Bariatric Surgery Handbook

Bariatric Surgery Handbook
Produced by Tailor Clinics

Hamilton - Wellington NEW ZEALAND

Consultant Surgeons

Mr. Rowan French
Mr. Atul Dhabuwala
Mr. Wai Chang
Ms. Bernadette Goodwin

07 859 0185 Hamilton
027 256 8191 Wellington

INTRODUCTION

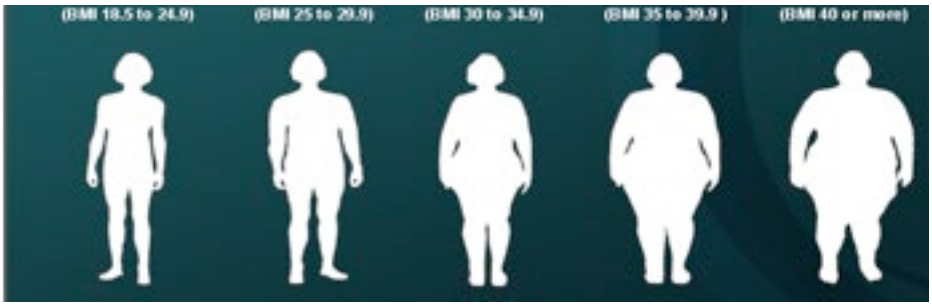
We want to acknowledge your courage in taking the first step in finding out about bariatric surgery. Widely held misbeliefs about people with obesity have shrouded bariatric surgery with an atmosphere of failure and desperation. Whilst bariatric surgery should be seen as the last resort, it is also the most effective treatment for patients with morbid obesity. It is now firmly established in most countries in the world, and there is a vast amount of reliable information available about most of the surgical procedures. As with most operations, there have been many advances over the last 15 years, and bariatric surgery is now very safe when performed by experienced surgeons in well-established centres.

DEFINITION OF OBESITY

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

$$\textbf{BMI} = \frac{\textbf{Weight (kg)}}{\textbf{Height (m) X Height (m)}}$$

The normal body mass index is 20-25. Overweight people have a body mass index of 25-30. People with obesity have a BMI above 30. If the BMI is above 35, you have severe obesity; above 40, you have morbid obesity.



Normal Weight Overweight Obese Severely Obese Morbidly Obese

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

It is for this reason, that you would qualify for surgery if your BMI is greater than 40 kg/m^2 or greater than 35 kg/m^2 but with one of the health problems caused by obesity. However we will consider patients with a BMI greater than 33 in specific situations. These we will mention later in this booklet.

To determine your BMI, you can enter your values in a BMI calculator found on the web.

PROBLEMS ASSOCIATED WITH UNHEALTHY BODY WEIGHT

Shorter Life Expectancy: -

As your weight increases, so too does the risk of dying. If your BMI is greater than 35 you are in the high-risk group and by the time you reach a BMI of 40, the risk is more than twice that of people who have normal weight. This risk rises greatly as your weight goes above a body mass index of 40.

Major Health Risks: -

Unhealthy body weight is associated with numerous medical conditions, some of which are caused by obesity or are just made worse by being overweight. These include Diabetes (type II), joint problems (arthritis), high blood pressure, heart disease, asthma, sleep disturbances and even some cancers. People with weight issues also have an increased risk for: - gallbladder problems, reflux disease, problems with fertility and psychological problems (i.e. depression)

Difficulties with Day-to-day Living: -

People with an unhealthy weight often struggle to do the things that others can do. Movement is more difficult, and they tend to tire more quickly, which generally excludes them from sporting and other physical activities. Sometimes housework or even employment is a challenge. It is also often difficult to maintain personal hygiene, along with difficulties associated with getting into and out of cars, bus/airplane seats, telephone booths and turnstiles.

Social Isolation: -

Most people with significant weight problems feel embarrassed in social situations, and even in public and hence prefer to withdraw from these situations. Being overweight often produces a negative self-image and a low self-esteem, which can then lead to depression. People who are overweight are often discriminated against. Their fear of embarrassment and their lower physical activity level deprives them of the chance to work, the chance to join the family in outside activities and to join friends socially. They also face the stigma of living in a world that expects people to be thin.

THE CAUSE OF UNHEALTHY BODY WEIGHT

Weight issues develop when the energy taken in food and drink over a long period of time is greater than the energy that is used up in day-to-day activities. We are very interested in why this occurs. None of our patients intend to become overweight, and they don't enjoy it when they are overweight.

There are a number of factors that work together to cause this. The main underlying cause is a genetic tendency, but this, together with hormonal, environmental, social and cultural factors, produces a situation where there is a very powerful and irresistible drive to eat. This is made up by two important factors that can be hard to draw apart, but must both be present in the patient with weight concerns:

1. Food (carbohydrate and fat) addiction:

Over time, the brain comes to depend on high-fat and high-sugar food as the solution to challenging situations, or as a way to make the good times better. This creates the habits that are so hard to beat. Trying to overcome the urge to eat is harder than resisting alcohol and cigarettes because we can't give food up completely. This is what makes dieting so difficult- we are deliberately depriving our brains of something it desperately wants and "needs". Initially the joy of the weight loss counteracts this, but

all diets reach plateaus, and when the weight loss stops, it is very hard to continue the diet. The slightest stress becomes an excuse to break the diet, and often weight ends up higher than before the diet (yo-yo dieting).

2. Insulin resistance:

The normal fat cell has a job to do: when we eat, it's 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 unhealthy body weight have fat cells that don't 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 excess weight 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 them. And yet, these are the very substances that our brain becomes addicted to!

The combination of these two things can produce an overwhelming obsession with food that can take over life completely. For this reason, if we see someone who has a BMI of 30 who has no life because of this, and who can't solve the problem with a low carbohydrate diet, we will consider a bariatric surgical procedure to give them their life back.

THE SOLUTION TO OBESITY

The common non-surgical techniques that have been used for controlling weight (gain) include diet, exercise programs, behaviour modification and drugs (appetite suppressants and/or those which reduce absorption of fat in the gut). These methods of treatment can help you lose a small amount of weight initially but prolonged substantial weight loss usually requires something more than this.

Diets and drugs (such as Xenical and Duromine) if used optimally and permanently can provide you with a 10 to 15kg weight loss, but many people soon regain their weight, or even end up weighing more when the treatment is ceased.

If however, you need to lose much more than 10 -15kg in weight, the research shows that you are simply not going to achieve it by following the diet – tablet – exercise regime.

Surgery is the only method of consistent and sustainable weight loss for the majority of large people. However, not everyone who has a weight problem should consider surgery. It depends on whether you have an unhealthy BMI. When your BMI is 33 or above, surgery is a very effective form of treatment for long-term weight loss. But, keep in mind; surgery can help you achieve your long-term goal only if you are ready for, and committed to losing weight and keeping it off.

SURGICAL TREATMENT

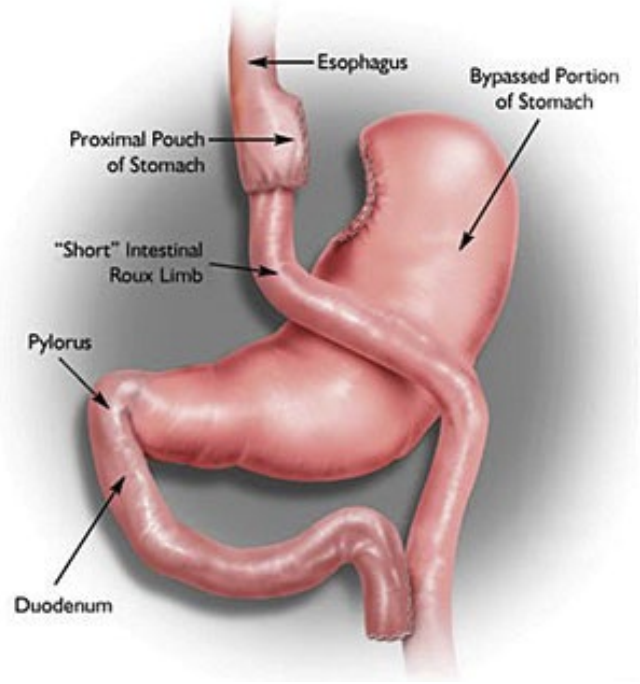
There are three types of surgical treatments available for significant weight loss today, which work in a restrictive and/or malabsorptive fashion.

Restrictive procedures physically reduce the size of the stomach, initially limiting the amount of food that can enter, resulting in weight loss (e.g. gastric banding, stomach stapling, gastric bypass and sleeve gastrectomy). Longer term, they work by decreasing the drive to eat and giving a feeling of fullness.

Malabsorptive procedures (e.g. biliopancreatic diversion [BPD] and one anastomosis gastric bypass), bypass the normal absorptive capacity of the gut. The One Anastomosis (loop) Gastric Bypass procedure works through both restriction and malabsorption.

When researching bariatric surgery, it is important to look at all the options available. We offer three different operations (Roux -en Y gastric bypass, one anastomosis (loop) gastric bypass and sleeve gastrectomy), all of which have advantages and disadvantages. We encourage you to read the information, but to come to your appointments with an open mind and all of your questions. Listen to the experiences of others, both positive and negative, but be aware that they may not apply to you or your situation. The important thing to bear in mind is that any surgery has risks, and we need to weigh up the risks versus the complications in each individual's situation. We are happy to share our knowledge with respect to what we have found to be best for each patient, and will support you fully in whichever decision you make.

1. LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (REYGB)



The Roux-en-Y gastric bypass procedure is usually performed laparoscopically (i.e. keyhole surgery with a telescope) by our service; however, in some rare cases, it may be necessary to perform an open procedure through a large cut in the abdomen, usually if you have had an open operation before. This type of bypass operation has proven to be an effective, consistent way of losing weight and keeping it off, but to achieve these results it requires lifelong changes to lifestyle and eating.

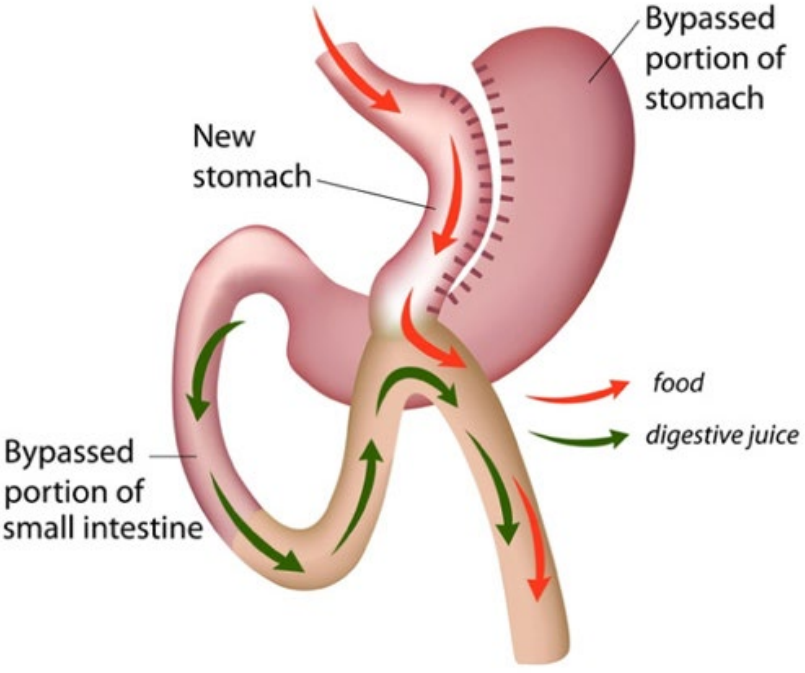
In this gastric bypass operation, the stomach is completely divided with a stapler to leave a pouch that initially measures only 15ml. The small bowel is divided and the divided end brought up to the small stomach pouch. The other small bowel end is joined back to the small bowel about a metre down from the stomach. Thus the whole stomach is bypassed apart from a tiny pouch. This operation works in two ways:

Initially the small pouch means that only a small amount of food can be taken in at any sitting, producing an initial rapid weight loss. Longer term, you can eat an entrée-size meal at a restaurant, and the weight stays off because of the feeling of fullness and the same 'switching off' of the intense need to eat.

Secondly, when undigested high sugar and/or high fat food passes into the small bowel, it causes significant symptoms, known as **"dumping"** (such as nausea, sweaty, clammy, dizzy feelings), deterring people from eating the wrong sort of foods. If people don't dump, they can eat carbohydrates, and get back into the addiction cycle. Only about 30% of people continue to dump long term.

This procedure has a higher complication rate than some of the other operations (i.e. gastric banding), however the weight loss is more consistent and patients can expect to lose more, quickly. The expected average weight loss is more like 80 - 85% of excess weight and will still be influenced long-term by exercise and diet. Patients will need to take daily supplements for the rest of their life. The complications that arise from dividing and stapling include bleeding, leaks from joins or staple lines, and bowel obstruction from an internal hernia.

2. LAPAROSCOPIC ONE ANASTOMOSIS GASTRIC BYPASS (Mini bypass or Omega loop gastric bypass)



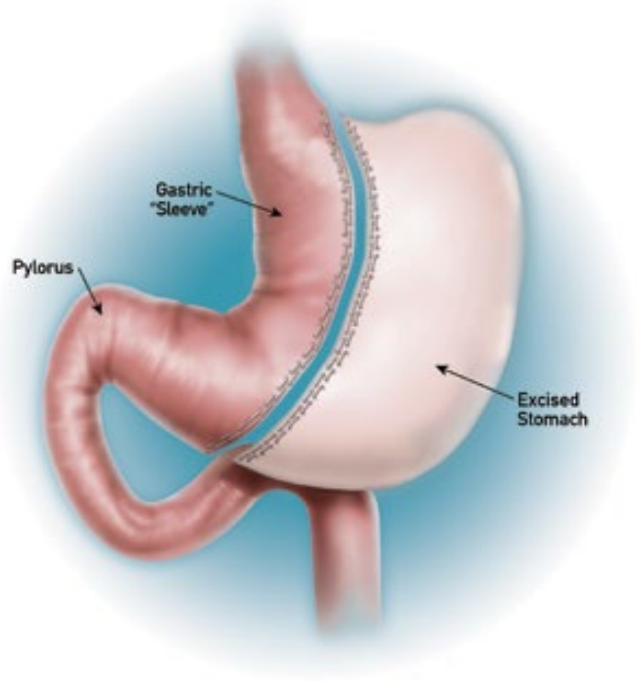
During the One Anastomosis (Loop) Gastric Bypass procedure, the surgeon first reduces the size of the "working" stomach by separating a tube-like pouch of stomach from the rest of the stomach. This tubular gastric pouch is then connected to the intestine, bypassing 150 - 200cm of the upper part of the intestine. This technique differs from the traditional Roux-en-Y Gastric Bypass (REYGB) which requires two connections. This weight loss is achieved through both restriction (the new gastric pouch can hold only a small quantity of food) and malabsorption. Bypassing a sizable segment of the intestine, the remaining intestine is not long enough for normal nutrient absorption leading to malabsorption.

The advantage of the loop bypass is its relative simplicity, compared to the REY gastric bypass. The single join results in a shorter operating time and less operative complications. Long term, the loop bypass, results in fewer intestinal obstruction problems and less risk for internal herniation.

Disadvantages of the loop gastric bypass include a small likelihood that patients with a loop bypass will experience more bile reflux than after a REY gastric bypass, which can adversely affect their quality of life. Like the REYGB, patients receiving the loop bypass must take regular vitamin and mineral supplements as instructed, and undergo lifelong, yearly monitoring. The standard risks and complications that apply to a REY gastric bypass also apply to the loop bypass.

After Loop Gastric Bypass, patients need (micronutrient) supplementation comparable to that after REYGB, however there is a higher risk for iron deficiency and deficiency for fat soluble vitamins, so these are additional. Fat malabsorption may limit the quality of life in few patients especially after a high-fat diet due to bloating and fatty diarrhoea. The expected average weight loss (like Roux en Y) is 80 - 85% of excess weight and will also be influenced long-term by exercise and diet. The most rapid weight loss occurs in the first 6 months after surgery and then continues at a slower pace for up to another 18 months.

3. LAPAROSCOPIC SLEEVE GASTRECTOMY



Sleeve Gastrectomy is a technique that was originally developed as the first stage of a two stage malabsorptive procedure in high-risk patients. Surgeons found that if they removed three-quarters of the stomach, left the patients to lose weight, then came back and finished the operation, the death rate was much lower. However, some patients did quite well even without the second procedure, although the majority did have some weight regain long term.

It is an easier operation to perform than the REYGB and OAGB as there are no joins, and so is being used more widely.

The procedure is still performed laparoscopically; a stapler is used to completely divide the stomach, leaving a thin tube down to a normal outlet. The remaining stomach is removed through a slightly enlarged 12mm incision. Weight loss at one-year averages 75% of excess weight.

The advantages are that there is less malabsorption, so there is possibly less need for some supplements, and there is little risk of bowel obstruction or ulcers. However, there is a much higher risk of gastric reflux, and it is harder to sustain weight loss compared to gastric bypass.
The immediate post-operative complications are similar to the REYGB: bleeding and leaks from the staple line, however these are often more difficult to resolve in a sleeve.

How surgery works- addiction versus habits

Most patients assume that the reason they will lose weight after surgery is that their stomach will not be able to tolerate the large amount of food they used to eat. Whilst this is true in the short term, the main reason for the long-term weight loss is a poorly understood effect on the 'eating' centres in the brain.

After surgery, patients usually lose their overpowering drive to eat. They are no longer thinking about food all the time. They have been given back choice and this loss is usually stable for the first 6 months. By regaining greater control over the drive to eat, people can then choose the diet that suits their body. You still need to eat a high protein, moderate 'healthy' fat, low simple-carbohydrate diet afterwards, for life, as we haven't changed the abnormal fat cell metabolism. The surgery makes this possible.

However, no operation will switch off the **habits** that are related to eating, and have been generated over many years. These are like short circuits in the brain- a button is pushed, and you have eaten something you didn't intend to before you realise it. Changing these sorts of behaviours takes "brain work", and is what determines the final result that people get after the operation. Those that work with all the tools and strategies we give them can achieve whatever weight they like. They can choose, when the button is pushed, to either respond with the new strategy and win, or do what they always did, and get what they always got - no weight loss and subsequent weight regain.

The most common reason for failure of any operation is that patients get back into eating carbohydrates again, either out of habit, addiction, or because it's easy. This restarts the cycle of hunger, cravings, and lack of satiety. Fortunately, if we become aware of this, we can help patients reclaim their operation with dietary and psychological tools. This explains one of the differences in weight loss at two years between bypass/sleeve and the gastric band- the bypass and sleeve operations helps throttle back the habits more effectively than does a band. These procedures can be highly effective if you approach the surgery understanding that this is the first step of a long learning process, and with a willingness to be honest and seek whatever help you need to overcome the habits.

The final part of the operation that is entirely over to the patient, is to find a replacement for the joy of food. Food gave you a lift and comforted you. You need to find other things that "do it for you", that don't jeopardize your long-term success. For some people this is easy - they have very full lives that just expand into the previous areas occupied by food. However for those with a life limited by pain, social isolation or low self-esteem, it can be very difficult. Ask for help - we have the experience to assist people through these difficult stages. If you don't find these things, your brain will automatically take you back to food, and you will not get the desired results.

In summary, to get the results you want, we provide:
1. An operation to switch off the food (carbohydrate) addiction and food 'noise'
2. Knowledge of the diet your body needs to get the best out of it (low in fat, sugar, and simple carbohydrates)
3. Brain tools to deal with habits and to cope with stress in a healthy adult way
4. Goal setting tools to develop your plan forward and that support you to create different rewards in everyday life to replace the joy of food.

Foundations of Healthy Living Retreats

As we know how difficult it is for patients to manage to sustain new habits and lifestyle choices without succumbing to their old ways, we have as part of our process a residential retreat program called Foundations of Healthy Living.
The goal at our 4-day retreat is to help promote personal growth through group support and learn skills to help you maintain and restore increased awareness and self compassion and self esteem.
Our mind/body focus looks at physical activity, nutrition and overall wellness with the foundation being self-love and self-care. The structured program supports you to make comprehensive changes in the areas of behaviour, diet and exercise. We also help you to address the underlying emotional triggers that can prevent you from moving forward into a healthy fulfilling lifestyle.
The retreat program is designed to help you learn to change the way you think, feel, act and live and subsequently we encourage all patients to make it an essential part of the program.

Which operation is for me?

As you can see, all the operations work by reducing the drive and capacity to eat, thereby allowing people to eat the diet their body needs. Usually people come to us with a clear idea of which operation they want usually based on what they have seen and heard from friends and acquaintances, or from blogs on the Internet.

We will encourage people to consider the procedure most appropriate for them, however:
People who have had previous surgery involving the colon and small bowel usually are not suitable for a bypass as there may not be enough small bowel free through previous scarring. We would recommend sleeve gastrectomy for these people, or they may need an open operation. On the other hand, people with severe gastro-oesophageal reflux problems would be recommended gastric bypass surgery. If your BMI is over 45 then you are more likely to be recommended a Gastric bypass over Sleeve gastrectomy operation due to the advantage of slightly higher weight loss with gastric bypass.

Because we are encompassing more and more understanding about the causes of obesity, and new drugs are always coming on the market, we may in some special circumstances ask the patient to consider using a non-surgical approach first.

Please voice your questions at your initial assessment so that you are making your decision based on facts.

No operation will work unless you work with it - there is no guaranteed weight loss procedure.

Whichever operation people choose, we will support them as best we can!

Effects, risks and complications

What can we expect?

Along with your weight loss, we also expect that there will be improvements in some of the medical problems that you may have. You usually have a much greater capacity for physical activity and you will be socially a lot more comfortable.

Your self-esteem and self-confidence are likely to improve and there is likely to be an overall improvement in the quality of your life. We also hope that your life expectancy will improve.

Primarily, substantial weight loss is our patient's focus. We expect that, on average, people who have either of the gastric bypass procedures will lose approximately 75-90% of their *excess* weight (80% for loop bypass and 80-90% REY bypass) and the sleeve gastrectomy will lose between 60-80% of their *excess* weight in the first 12 months. For example, with a bypass, if your current weight is 120kg and your ideal weight is 60kg, then your total excess weight is 60kg. 80 per cent of this is 48kg. Therefore you could expect your weight would come down to around 72kg on average. These results may vary widely: some will lose very little weight and others will get down to their ideal body weight.
Our aim is to achieve the weight loss without interfering unnecessarily with the quality of life, or by placing too severe a restriction on your normal living pattern.

We are not just aiming to achieve some ideal weight, but also to solve the problems that obesity causes. Diseases such as diabetes, asthma, high blood pressure, joint pain and heartburn are greatly improved with the weight loss.

What are the risks and complications?

All surgery has risks, especially major surgery. Any stomach operation for weight loss is considered major surgery, and therefore has significant associated risks.

Risks during surgery:

People have died from having operations for morbid obesity – it happens rarely, but we can never take away the risk completely. If you are older and if you already have certain problems related to your weight, your risk will rise.
Heart attacks after the operation, clots that form in the leg veins and then pass to the lungs, or leakage of stomach joins can cause death in people with excess weight.

Precautions are taken during surgery and your hospital stay in order to prevent these risks occurring. To try and prevent clots forming in the leg veins, patients are given blood-thinning injections prior to surgery, wear compression stockings whilst in hospital and have intermittent compression of their calves during the operation. We also mobilize you as soon as possible after surgery, and encourage you to walk as much as possible in the weeks after going home.

As mentioned above, bleeding can occur after any surgery, but is greatest after stapling operations (0.1% of people will need a blood transfusion). Bleeding may come from injury during laparoscopic port placement, damage to the spleen / liver, or from the staple lines. For this reason, people who refuse blood transfusions may be declined this surgery.

Risks immediately after surgery:

Surgical leaks mean that fluids normally contained in the gut leak out into the abdominal cavity, causing pain and infection. This is a very serious situation and will always require another operation. Although we do our utmost to prevent this, it can occasionally happen, and may result in a very prolonged hospital stay. In the very few cases where this has happened, patients are admitted to the public hospital, so expense is less of an issue than health. However, if we do need to re-operate in the

private hospital because of a rare complication, additional cost may be incurred.

Risks after you go home:

Sleeve and REY Gastric bypass: After a bypass, too much healing can occur at the join between the stomach pouch and the small bowel, causing a narrowing that must be dilated. The patient presents with an inability to progress to solid food, usually around the 6-week mark. Correcting this is very safe and takes very little time to do, but does require a heavy sedation and passing a telescope down into the stomach to use a balloon to stretch the scar tissue. Fortunately, since we have been sending everyone home on anti ulcer medication, the rate of having to do this has dropped to less than 2%.

One Anastomosis (Loop) Gastric Bypass: More frequent bowel actions can be expected, typically up to 3-4 per day after surgery. 5% of patients will suffer more troublesome symptoms than this but it usually settles with time. Eating too much fat is likely to worsen diarrhoea. Bad breath due to bacterial overgrowth may also occur in a small proportion of patients and require antibiotic/ probiotic treatment.

Long-term risks:

Sleeve and Gastric bypass: The bypass and sleeve risks can be associated with a failure of the stomach to produce factors that help absorb Vitamin B12. With any of these operations, B12 deficiency can occur even years after the operation, so regular blood tests are needed. Both bypass procedures can also cause iron, calcium, Vit D and other micro-nutrient malabsorption, and *good quality bariatric* supplements ***must*** be taken for life. Failure to do so can lead to irreversible brain damage. This is a rare but dangerous complication that can be completely avoided by simply following the rules. Multivitamins must be taken daily, for life, after ***all*** bariatric surgery procedures.
With the Roux-En Y Bypass, re-routing of the small bowel does create potential spaces for the bowel to get twisted in, and can cause life threatening bowel death. This is rare and completely fixable by re-operating to untwist the bowel. Currently we close all potential spaces, so the risk of this is minimized.
The small bowel is not designed to receive acid. This doesn't matter when there is such a small stomach, but if we add drugs that cause ulcers in ordinary people, we can set people up to get ulcers. The drugs that classically do this are anti-inflammatories such as Aspirin and Voltaren, as well as Prednisone. We have had people perforate ulcers after taking these medications. You *can* use these, but you do need to take anti-ulcer medication at the same time. Smoking and vaping have the same effect and for this reason we require you to give up smoking/vaping prior to surgery and *do not* restart.

One Anastomosis (Loop) Bypass: Bile reflux can occur more frequently after the loop gastric bypass, due to the digestive juices refluxing up into the stomach pouch. Left untreated, these can cause erosion, inflammation and painful ulceration. Long-term anti-ulceration treatment may be required or in extreme cases, revisional surgery. There is likely to be significant protein malabsorption, particularly in the first year. 1-2% may develop significant protein malnutrition, indicated by falling albumin levels and swollen ankles. If high dose protein supplementation fails, then surgery to shorten the bypass or reverse the procedure may be required.

What are some of the side effects?

Hair Loss

Due to rapid weight reduction, it is common to notice that some of your hair may thin out. This is due to the body prioritizing the usage of the reduced amount of protein for more important processes in the body during this time. It usually is temporary and stops when the weight loss slows (about six to eight months after the operation) and then will grow back again.

Loose skin

Some people are left with excessive loose skin after losing their weight. You may need to have further surgery at a later stage if this continues to be a problem. We recommend you wait 2 years before you go ahead with this.

Ear Canal Issues

In up to 10% of people, rapid and severe weight loss can result in the reduction of the ear tube lining fat tissue which leaves the tubes patent (open), leading to symptoms such as autophony (unusually loud hearing of person's own voice), ear fullness (causing muffled hearing) and tinnitus (ringing in ears). This can be overcome by:

1. Limiting decongestants and caffeine.
2. Drinking more water.
3. Medicated nasal drops.
4. In some circumstances Oestrogen nasal drops.

Dietary issues

During the initial phase of "new" eating patterns, you may have occasional episodes of vomiting if you eat the wrong type of food or if you eat too quickly. With time, you will learn to identify those foods that cause you problems. However if you eat slowly, eat small amounts, chew really well and take your time, you can avoid some of these difficulties. Your eating pattern will steadily improve and 9-12 months after your operation, you will be eating a wide range of high protein, moderate fat, low carbohydrate foods, in socially adequate amounts.
As your food intake will be restricted by your operation, it is important to eat wisely.
The success of any obesity operation requires you to take responsibility for your eating and exercise patterns. Therefore, we hope that you will follow the guidelines provided by our nutritionist/dietitian:

- ✓ Eat three regular nutritious protein-based meals each day, with preferably no snacks in between
- ✓ Take your time and chew food really well. Stop when you are comfortable
- ✓ Eat only good foods that help meet all of your nutritional requirements

Your exercise guide

Exercise regularly and be physically active. Exercise promotes weight loss and improves your general health as well. We recommend 150 minutes per week, starting 1 week after leaving hospital. This will be difficult at first, but as you lose weight it becomes easier.
Start with small achievable exercise goals, choosing activities that you enjoy and will be able to continue with. Walking is ideal to begin with. Take the stairs instead of the elevator, park a few rows further back at the supermarket, walk the dog or play with the kids. These are all activities that can help you increase your daily exercise. When

possible, commit to exercise with another person and make it a social, fun experience. Involve a personal trainer, fitness consultant or exercise group if you need extra motivation. Wear loose comfortable clothing (or compression gear if more suitable) and appropriate footwear for the exercise that you are undertaking.
Exercise requires commitment, so make it a priority and set-aside time in your daily schedule so it becomes a habit. The more active you are, the fitter and healthier you will feel, and the greater your weight loss will be.

Hospital stay

The operation

You will come into hospital on the day of the procedure, having not had anything to eat or drink from the times given to you on the admission form. The anaesthetist and the surgeon will visit you in the hospital before you have your surgery.

The operations are performed under a General Anaesthetic and take between 75-150 minutes. It is almost always done laparoscopically (i.e. with a telescope through small cuts) so the recovery is quicker, the complications of wound infections and hernias are less severe, and the cosmetic result is excellent.

After surgery, people usually become 'aware' in the Recovery room, but sometimes back in their hospital room. Any pain and nausea should be reported to the nurses immediately, so you will receive whatever medication you need at this stage.

On return to your ward, the nursing staff will have been instructed to get you up and moving. On the day of the operation you can have crushed ice. Over the next 1-2 days, you will be gradually increasing your oral intake, starting with water, and progressing to low calorie fluids/yoghurt by the time you leave hospital. You are expected to be in hospital for 2 nights.

We would expect you to resume your normal activities within 2 weeks after any of the surgical procedures.

If however, in rare cases the surgeon found it necessary to convert to an 'open' operation, you will generally have more discomfort after the procedure and you may need to stay in hospital longer. Return to your normal activities will take longer also.

Post-operative course and follow up

Post Operative
You will be given an immediate post-operative checklist with a link to our post-op video as well as a diet sheet to follow for the four weeks following the operation. The amount of exercise you should do will also be explained. The first 3 months are a difficult time with eating, as you learn to live with your new stomach. With all operations, this is the time to learn to eat slowly and chew well. Failure to do so will result in painful blockages and eventually vomiting! This should happen infrequently as you learn how to eat.

Follow Up
Regular follow up with members of our team is an essential part of this operation. In Hamilton, our nurse, nutritionist, and surgeon will call and email you respectively within

the next 1-4 weeks after the operation to check that things are progressing normally. The initial post op visit is 4-6 weeks after the operation; the next is 10 weeks later (4 months) and after this at 8 months, 1 year, 18 months and 2 years.

Regular blood tests are done to check that enough of the appropriate nutrition is being consumed, and to see if other supplementation is needed. Everyone who has had a bypass must take good bariatric quality multi-vitamin tablets daily plus iron/folic acid, calcium and B12 for the rest of their life (men and women may differ slightly as do the loop and REY procedures). Alternatively, Vitamin B12 injections can be done 3 monthly instead. At each follow-up appointment a further dietary assessment is done to ensure adequate nutrition. You need to eat sensibly for the rest of your life.

We have put a lot of effort and commitment into achieving the best possible result for you and it is absolutely essential for you to also put in that effort and attend the follow-ups as requested.

The brain work

As mentioned at the beginning of this information booklet, whilst the operation will give you the ability to choose your food because for the first time you will feel full, and won't have food niggling at your brain the whole time, it doesn't make this happen. We now understand that people with weight problems develop a bunch of habits **because** food "does it for them". These habits don't automatically go away after the operation- they are the default pathway still for people in many situations. We know that those who do well after the surgery are the ones who work with us to retrain the brain. This is achieved through a combination of strategies, skills and awareness that all members of the team will bring to you. Attendance at the Foundations of Healthy Living Retreat emphasizes this and revision through the PACE program assists as well.
We believe that good results with any operation are 50% surgery, 50% brain work. It is easier for people to have something done to them, than to change the way they think. This is why the follow up is so essential: we are constantly trying to help you achieve the goals you had decided on when you embarked on this process.

Bariatric Surgery and Smoking: A Dangerous Combination

When smoking (as well as vaping with nicotine) and bariatric surgery are combined, there is an increased risk of complications during surgery, often affecting the ability to heal. Tobacco smoke causes blood vessels to constrict (shrink) which decreases blood flow to the stomach and carbon monoxide (a substance produced during cigarette smoking) reduces the ability of red blood cells to carry oxygen. These combined factors can cause healing following weight loss surgery to slow considerably.

Patients who smoke/vape prior to bariatric surgery, put themselves at risk of complications during or immediately after surgery. These may include:

- Heart attack or stroke during surgery
- Breathing difficulties causing pneumonia or bronchitis

By continuing to smoke/vape following surgery, a patient can experience a host of other complications, including:

- Stricture (narrowing) at top join – a four fold greater risk
- Ulceration of the pouch – three times the risk
- Inflammation (Gastritis)
- Wound infection
- Lung dysfunction

- Increased shortness of breath
- Reduced ability to absorb vitamins and minerals

We are genuinely concerned about these potential complications and strive to ensure our patients have minimal on-going problems after surgery therefore we will encourage smokers to partake in a comprehensive smoking/vaping-cessation program. **Completion of such a program is mandatory for weight loss surgery candidates who smoke/vape, a minimum of four weeks prior to surgery, but preferably prior to your initial consultations**. Your surgery will be postponed, or you could be released from consideration for surgery altogether if you continue to smoke or vape with nicotine. You will not be rescheduled for surgery until you have been tobacco(nicotine)-free for four weeks (including vaping with nicotine). In the event of any complications that occur as a result of smoking, the subsequent treatment involved in this will be at the patient's expense.

Smoking cessation options we recommend:

- nicotine replacement therapy - these products provide you with small doses of nicotine without the toxins found in cigarette smoke. By receiving gradually-decreasing doses, you will be weaned off the nicotine with less severe withdrawal symptoms. Nicotine replacement is available in three over-the-counter delivery methods: chewing gum, lozenges and skin patches. Two prescription options — nasal sprays and inhalers — are also available. However, these products can't be used immediately prior to or during surgery, as they can cause some of the same problems with healing as cigarettes. You need to let us know if you are using a nicotine replacement.
- Non-nicotine prescription oral medications can also be used to help you quit smoking. Bupropion (brand name Zyban), also sold as the antidepressant Wellbutrin, reduces the craving for nicotine.
- Varenicline tartrate (brand name Champix) targets the part of the brain that is affected by nicotine. In addition to reducing withdrawal symptoms, it dampens the pleasure a smoker gets if he or she relapses and lights up, thereby reducing the temptation to resume smoking.

QUITLINE 0800 778 778 (www.quit.org.nz) offers many tools to help you quit smoking. These include a Quit Coach, Quit blogs (community support), Quitline (free advice), Txt2Quit and advice regarding nicotine, patches and lozenges

We also know that patients have a fear that smoking cessation is often associated with weight gain, and many patients are afraid that if they stop smoking they will regain the weight they lost after surgery. Whilst we know that nicotine is an appetite suppressant and smoking slightly increases your metabolism, these effects are very slight and it is more likely that weight is gained due to emotional reasons or habit.

You may also find that when you are quitting you replace the hand-to-mouth habit of smoking with the hand-to-mouth eating behaviour. Part of quitting is to change some of your habits and routines. If you used to smoke after a meal, choose something else to do instead.

Here are some examples:

Clean your teeth	Go for a walk

Phone a friend	Drink water
Eat a piece of fruit	Do the dishes

It can be hard for your body to recognise the difference between hunger and a craving when you first stop smoking, so when you feel hungry at a time that you don't usually eat it's probably because you're craving a cigarette/vape.

Alcohol and bariatric surgery

Bariatric procedures can significantly affect alcohol absorption and the subsequent intoxicating influences.

Alcohol has a much greater effect on the brain and central nervous system following bariatric surgery. This is due to several reasons:

- Firstly, there is a reduction in the enzyme alcohol dehydrogenase, which breaks down alcohol in the stomach.
- Secondly, because the stomach capacity is greatly reduced, alcohol is emptied from the stomach and absorbed into the small intestine much more rapidly.
- Lastly, bariatric patients tend not to be able to eat and drink at the same time, and when there is no food in the stomach, alcohol is absorbed at an even faster rate.

Drinking alcohol in the early postoperative period may have adverse effects on health. Frequent vomiting, low calorie intake, not taking multivitamins and malabsorption may cause a number of vitamin and mineral deficits, including thiamine (vitamin B1). Alcohol use disorders become more prevalent from the second post-operative year, so awareness of the potential for the problem is essential.

In many ways, consuming alcohol defeats the purpose of bariatric surgery. Alcohol converts readily into blood sugar that can *slow down* weight loss and can cause dumping syndrome leading to vomiting and/or diarrhoea. Alcohol has no nutrient benefits and contains high numbers of calories that may *cause* weight gain or prevent weight loss. Remember, you are having surgery to help reduce your calorie intake and encourage long-term sustainable weight loss.

Alcohol also predominantly affects the inhibitory centre of the brain, which frequently takes away the clear decision- making processes and removes the resolve that one has to not have further alcoholic drinks or those tempting simple carbohydrate foods. It affects willpower and increases appetite. This combination means that you often make poor food choices and eat more.

Addiction transfer is yet another precaution to be considered with regard to alcohol. The prevalence of food addiction and associated eating abnormalities, i.e. binge eating, carbohydrate cravings, are high among individuals who have struggled with morbid obesity. With bariatric surgery, the addictive tendencies for food and irregular eating behaviour are considerably improved. However, individuals with addictions (often as a consequence of unresolved issues) often transfer their addiction to yet another substance, such as alcohol.

For all and any of these reasons above, we strongly discourage our patients from drinking alcohol:

- During the pre-op diet phase

- During the **first 12 months** following your surgery
- Especially if you are not taking vitamin and mineral supplements, or
- If you are vomiting frequently post-operatively
- In excessive amounts (more than 5-7 standard units per week.

Be sensible with your alcohol intake and be aware of the increased absorption rate if you decide to consume it.

Notes:

Change of Address

To enable us to contact you and monitor your progress, it is important that we are informed of any changes in your details (address or phone number). Please help us to keep our records up to date.

If at any time after your operation, you have problems that may be related to your surgery, or start regaining weight, please request a follow up visit.

TAILOR CLINICS Hamilton
36 Grey St, Hamilton East 3216
☎07 859 0185

WEIGHT LOSS SURGERY Wellington
Boulcott Hospital Specialist Centre
666 High Street Lower Hutt 5010
☎027 256 8191 / 04 5701421