgery

- Death. Rate between 1 in 1000 to 1 in 500
- Leak from staple lines or joins. Rate between 1 to 2 in 100. May require further surgery or lead to sepsis, a very serious infection.
- Bleeding. Rate around 1 in 100. May require transfusion or further surgery
- Intestinal obstruction. A blockage of the stomach or intestines caused by a stitch, kink or twist. This complication can cause abdominal pain and vomiting.
- Infection at keyhole incisions, or deep with the abdomen. A serious infection is often called sepsis. This is uncommon but can lead to further surgery, a longer hospital stay organ failure or death
- Deep vein thrombosis, a blood clot in the leg veins. These can occasionally travel to the lungs (pulmonary embolus). Rate around 1 in 100
- Pneumonia or other breathing problems. The worst of these is respiratory failure, which is the inability to breathe adequately after surgery, and may require support of breathing in an intensive care ward
- Heart attack or abnormal heart rhythm
- Stroke
- Pancreatitis
- Urinary tract infection or injury to the urinary tract from catheter insertion
- Colitis (inflammation of the colon), usually due to antibiotics used in surgery
- Constipation

In the longer term

- Troublesome symptoms may include abdominal pain, change in bowel pattern, tiredness, bloating, nausea or vomiting
- Narrowing at the middle of the stomach (known as hour glass stomach) in sleeve gastrectomy or at the join of the stomach pouch and intestine in gastric bypass.
- May require stretching with a balloon or, rarely, surgery
- Excessive or inadequate weight loss. Rarely requires further surgery.
- Dehydration or imbalance of body salts. usually from inadequate fluid intake, infrequently requires admission to hospital
- Inflammation of the remaining stomach or oesophagus
- Gall bladder disease, usually from gallstones that form during rapid weight loss. Can require surgical removal of the gall-bladder
- Hernias at the site of incisions
- Psychological problems can include depression, adjustment disorder, relationship difficulties and rarely suicide
- Liver disease or failure. Can occur if there is underlying liver damage that is worsened by weight loss or surgery
- Hair loss from protein malnutrition. This usually resolves within a few months of surgery and is usually only noticeable to the patient
- Nutritional deficiencies. These are usually detected on post operative blood tests. Some patients will require additional supplementation of vitamins or minerals particularly in the first year after surgery. Most common deficiencies are iron, vitamin B12, vitamin D, calcium.

Some expected symptoms after weight loss surgery

Dizziness

Occasionally you may feel light headed. This may be because you are not drinking as much liquid as you were able to before surgery; therefore the blood volume in your body is reduced. When this occurs, do not panic. If you can find a comfortable place to sit or lie down, do so. Your body will adjust and the blood will be redistributed adequately after a short interval.

Also it is important to check with your GP if you think the dizziness is due to one of your regular medications. Eg. Blood pressure tablets.

Aim to drink 1.5 litres of fluid per day and monitor your intake. Remember to sip on fluids in between meals.

Altered Bowel Habits

Bowel habits do change after the surgery. Do not expect your bowel movements to be regular until you start eating solid food. Do not be alarmed if you only open your bowels once every few days initially. In the longer term, bowel habits should become regular but usually less in quantity than prior to surgery.

Laxatives such as agarol, lactulose and fibre supplements such as benefibre may be used.

Vomiting

During the first two months after surgery you may experience episodes of vomiting.

It is important to remember your new stomach is approximately 100 - 150ml and can be easily over filled. You must eat slowly and stop when you feel full. Meals should take up to 30 minutes. Vomiting can occur due to eating too fast, or too much, poor chewing and eating food that is too solid in consistency. Following the dietary advice given by our dietitian should prevent this.

Too much vomiting or retching will cause secondary swelling and possible blockage of the stomach. If you cannot keep anything down for 12-24 hours it is IMPORTANT TO notify your surgeon. Frequent vomiting can have unwanted side effects of staple line disruption, dehydration, and electrolyte abnormalities.

Nausea

Nausea is a potential side effect of any stomach operation. This problem may start as early as the first day after the operation and it could last a couple of weeks after discharge from the hospital. Even though you may experience severe nausea you should make an effort to eat at least three or four small meals a day and drink at least three to four cups of water a day. Place 1.5 litres of water in a container in the morning so you know how much you should aim to drink during the day. Often anti-nausea medications can relieve this symptom completely.

The feeling of nausea may be severe but it is rarely associated with vomiting. If vomiting does occur what comes up is often not what was eaten but rather white and frothy saliva.

If persistent, nausea may require further investigation.

Anorexia

Anorexia, complete lack or appetite or forgetting to eat, is a problem some patients experience. This is a desired effect of your surgery as the stomach cells producing hunger hormones have been removed or their function altered. Make an effort to remind yourself to eat at least three small, protein rich meals a day.

Hair Loss

At 2-3 months post op you may experience some hair thinning and hair loss. This is due to the rapid weight loss and effect of surgery. Low protein intake and not taking a multi-vitamin and mineral supplement can also contribute to this. It is temporary and should reverse by 6-12 months after surgery. If you are concerned discuss this with your surgeon or dietician.

Pregnancy

Women of child bearing age often ask about pregnancy. It certainly is possible to have a baby after weight loss surgery. In fact obesity can be a strong contributing factor to infertility and some women who have weight loss surgery do so to increase their chances of conception or to be able to fulfill criteria for assisted reproduction programs. Also there is good evidence that obese patients who lose weight after weight loss surgery are at lower risk of complications of pregnancy, labour and delivery.

Following weight loss surgery, you could well be more likely to fall pregnant and therefore you should use reliable contraception. Your GP will give you the best advice on this. To ensure a healthy pregnancy for you and your baby, we strongly recommend avoiding pregnancy in the first 12 months after surgery. Whilst you are going through rapid weight loss it is difficult to ensure optimal nutrition for the development of your baby. Women who fall pregnant during the first few months after weight loss surgery often need intensive nutritional support to ensure healthy development of their baby, and because of this their weight loss is usually stalled.

Redundant skin

Many patients ask us whether they will have redundant skin after weight loss. One of the truths about skin is that it does not really shrink. The skin that you have at your heaviest weight is the skin that you will have for the rest of your life unless it is surgically removed. This means that the amount of redundant skin patients end up with depends on two factors:

- How heavy you are to start with
- How much weight you lose

Younger men and women have slightly more elastic skin and it can shrink back very slightly but this effect is minimal. Having said that, most patients, in our experience, are pleased overall with the effect that substantial weight has on their appearance, quality of life and health and see their excess skin as "nuisance" issue. Most patients that lose over 30kg will have some degree of loose skin around the abdomen ("muffin top"), buttocks, arms, inner thighs and sometimes neck. The surgical removal of this skin is the domain of the plastic surgeon. Operations to remove excess skin are effective but often long, complicated, expensive and have a long rehabilitation phase. A small number of our patients have

had this type of surgery done both here in NZ and overseas. We are able to recommend a number of plastic surgeons in Auckland that do this type of work. Commonly plastic surgeons will only contemplate "body contouring" surgery once a patient's weight has completely stabilized. This is usually at least 18 months after weight loss surgery.

Nutritional information

After weight loss surgery you will need to make changes to your eating patterns. The diet after surgery progresses from a liquid diet to a pureed diet to a soft diet and then a modified diet. This progression is designed to allow your body to heal. It is very important that you follow the diet progression to maximise healing and minimise the risk of complications. The dietary progression is identical following both gastric bypass and sleeve gastrectomy.

Before surgery

For two to six weeks before your surgery you are required to follow a low calorie diet. The programme followed is Optifast or Celebrate. Your dietitian and surgeon will advise on the amount of time you will need to follow this diet.

Why is it necessary to lose weight pre-surgery?

To lower body fat levels for better access for the surgeon i.e. safer surgery To reduce the size of your liver which would otherwise be in the way Greater ability to adapt to post-operative dietary requirements

- Improved surgery outcomes
- Reduced operating time and post operative risks
- Improved physical function and mobility post-surgery

What is Optifast?

- Very low calorie diet (VLCD) that is < 800kcal per day
- Nutritionally complete. (All the protein, vitamins and minerals that you need)
- Involves three "meals" per day, which can be milkshakes soups, bars or mousse

Additional allowances for patients on Optifast

Patients who are on Optifast in preparation for surgery are allowed to consume small amounts of low calorie foods. Some examples are given in the table below.

Allowed		Avoid
fruit	one of - 200g strawberries • 1 lychee • 1 apricot, 100g cooked rhubarb 1 slice of pineapple • 2 passion fruit • 100g grapes • 1 lime • 1 apple 50g cherries • 1 mango • 1 medium orange • 1 peach • 1 small pear 120g pear in natural juice 120g plums • 5 prunes	all other fruit including banana
low starch and green vegetables (2 cups per day)	alfalfa sprouts • green asparagus • beans • bok choy • broccoli brussel sprouts • celery • cabbage capsicum • carrots • cauliflower cucumber eggplant • garlic • lettuce • leeks • mung beans mushrooms • onions • radish • shallots • silver beet • snow peas spinach • squash tomato watercress • zucchini	corn • green peas legumes • lentils potato pumpkin kumara • taro green banana
soups	stock cubes • vegetable soups (using allowed vegetables) • miso soup	all others
sauces and condiments	lemon juice • vinegar • worcestershire sauce • soy sauce (in moderation) • chilli	
herbs and spices	all herbs and spices • mustard • tomato paste	
miscellaneous	artificial sweeteners • unsweetened lollies • gum • diet jelly essence: e.g banana, mint, strawberry	
calorie free fluids (at least 2 litres extra per day)	water • tea • diet soft drink • diet cordial • mineral water	fruit juice • alcohol

NB: Celebrate is a brand of supplements / meal replacements brought into New Zealand by AMS Nutrition.

How does it work?

- Each VLCD meal is taken at usual meal times and provides all essential nutrients
- You need to drink at least 2 litres of the following fluids per day:
  - › Water
  - › Diet soft drink or diet cordial
  - › Black tea or herbal tea without milk or sugar
  - › Black coffee
- A maximum of 2 cups of low starch vegetables are allowed per day and 1 piece of fruit a day
- Replacement fibre - 1 tsp of psyllium or equivalent per sachet of Optifast, eg. Metamucil or Benefibre
- Please see attached "foods allowed" lists below for more information

If you are having trouble with this diet or having symptoms such as nausea, please contact our dietitian.

Patients who have diabetes, particularly those who are on insulin, will need to adjust their medications while on Optifast. Our dietitian can help you with this.

Patients who are lactose intolerant may have to use an alternative strategy to reduce their caloric intake and lose weight before surgery. Once again our dietitian can help with this.

After surgery

Day zero (evening of surgery)

- Ice to suck, sips of water

Day one

- 1 litre of water (sip it slowly)

Day two - day four

- Free fluid diet, progress to bariatric pureed diet as tolerated
  (very small amounts of puree food only, half a teacup at a time at most)

Day four to week three

- Progress to high protein pureed diet as you are able

Week four onwards

- Small meals of soft food that is high in protein and low in fat and sugar

General information

During all of the above stages and when you have recovered fully from surgery it is crucial that you:

- AVOID liquids with meals (do not drink 30 mins pre and post eating)
- Drink between meals and aim for six to eight glasses of fluid per day
- Follow a general healthy diet, low in fat and sugar
- No snacking

Constipation

Because you are eating less, constipation may be a problem. Keeping up with your fluid intake and occasionally using a gentle laxative will help with this. Most patients will not feel the urge to have bowel movement for several days after surgery. This is because you will be taking very little food and is entirely normal. Adding Benefirbre to your diet may help.

Handy hints

If you try to eat too much or too quickly, vomiting or regurgitation may occur

Do not consume liquid calories such as fruit juice, soft drinks, cordial, or milkshakes

Eat slowly, chew all food well and take time with your meals

Ensure you have an adequate protein intake. Protein should be eaten before carbohydrates (starchy) foods

After 4-6 weeks after surgery, start taking a multivitamin daily, such as Centrum

Puree diet

To be followed for three weeks after your surgery

Eating too much can result in complications before healing has occurred

Important points

Eat slowly - allow 20-30 minutes for a meal, and chew your food well

Avoid very hot or very cold foods

DO NOT drink within 30 minutes of meal times

It is normal to be managing only very small amounts during this phase
Eating with a teaspoon from a small plate is a good idea

No fizzy drinks.

Foods allowed	Foods to avoid
high protein, low fat pureed foods: low fat yoghurt • milk • cottage cheese • porridge mashed weetbix • softly scrambled or poached eggs pureed meat, chicken or fish • pureed or mashed vegetables or potato • smooth soups • pureed fruit	raw fruit • raw vegetables • breads • rice pasta • nuts seeds skins • solid food
low fat products	butter • margarine • oil • avocado cheese (high fat varieties) • ice cream • cream
soups	stock cubes
low sugar products • low calorie drinks • water herbal teas • tea and coffee (milk, no sugar)	cordial • soft drinks • jelly

Sample meal plan (initially only 1-2 tablespoons of food at a time):

Breakfast	Weetbix or Optifast low fat milk or 1 tablespoon low fat yoghurt, 1 tablespoon pureed fruit
Lunch	smooth vegetable/pumpkin soup scrambled egg
Dinner	puree chicken and low fat gravy or mashed fish puree potato/pumpkin/vegetables
Snacks (x3/day)	puree fruit, mashed banana, low fat yoghurt and milk

Soft diet

- After your puree diet move to a soft diet for two weeks. This is food you can mash with your fork. Then gradually move to more solid foods
- Aim to have only 3 meals per day
- You should be using a bread and butter size plate

Food groups	Foods allowed	Foods to avoid
meat, chicken and fish	tender chicken • fish and meat in bite sized pieces or minced • shaved ham, turkey or chicken • tinned salmon and tuna in spring water	hard or stringy meat fat chicken skin or gristle fried meats
milk and milk products	low fat milk • cottage-ricotta cheese low fat yoghurt	ice cream • high fat cheeses cream and full fat milk
fruit	soft fruits: • peeled pears • apples stone fruit • melon	pips • skins • pith
vegetables	cooked vegetables: • mashed • stir fried • grilled or boiled • introduce salads slowly	tough or raw vegetables: beans • corn • celery broccoli stalks etc.
breads and cereals	low fat crackers e.g. cruskits • rice pasta • noodles • porridge • weetbix bran flakes	doughy bread • muesli high fat cereals

The importance of protein

You will be going through a rapid weight loss phase, therefore protein is important to prevent muscle loss, improve healing, and immunity. We do not expect you to be able to meet your requirements in the first few weeks as your stomach is healing but we do recommend:

- Include the protein sources at each meal and eat them first
- Good sources of protein include: meat, fish, chicken, eggs, legumes and dairy foods
- Include meal replacements (Optifast®) as they are high in protein (1/2 serve at a time)
- Use protein supplements - as per your dietitian, eg. whey protein powders
- Aim for 50-60 grams of protein per day, use your protein counter (see next page)

Remember to:

Buy lean meat, remove all visible fat from meats and the skin from chicken before cooking. Avoid processed meats e.g. Salami, ham, sausages. Use low fat cooking methods such as grilling, steaming, micro waving or boiling instead of frying.

Protein supplements / meal replacements

The meal replacements such Optifast and Celebrate are great substitute for meals. They are high in protein, convenient and generally tolerated soon after surgery. You may be able to only have half the recommended volume per meal after surgery.

A common way of supplementing protein intake after surgery is use smoothies made up with fruit, vegetables, yoghurt and fortified with commercially available “muscle powders”.

There are also other commercial protein supplements available at supermarkets and pharmacies. Our dietitian will help you with this.

Protein content of common foods

Food item		Portion	Protein (grams)
legumes	baked beans, kidney beans, chick peas, lentils	1/2 cup	8
egg	egg	1	6
meat/chicken/ seafood	beef, lamb, pork, veal, fish, chicken	30 grams	8
	prawns	5 pieces	7
	lobster, crab	30 grams	5
dairy	milk, skim	1 cup	8
	cheese, cottage	1/2 cup	14
	cheese, parmesan	1/4 cup	12
	cheese, ricotta	1/2 cup	14
	cheese, mozzarella	30 grams	8
	yoghurt, low fat	200 mls	8
soy items	soybean	1/2 cup	14
	tofu	1/2 cup	14
	textured soy protein	1/2 cup	11
	soy milk, plain	1 cup	7
	soy beans	1/2 cup	14
meal replacements	Optifast™	1 sachet	17
	Tony Ferguson™	1 sachet	17
	Kicstart™	1 sachet	17
protein supplements	Musashi P30	1 tetra pac	30

Multi-vitamin supplement

The amount of food patients can eat is very small particularly immediately following weight loss surgery. To make sure you get all the nutrients you need for good health, we strongly recommend that you take a multivitamin and mineral tablet.

Our dietitians recommend that you use Centrum multi-vitamin tablets. These tablets are available in most supermarkets and pharmacies at a reasonable cost. One tablet per day is usually required for complete supplementation. The multi vitamin tablet should be started within 4-6 weeks after surgery. A chewable or a liquid supplement is sometimes required for patients that have trouble swallowing tablets.

All patients that have gastric bypass surgery will need to have vitamin B12 injections administered by their GP or practice nurse 3-6 monthly for life.

Not all vitamin products are the same so our dietitian will advise on the best kind for each individual.

Sometimes patients will require extra vitamin supplementation (eg. Iron, folate). This depends on the results of pre-operative and post-operative blood tests.

Handy hints

- Introduce more solid foods after a few weeks e.g. salads, red meat
- Avoid bread and instead have low fat crackers e.g. rice crackers, cruskits
- Look for <5 g fat per 100g
- Small amounts of toasted vogels thin sliced bread can be eaten. Avoid soft white breads
- Continue to chew food well and take your time eating
- Avoid fluids with meals
- Do not over eat as this will make you uncomfortable and may cause vomiting
- Continue to eat regular meals and select healthy food options to optimise your continued weight loss
- You will need to make sure that your meals are nutritious and include all the nutrients your body needs
- Choose foods that you enjoy and take time to savour their flavours

Food to include at each meal:

Protein

You need to include low fat protein at each meal to ensure you maintain your muscle stores and loose fat stores e.g:

- lean red meat two to three times per week e.g. lean mince, eye fillet
- fish and chicken (no skin)
- low fat dairy products e.g. trim milk, low fat yoghurt and cottage cheese
- tofu, beans and lentils e.g. baked beans, hummus, kidney beans

Hair loss, though temporary, can be a problem if there is inadequate protein in your diet. Using protein powders (muscle building formulas) in fruit smoothies and purees can be a good way to increase your protein intake.

Including protein with each meal helps to keep you feeling satisfied for longer.

Fruit and vegetables

- Fresh, frozen or canned vegetables. Avoid hard seeds and pips
- Fruit that has been peeled and membranes removed

Carbohydrate/starchy food

- Eat two to four serves per day
- 1 Serve = 1/2 cup pasta/cereal, 1 slice of bread, 1 egg-sized potato
- Potato, bread, rice, pasta and cereals should be eaten in very small amounts only
- If you are having bread, use wholegrain varieties e.g. Vogels as this will fill you up more
- Protein foods should take priority

Fluid

- Six to eight glasses of fluid per day (do not count coffee, alcohol or caffeine drinks)
- Avoid full strength juice, cordials, high calorie fizzy drinks, milkshakes etc

Fats

- Use very minimal margarine or preferably none
- Vegetables can be stir fried with a teaspoon of olive oil or canola oil
- Generally avoid oil for cooking. Grill, bake, boil, stir fry or dry roast
- Avoid fatty meats e.g. Sausages, luncheon sausage, salami

More handy hints

- Continue to eat regular meals and select healthy food options to optimise your continued weight loss.
- Order entree-size meals when dining out
- Aim to exercise 45 to 50 mins five days per week. This should be continuous cardio type of exercise - rather than weights - of enough intensity to “raise a sweat”
- Brisk walk, cycle, cross-trainer, aqua jogging or swimming
- Weight-bearing exercise is best for weight loss maintenance

There are several long-term habits that you should adopt to get the most out of your surgery. The first year post-operative is a critical time that must be dedicated to changing old behaviours and forming new, lifelong habits.

Lack of exercise, poorly balanced meals, constant grazing or snacking, and drinking alcohol or carbonated drinks are frequent causes of not achieving or maintaining weight loss.

Healthy lifestyle choices

To maintain a healthy weight and to prevent weight gain, you must develop and keep healthy eating habits. You will need to be aware of the volume of food that you can tolerate at one time and make healthy food choices to ensure maximum nutrition in minimum volume. A remarkable effect of bariatric surgery is the progressive change in attitudes towards eating.

Patients begin to eat to live; they no longer live to eat. Obesity cripples the body. As weight is lost, the burden on the bones, joints and vascular system is decreased. Given proper nutrition and physical motion the body will rebuild its broken framework. The most effective way to heal the body is to exercise. People who successfully maintain their weight exercise daily.

Exercise and the support of others are extremely important to help you lose weight and maintain that loss following gastric sleeve surgery.

Exercise improves your metabolism.

- Take walks at a comfortable pace almost immediately after surgery and progress as you can tolerate
- Resume higher impact exercise six weeks after the operation, as a general rule
- Attend a support group or exercise with a friend to boost your confidence and help you stay motivated

A physiotherapist will see you whilst you are in hospital. They can give you initial advice regarding exercise. Your GP can give you information about groups or programmes in your area. There is a lot of support around you; ultimately it is up to you to make use of it.

Tips to puree food

1. Use a blender

Most foods can be pureed in a blender, or using a handheld blender.

2. Puree moist & well-cooked foods

Foods puree best when they are:

Moist - you may need to add water, stock, sauce or gravy.
(but not creamy and cheesy sauces)

Well-cooked (until soft), especially chicken and meat

3. Freeze in 1/2 cup portions or ice-cube trays

Make a protein based puree soup, using chicken/meatfish/milk and freeze it in 1/2 cup portions. You then have several meals pre-prepared, which you can reheat in the microwave.

4. Avoid stringy & dry foods

Some foods don't puree well. These may include very stringy vegetables and dry meats.

Puree diet - recipe ideas

Chicken and leek soup

(makes about 6 x 1/2 cup serves)

This variation of the old favourite but instead of potato it has chicken for protein

- 1 1/2 leeks, sliced
- 300g cooked chicken, diced
- Approximately 2 cups stock
- Salt and pepper, to taste

Cook chicken slowly and add leek in, cook until soft. Add salt and pepper.
Puree in food processor or blender. Small foil trays hold 2 cups. Suitable to freeze.

Spinach & lentil soup

(Makes about 8 x 1/2 cup serves)

- 1 teaspoon canola oil
- 1 onion, finely chopped
- 1 clove garlic, finely chopped
- 1/2 -1 teaspoon cumin
- 1/2 -1 teaspoon ground coriander
- 1/2 -1 teaspoon turmeric
- 1 can peeled tomatoes, chopped roughly
- 1 can brown lentils
- 2 cups silverbeet/spinach roughly chopped or 1 packet frozen spinach
- 1/2 cup water

Lightly soften garlic and onions in canola oil in a large, heavy-based saucepan. Add spices, and a little water if necessary to prevent spices sticking to pan.

Mix in tomatoes, lentils, water and spinach, and cook until spinach is tender (5-10 minutes), adding more water if necessary.

Cool a little before blending.

Chicken casserole

(Makes 8 x 1/2 cup serves)

- 1 small onion, sliced
- 1/2 capsicum, diced
- 1 small orange sweet potato (2-300g), peeled & diced
- 1 cup mushrooms, roughly chopped
- 2 small chicken breasts (~400g) raw chicken, cubed
- 200g tinned tomatoes, diced
- Herbs and pepper to taste
- Enough stock to cover ingredients

P1aca onion, capsicum, sweet potato/pumpkin and mushrooms into a large saucepan and place chicken on top. Mix tomatoes, pepper and herbs and pour over chicken.

Add additional stock to cover. Bring to the boil, then simmer with lid on until vegetables are soft and chicken is cooked, approximately 30 mins. Puree in food processor or blender. Small foil trays hold 2 cups. Suitable to freeze.

Alcohol

Metabolism of alcohol is affected after surgery and therefore you need to be very careful when experimenting with your drinks. We highly recommend that you;

DO NOT DRINK AND DRIVE, as the safe drinking guidelines do not apply to patients following gastric surgery

Remember alcohol is also very high in calories: so regular drinking can slow your weight loss! It also dehydrates you and you need to increase your water intake.

If you choose to drink - drink in moderation:

- Men - Limit 2 standard drinks a day
- Women - Limit 1 standard drink a day
- Ensure 3-4 Alcohol free nights per week

1 STANDARD DRINK

=

375ml 'lite' beer *or* 275ml regular beer

100ml wine

30ml spirit

Fibre

Fibre is important to keep your bowels regular. Initially your diet lacks fibre and therefore you may need to take a fibre supplement such as Benefibre with plenty of water. This increases bulk and should help with regular bowel activity.

As your diet progresses you should include whole grain breads and cereals, fruits and vegetables as well as adequate fluids daily. Your daily exercise is also important in preventing constipation. If constipation is a problem discuss this with your doctor/nurse/dietitian.

Exercise

Successful weight control is a result of healthy eating AND regular exercise. The best type of exercise is one you can enjoy, and can continue to do on a regular basis. Exercise will help you to improve or maintain your weight loss, increase your metabolism, and also improve your general health.

A suitable long term aim is for 60 minutes of moderate activity such as a brisk walk. On all or most days of the week. Your size may make it hard for you to exercise as much as you need to. Remember the more you use energy through exercising the more you lose weight and the easier it will be to exercise.

Start with simple exercises such as walking and swimming. Then gradually increase your levels to more vigorous exercise such as cycling and jogging. You should check with

your doctor about the amount and type of exercise that is best for you. You should also increase your activity level in your daily life. For example:

- Stand rather than sit
- Be outdoors rather than indoors
- Walk rather than drive - if possible
- Park your car further away from where you need to go so you can walk more
- Climb the stairs rather than using the lifts

Your new eating habits

Eat regular meals and avoid snacking

- Be planned and take food with you to work
- If you are busy at work use Optifast®

Take small mouthfuls

- Using a small teaspoon may help
- Chop food finely before you eat

Chew everything thoroughly

- Get used to chewing everything thoroughly before swallowing
- Make sure you swallow your mouthful before taking another bite

Eat slowly

- Relax at meal times - sit down to eat
- Make your meals last 30 minutes
- Put your cutlery down between mouthfuls
- Try not to eat in front of the TV or while using a computer, tablet or phone

Include good food options in-between meals

- As you are only eating a small amount of food, you may need to eat some protein foods in between to ensure good nutrition status. See sample meal plan for ideas!

Keep your fluid intake up

- Ensure you have plenty of low-calorie drinks like water, tea, coffee & diet drinks between meals to avoid dehydration

Do not drink with meals

- Stop drinking 30 minutes before you eat
- Wait at least 30 mInutes after a meal before drinking

Avoid high-calorie drinks

- High calorie drinks will give you plenty of calories without making you feel full.
  These (i.e. fruit juices, soft drinks, cordials, smoothies) also may give you dumping syndrome - the symptoms may include: nausea, diarrhoea, light headed shaking and low blood pressure
- Limit alcohol (as per previous page)

Daily multivitamin supplement

- Continue with your multi-vitamin life long
- Ca, D, Folate, B12 and Fe as per your specialist and or dietitian's recommendation

Long term nutrition management weight maintenance

Surgery provides you with a very powerful tool and is responsible for a significant part of your weight loss. However studies have shown that it is your efforts that will prevent you from regaining weight long term.

Your success post surgery will depend on **your commitment** and **life long efforts** to change your lifestyle. This includes making radical changes to your eating and exercise habits. Having a Sleeve Gastrectomy can help to make it easier to make these changes.

> Weight loss surgery is not a quick fix or a magic wand.

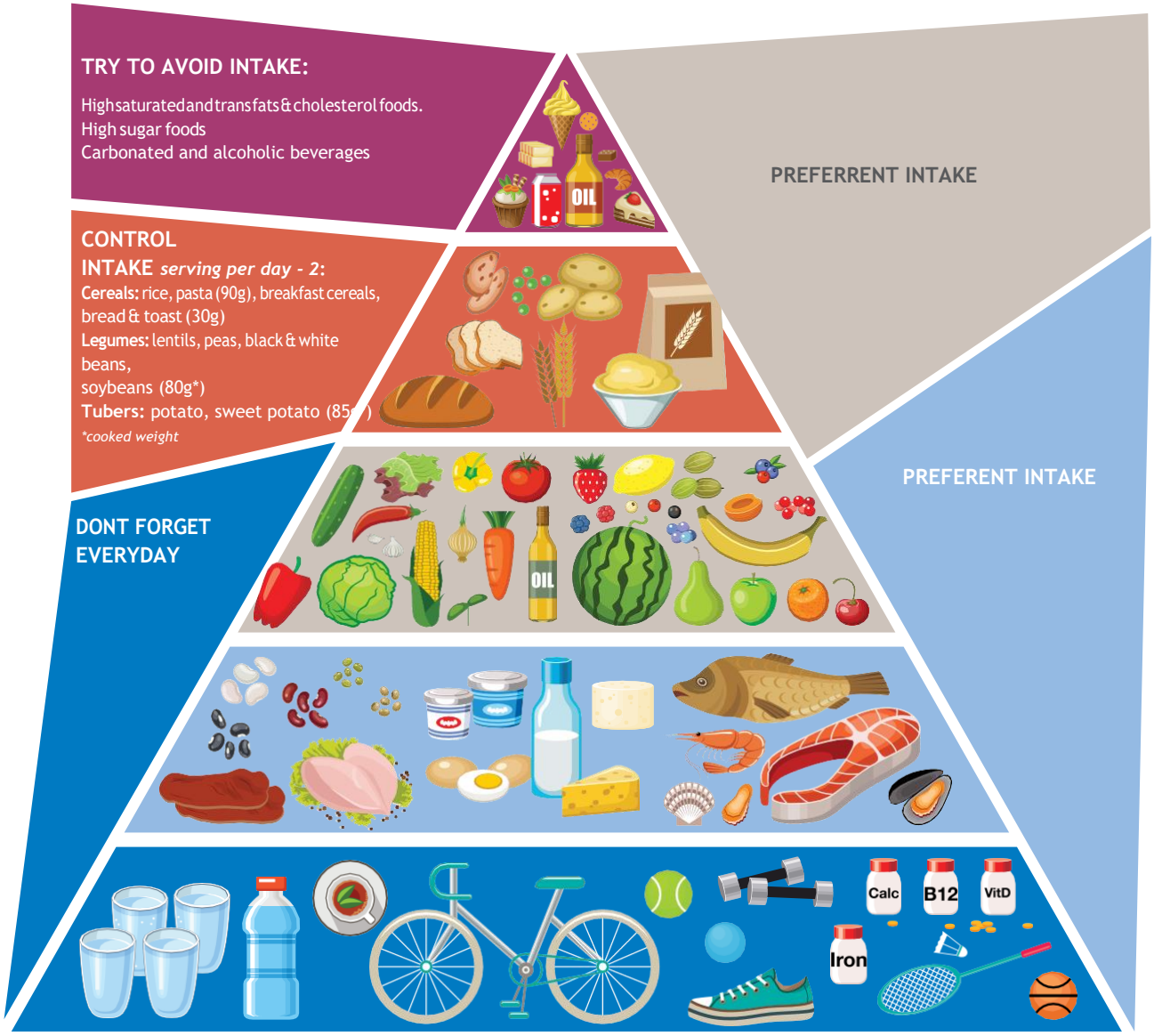
Why maintaining weight loss is a challenge?

Once you become overweight, your body's set point for a preferred weight is set at your maximum weight and will try to get back there if you are not careful. We need to remember that being overweight or obese is a chronic medical condition, which like any other chronic conditions needs special attention and management. Your weight is more than a number and you need to manage your weight like patients with diabetes and blood pressure manage their medical conditions.

Taking responsibility for every decision you make that effects your weight is the first step in your weight management. The recommendations for long term healthy diet following weight loss surgery are summarised in the following nutrition pyramid.

Nutrition pyramid

Healthy eating plan & regular exercise
=
Excellent and long-term weight loss



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