

Introduction: Weight loss (bariatric) surgery

By the time most people get to the point of considering weight loss surgery, they have been battling excess weight for years and tried most things to get their weight back down. Obesity is a medical term that strikes an unhappy chord in those who are afflicted with it but is the correct terminology for what was finally recognised in 1997 by the World Health Organisation as a disease. It is a complex disease, not only with the multitude of factors that can lead to it, but also the many illnesses that are associated or caused by it.

“Obesity is a chronic, progressive, relapsing **disease** that negatively impacts health and quality of life and shortens lifespan. It leads to serious health consequences for those impacted, as well as their offspring. The development and persistence of obesity are the result of a complex interplay of genetic and environmental factors. When left untreated, it worsens.”

Christensen, S. (2021). Recognizing Obesity as a Disease. In: A Clinician’s Guide to Discussing Obesity with Patients. Springer, Cham. https://doi.org/10.1007/978-3-030-69311-4_1

Unfortunately, “diet and exercise” alone rarely result in enduring weight loss, and more often, what is lost is regained with a bit more, leading to “yo-yo dieting” and progressive overall weight gain. This is not to say that lifestyle is unimportant – eating wholesome, nutritious foods, avoiding “empty calories” and staying active must always be the foundation of healthy living, however with greater weight (BMI), greater interventions are needed. Prevention is also vitally important – early intervention to avoid weight gain in the first place may change the long-term weight trajectory.

This document is focused on improving your understanding of the surgical options on offer by Dr. Philip Gan but is not intended to be a complete reference. It is not possible to incorporate all the information available in textbooks, journal articles and conference proceedings, however the focus will be on what these operations involve, describing the essential elements of what is done surgically, the key risks involved, and implications in terms of your nutrition and lifestyle.

The opinions passed here are one surgeon’s perspective. There is no ‘perfect’ weight loss operation, otherwise everyone would be doing it! Bariatric surgeons worldwide have their own preferences as to which technique, or range of techniques, they prefer. There is quite a significant variation in the most common operations performed in different states of Australia, as well as countries of the world. Each has its pros and cons, and there is no ‘risk free’ option – even choosing not to undergo surgery is a risk, as obesity and its associated diseases have a very real impact on health and life expectancy! Please read the information carefully.

Index:

	SECTION	PAGES
	Introduction	1
1	About Dr Philip Gan	2
2	Eligibility	3-5
3	Referral pathway	6
4	Weight loss operations	8-15
5	Risks of surgery	16 - 18
6	Outcomes	19 - 20
7	Costs	21-25
8	Preparation	26-29
9	In hospital	30
10	After surgery	31
11	Follow up	32
12	Resources	33
13	Summary checklist	34

1. Affiliate Associate Professor (Dr) Philip Gan

<https://philipgan.com.au/about/>

Dr Philip Gan has been a consultant general surgeon for over 20 years and Director of Surgery at Southwest Healthcare (public) since May 2018.

His particular area of interest is in advanced laparoscopic surgery, in which he incorporates a variety of ultra - Minimally Invasive Surgery (MIS) techniques across a wide field of abdominal surgery. The key objectives are faster recovery with less scarring!

Dr Gan is an innovator and is the inventor of the LiVac® Retractor and LiVac Sling™, both minimally invasive medical devices which are patented around the world (<https://livac.com>). He has published and presented internationally throughout the United States, Europe and Asia on MIS techniques and the LiVac™ devices. He has been an invited guest speaker to the medical industry and with the University of Adelaide Masters of Minimally Invasive Surgery course (2017- current), He has been a senior lecturer at the Deakin University School of Medicine since its inception and was appointed an Affiliate Associate Professor in November 2021.

The Rotary Club of Warrnambool East named Philip a Paul Harris Fellow in 2021, in recognition of his services in advancing general surgery in the region. (<https://www.rotary.org/en/history-paul-harris-fellow-recognition>)

2. Eligibility

This is divided into three sections:

- Patient considerations
- Funding
- Hospital criteria

Patient considerations

General guidelines as to medical eligibility for bariatric surgery are based on Body Mass Index (BMI) and weight related diseases such as diabetes.

- BMI \geq 40 or
- BMI \geq 35 with significant weight related diseases

You should discuss your particular circumstances with your doctor.

Body Mass Index (BMI). This is a useful guide to measuring obesity and is calculated by dividing your weight by the square of your height in metres.

<https://fabtrackr.com/bmi/>

You should be self-motivated to lose weight with the understanding that whilst surgery is a powerful tool, it comes with other requirements such as:

- Lifestyle modification – eating healthily and increasing physical activity
- Lifelong nutritional supplementation – recognising that nutritional deficiencies can lead to severe health consequences
- Long term follow-up
- Recognition that there are risks with surgery, both short term and long term
- Further surgery (revisional) may be required for side effects such as reflux or development of gallstones.

Age: 18 - 70

Dr Gan does not operate on adolescents under 18 years of age. This group of patients has considerably greater complexity of psychological, social and physical issues which require a far more structured support network than can be provided locally.

The “upper limit” of 70 is a guidance only and reflects the fact that the **risks** of major surgery are considerably greater the older you are, whilst the **benefits** of weight loss surgery, such as amount of weight lost and extra quality of life years gained, will be less than in a younger patient.

Funding

Dr Gan only offers this surgery in private at St John of God Warrnambool.

Private Health Insurance (PHI) is strongly recommended, and mandatory under certain circumstances. Please ensure that the level of cover you take out covers bariatric surgery. Read the 'costs' section for more specific details and quotes. Be aware that surgery sometimes needs subsequent revisions or gallbladder removal, so maintaining this cover in the longer term is sensible.

Self-funding is considerably more expensive and costs can blow out if there are complications requiring further investigations, procedures or extended hospital stay. Self-funding will only be *considered* for patients considered to be at *relatively* lower risk:

- Age < 50
- BMI < 50
- No major co-morbidities (diseases) such as heart, lung or kidney diseases, or diabetes on insulin.
- Primary surgery only (no previous stomach operations).

Even "lower risk" patients can still have complications. We strongly advise taking out Private Health Insurance.

Accessing superannuation.

There are strict guidelines on this which you must familiarise yourself with. In our experience, most patients do not meet these criteria. If you are eligible, there are also tax implications, as you will be taxed 20% on the amount withdrawn, and the total amount also has to be added to your taxable income at the end of the financial year.

Link:

<https://www.ato.gov.au/Individuals/Super/In-detail/Withdrawing-and-using-your-super/Early-access-on-compassionate-grounds/?anchor=Eligibilityforcompassionatereleaseofsupe#Eligibilityforcompassionatereleaseofsupe>

From the ATO guidelines:

You must provide two medical reports.

The reports should clearly state that you or your dependant requires treatment to:

- treat a life-threatening illness or injury
- alleviate acute or chronic pain
- alleviate an acute or chronic mental illness.

The registered medical specialist must be specialised in the area in which they are giving their opinion. Examples include:

- If you apply for treatment of an acute or chronic mental illness, your application will require a medical report from a psychiatrist.
- If you apply for treatment of a life-threatening illness or injury, one medical report must be from the registered medical specialist who diagnosed or is treating the illness or injury.

Hospital criteria

Weight:

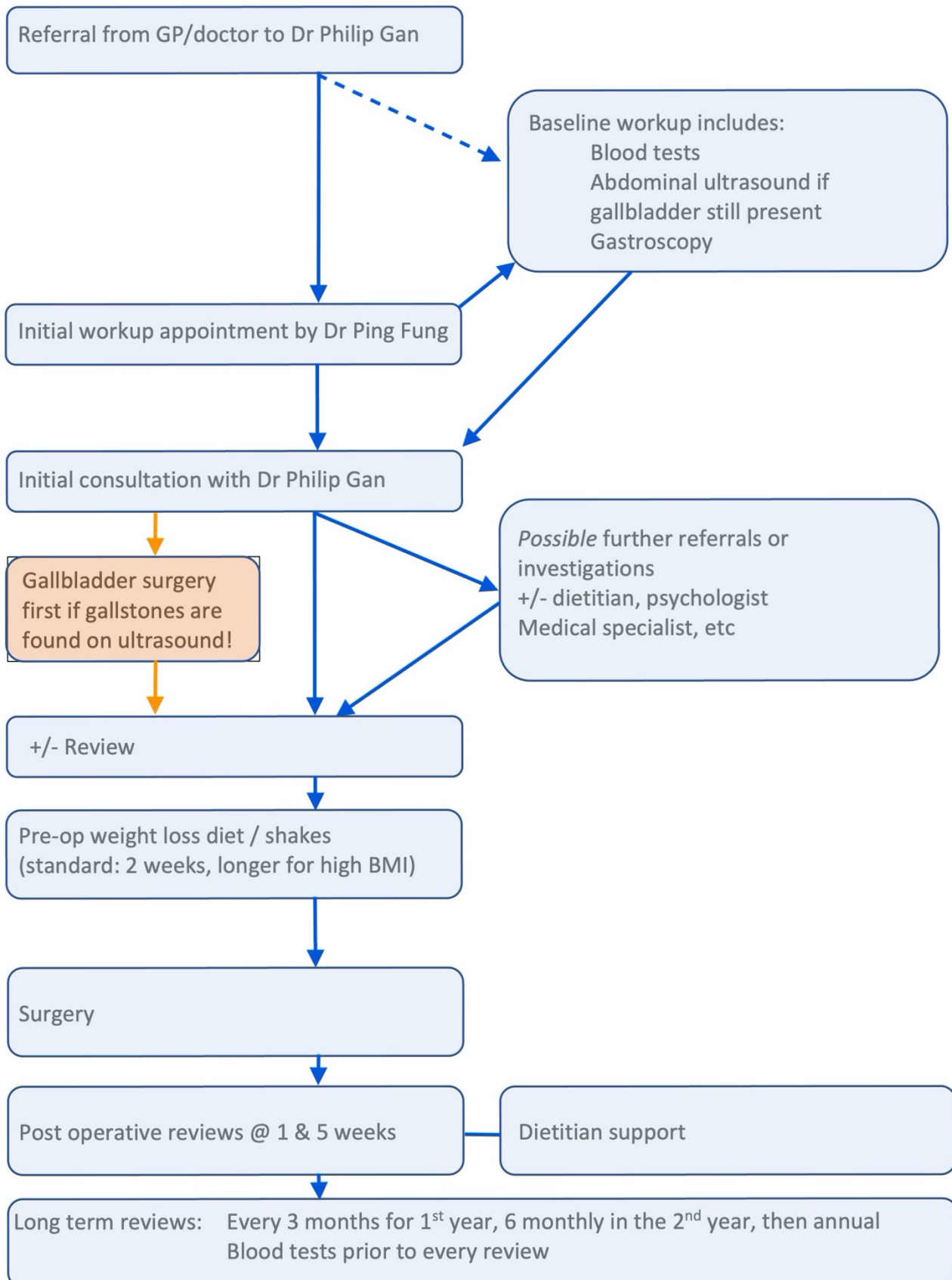
St John of God Warrnambool has an upper weight limit of 180kg for any patient, regardless of the reason for admission.

Intensive Care Unit:

Any patient who is considered by Dr Gan, a physician, or the anaesthetist, to be better managed in a hospital with Intensive Care Unit (ICU) backup cannot have their surgery at St John of God Warrnambool, as there are no ICU facilities.

Some patients have been able to successfully bring their weight down to acceptable levels for surgery at St John of God Warrnambool through a combination of dietary advice, exercise and sometimes pharmacological support. Dr Gan's wife, Dr Ping Fung, may be able to guide you through this process.

3. Referral Pathway



The referral pathway involves a considerable workup process, including:

- **Blood tests** (quite an extensive range included)
- **Upper abdominal ultrasound** to look for gallstones (if no previous gallbladder surgery). If you have gallstones, then you will need to have your gallbladder removed BEFORE any weight loss surgery. If gallstones move out of the gallbladder and into the bile duct before any stomach surgery, this can be managed in a streamlined process with a further procedure called an ERCP which is done in Geelong or Melbourne. If you develop gallstones after gastric bypass surgery and these move into the bile duct, it becomes a very complex surgical problem!! This is not an issue after sleeve gastrectomy.
- **Gastroscopy.** It is important to establish that there are no abnormal findings within the stomach and duodenum prior to any weight loss surgery. With gastric bypass surgery, a tube is created from the stomach. The part of the stomach separated from the tube is called the “gastric remnant”. It cannot be inspected with a gastroscoppe after the bypass, so it is important to check that there are no issues such as Helicobacter pylori (an infection that can cause ulcers and cancer), ulcers, abnormal stomach or intestinal cells or Coeliac disease.

Depending on your medical history, you may require further specialised tests.

4. Weight loss operations

I perform gastric bypass surgery and sleeve gastrectomy.

My weight loss surgery approach is, however, centred on **gastric bypass operations**, of which there are two types:

- One anastomosis/Mini Gastric Bypass (OAGB-MGB),
- Roux en Y Gastric Bypass (RYGB).

Think of the word ‘bypass’ as being another route, often with a shorter path or avoid some point along a journey (eg Geelong bypass!). With gastric bypass surgery, there are **two key steps** to understand:

1. Creating a gastric pouch (sectioning off part of the stomach into a smaller tube, to fit less food). This is done with very advanced instruments that staple and divide, essentially partitioning the stomach or intestines.
2. Joining the newly formed gastric pouch to the small intestines **FURTHER DOWN** than usual, which means that food **BYPASSES** the part of the stomach that is sectioned off (but not removed) and some of the upper part of the small intestine.

Importantly, there is a lot of bile + pancreatic enzymes coming into the upper small intestine (duodenum), which travel along the small bowel. It is important to keep this fluid **AWAY** from the oesophagus. If it reaches the oesophagus, it will very likely reflux up into the mouth and cause severe “bile reflux”. Prolonged bile reflux may increase the risk of oesophageal cancer.

OAGB-MGB	Roux en Y Gastric Bypass (RYGB)
The OAGB-MGB relies on creating a very long gastric pouch tube to keep the bile away from the oesophagus.	The RYGB relies on <i>dividing the small bowel</i> , bringing one end up to join the stomach pouch, and re-joining the other (proximal) end further down that length of small bowel, to keep the bile away.
There is only ONE bowel join (anastomosis) in the OAGB-MGB.	There are TWO bowel joins (anastomoses) in the RYGB. It is therefore a bit more complex, with some higher risks.
It is easy to reverse, but this is rarely required.	It is more difficult to reverse.

There are multiple ways that gastric bypass surgery leads to weight loss, but in a nutshell, the smaller gastric tube means that food keeps moving through, rather than filling up, therefore ending up in the small intestine very quickly. Once food reaches the small intestine a very strong “FULL” signal goes to the brain. Think about how often you feel fuller about half an hour after you’ve stopped eating. That’s when some food has been released into the small intestine from the stomach.

One anastomosis/Mini Gastric Bypass (OAGB-MGB)

Confusingly, this operation is also known in the medical literature as a ‘Single Anastomosis Gastric Bypass’, ‘One Anastomosis Gastric Bypass’, ‘Omega Bypass’, ‘Mini Gastric Bypass’ (MGB) and OAGB-MGB. There are subtle differences in how these are performed, but they all work along the same principle. The technique I use most closely follows the technique described by the surgeon who invented the operation, Dr Robert Rutledge, with some variations.

The OAGB-MGB is a bypass with **only one join** (or “anastomosis”). The technique is less complex than a Roux en Y Gastric Bypass and studies report a lower complication rate. It appears to have a low weight regain rate and has better outcomes for diabetes.

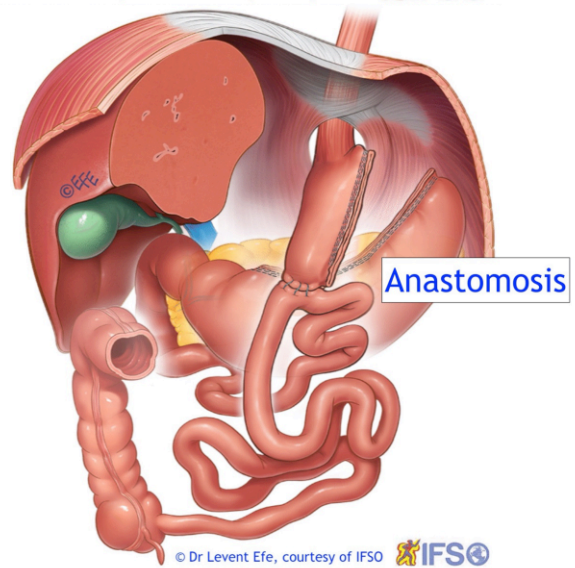
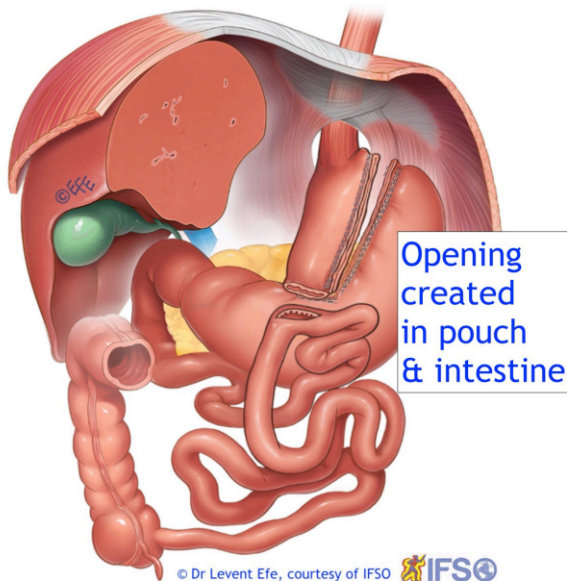
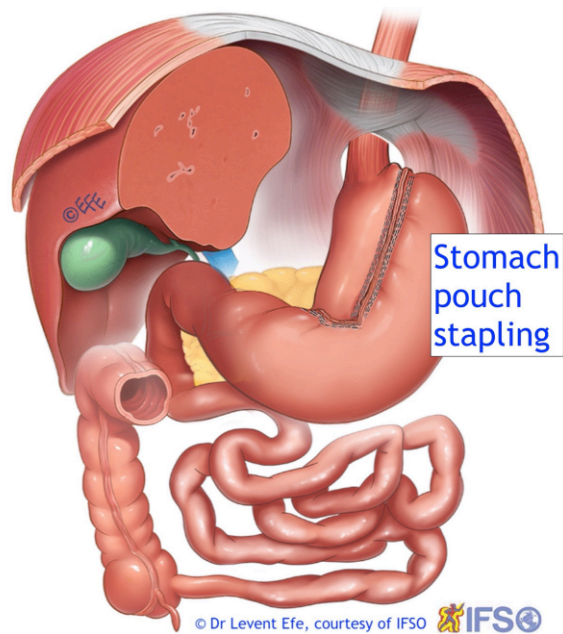
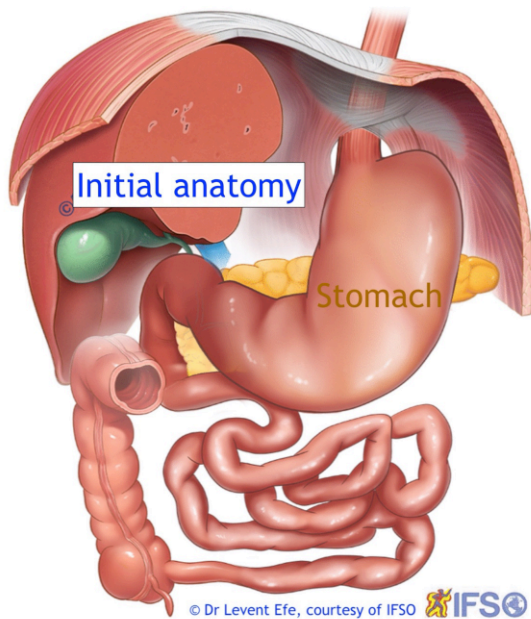
A small pouch is still created from the stomach, but this pouch is long and narrow, a bit like that created during a sleeve gastrectomy, except that it is not as long, and it is joined to the small intestine.

The long and narrow pouch means that there is a longer distance to the oesophagus, which reduces the risk of developing bile reflux (where bile can move up into the oesophagus). Another important difference to traditional Roux en Y gastric bypass is that the part of the small bowel that is joined to the stomach is further downstream, meaning that there is a slightly increased risk of malabsorption (not absorbing your nutrients as efficiently).

Whichever surgery you have, you **MUST** take nutritional supplements – for life! The consequences of nutritional deficiencies can be very severe.

Key steps in the OAGB-MGB:

1. Initial anatomy
2. Stomach pouch stapled to separate it from the “gastric remnant”
3. Small intestine (jejunum) brought up to the pouch, and an opening created in the pouch and intestine
4. The stomach pouch and jejunum are joined together (anastomosis).

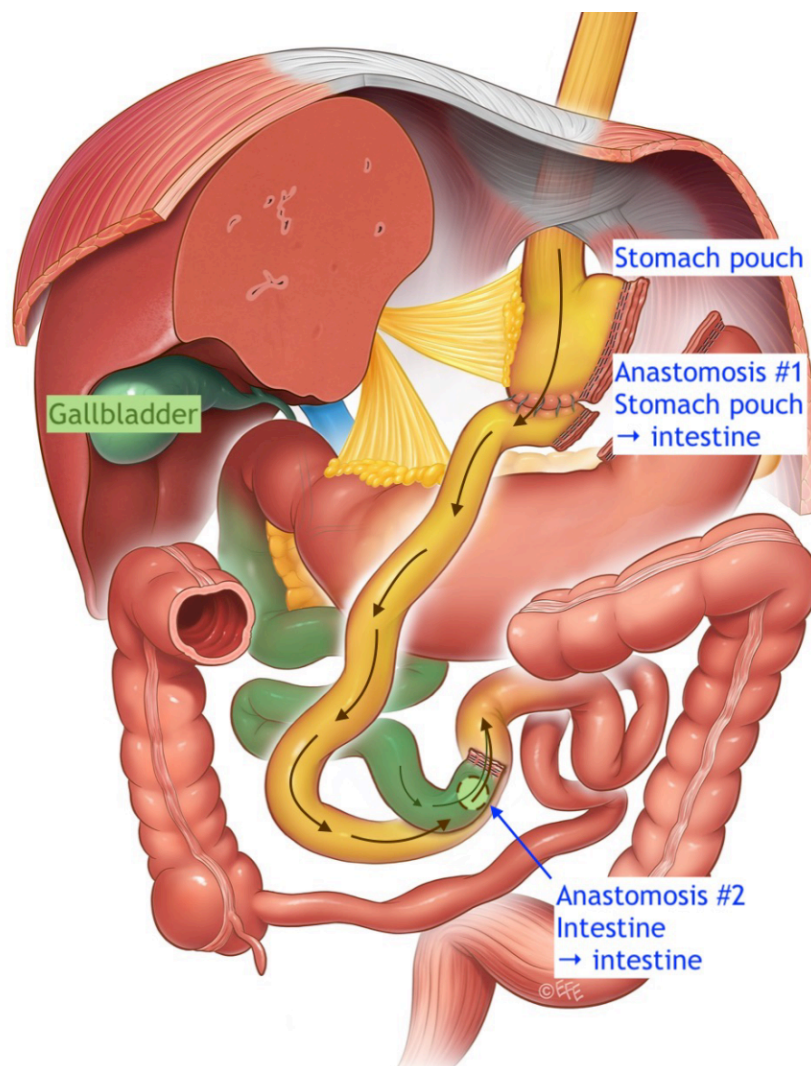


Roux en Y gastric bypass. (RYGB)

The “RYGB” has been around a long time. It involves cutting the small intestine and creating **two joins** (anastomoses), hence it is more complex. The two ‘limbs’ of the small bowel look like a wonky “Y” shape, which is how the name ‘Roux en Y’ came about – roughly, this is French for ‘Y road’. There are many variations in how the RYGB is performed as well, including the lengths of small bowel bypassed.

My preference is to use the OAGB-MGB for most patients looking for weight loss surgery who have not had stomach surgery before (primary surgery).

Patients who have a lot of reflux, and those who have had previous stomach surgery (e.g. Lap Band, sleeve gastrectomy or gastric stapling) may be better off with a RYGB, as it carries the least risk of reflux. A small percentage of MGB patients who may experience troublesome bile reflux, and can be converted to a RYGB. This is sometimes called a “diverted OAGB-MGB”.



© Dr Levent Efe, courtesy of IFSO

Key points with gastric bypass surgery:

- NOTHING IS REMOVED, just re-arranged, so the surgery is functionally reversible.
- There is better and more enduring weight loss, and
- less risk of severe reflux compared with sleeve gastrectomy
- The length of small bowel that is bypassed can be adjusted – the longer the length, the more weight loss, but also the greater the risk of malabsorption and nutrient deficiencies.

The length of small intestine that is “bypassed” is measured from the start of the jejunum, which is the part of the small intestine about 25cm from the outlet of the stomach. The range of lengths I bypass are between 150cm to 200cm, although most are either 180cm or 200cm. 200cm is preferred for BMI >50, diabetes and males (who have higher lean body mass for the same weight as a woman).

I will discuss the length of bypass with you.

One of the things to be aware of with any of the gastric bypass operations is the risk of an “internal hernia”. When the small intestine is brought up and joined to the stomach tube, there is a space behind it where other loops of intestine can run through and end up twisting the bowel. It’s uncommon but if it happens, it can be very severe, even life-threatening. This space is called “**Petersen’s space**” and can be closed off with stitches.

The risk of a Petersen’s space hernia occurring is thought to be very low with the OAGB-MGB compared with RNY, and many surgeons do not routinely close this space with OAGB-MGB. *I believe it should be closed in both OAGB-MGB as well as RNY gastric bypasses.*

Laparoscopic Sleeve Gastrectomy.

Laparoscopic Sleeve Gastrectomy is the most performed weight loss operation in Australia and the USA. This operation involves removing about 70 – 80% of your stomach, leaving a long narrow tube, which holds less food than normal. Removing part of the stomach also reduces the amount of a “hunger” hormone called Ghrelin, which helps reduce appetite. The reduced Ghrelin effect is temporary.

As part of the stomach is removed, *this is a **completely irreversible** weight loss operation.* By contrast, gastric bypass operations do not remove anything, and can be reversed.

The main risks of the surgery are leaks and bleeding from the staple line (1-3%). If a leak occurs with a sleeve gastrectomy, then it can be more difficult to treat than a bypass leak, potentially requiring multiple procedures and/or prolonged hospitalisation.

The **pylorus** is a sphincter muscle at the outlet of the stomach. Think of it as functioning a bit like your anal sphincter – it keeps things “closed” until your rectum wants to release its contents! The pylorus keeps food within the stomach while it is being churned and mixed with acid, then opens intermittently to let a small amount of stomach content through. The pylorus remains functional with a sleeve gastrectomy, meaning that the sleeved stomach is a **high-pressure** tube. This higher pressure means that, over time, the sleeved stomach will tend to **stretch up**. It also means that content within the stomach may tend to go back up the oesophagus.

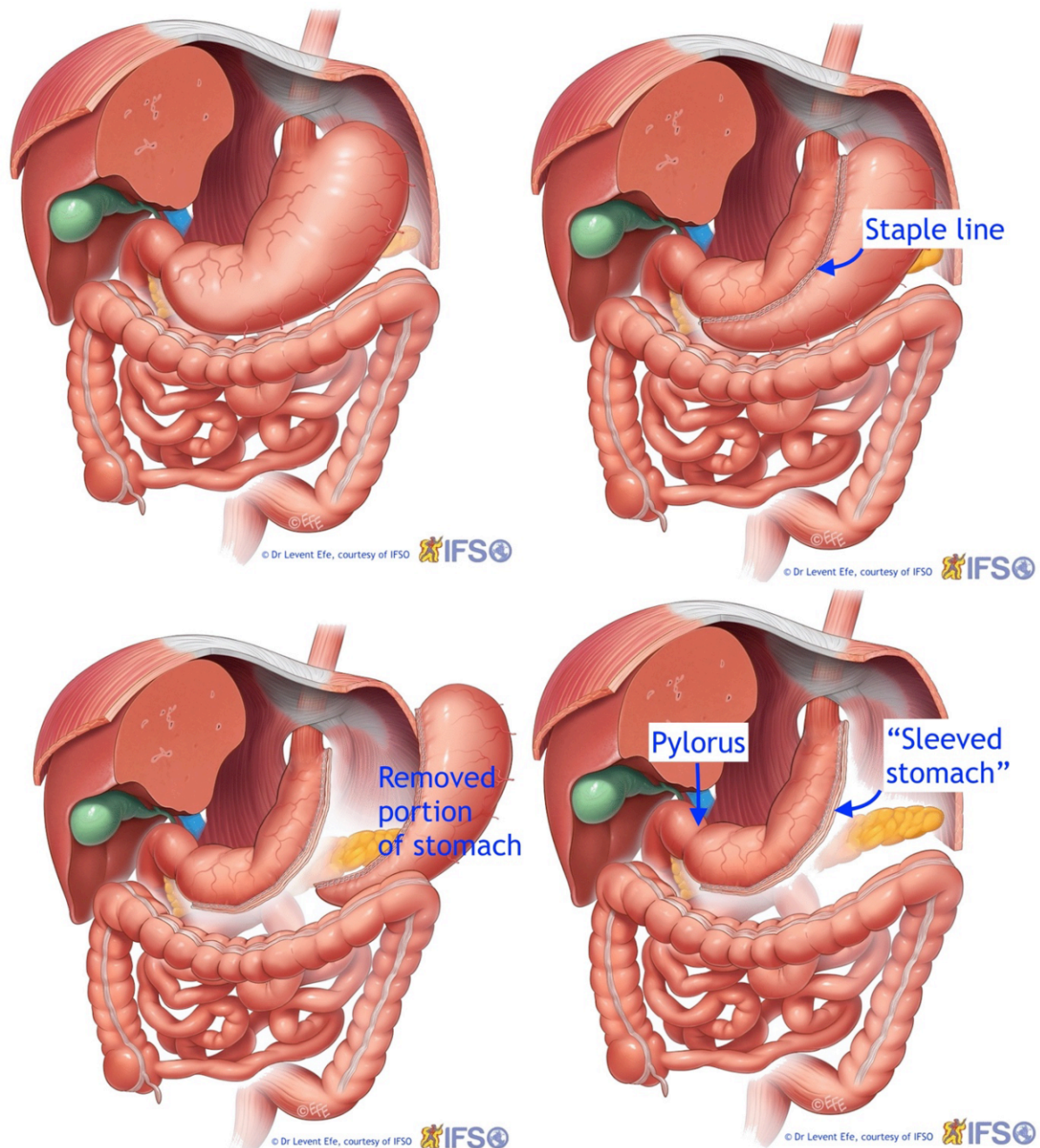
Studies indicate that there is an increased risk of developing new onset reflux (heartburn) after a sleeve gastrectomy, although other studies refute this. There is less risk of malabsorption as no food is diverted. Weight re-gain can occur if the sleeved stomach stretches over time. Gallstones that migrate into the bile duct are more readily managed in sleeve gastrectomy patients than after gastric bypass.

The irreversible nature of sleeve gastrectomy, the significant risk of severe reflux and the potential severity of staple line leaks if they occur are important considerations. The management of these leaks is complex and will likely require referral to a sub-specialist unit.

A long-term study from Austria which was published in the Obesity Surgery journal in 2021 reported that nearly 50% of their sleeve gastrectomy patients required conversion to Roux en Y gastric bypass for weight regain and reflux.

<https://link.springer.com/article/10.1007/s11695-021-05475-x>

Diagrammatic representation of Sleeve Gastrectomy (courtesy IFSO):



Laparoscopic Adjustable Gastric Banding (LAGB).

The Lap Band® operation involves inserting an adjustable band around the upper stomach – like an adjustable “belt”. As there is *less weight loss* and an *increased risk of needing revisional or corrective surgery*, I no longer offer this operation.

Revisional surgery

Primary surgery refers to the first weight loss (or any stomach) surgery.

Revisional surgery is where weight loss surgery is performed in someone who has previously already had gastric surgery. This could be an anti-reflux operation such as a Nissen fundoplication, a previous Lap Band, gastric stapling or sleeve gastrectomy, for example.

Surgery in this setting is far more complex, and with much higher risks than primary surgery. It can also take twice as long, if not more, depending on what is found. Adhesions are where organs are stuck together with scar tissue from the previous surgery and can range from thin ones that are **easy** to separate, to very dense adhesions where organs that were previously separate have become practically fused as one.

Examples are gastric band to bypass, sleeve to bypass, etc. Sometimes these operations are performed in:

- **two stages**, such as removing a gastric band first, then coming back at a later date to convert to a bypass, or in
- **one stage**, where the whole conversion is done in one operation.

The cost of revisional surgery is higher to reflect the greater complexity, difficulty, time and risks.

If you are looking at revisional surgery, the discussion will be tailored to your circumstances.

5. Risks of surgery.

It is not practical to list every possible complication of anaesthesia and surgery – textbooks are written on these subjects!

The *general risks* of any laparoscopic procedure include, but *are not limited to*:

- conversion to a laparotomy (a large incision)
- Bleeding, which may require a blood transfusion or re-operation
- organ injury (eg to liver, stomach wall, spleen or bowel)
- infection – deep or skin wound
- deep vein thrombosis, which can travel to the lungs (pulmonary embolus)
- air embolus (if the carbon dioxide used to inflate the abdomen gets into a large vein) – very rare.
- anaesthetic complications
- medical complications (typically, related to how fit you are for this surgery and what other medical conditions you may have – whether you know about them or not!)
- adhesions, bowel obstructions.
- hernias at the larger laparoscopic port sites

DO NOT TAKE ASPIRIN, FISH OIL, TURMERIC, or NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS) FOR A MINIMUM OF TWO WEEKS BEFORE SURGERY!! THESE DRUGS INCREASE THE RISK OF BLEEDING and have led to a re-operation! Inform Dr Gan of EVERY supplement, over-the-counter medication as well as prescription medication that you take, whether regularly or intermittently.

Sleeve gastrectomy and gastric bypass carry risks related to the staple line (stomach and bowel are cut and sealed by stapling and dividing instruments) or sutured sites, which can leak or bleed, including the anastomosis. These are serious complications, which will likely require further procedures, and can rarely result in death. These same risks apply to any operation involving cutting and joining bowel, such as removing parts of the large bowel for cancer or diverticulitis.

If bile reflux does occur after OAGB-MGB, it can be converted to a modified type of Roux en Y Gastric Bypass.

Beyond the immediate recovery period from surgery, gastric bypass has other effects, which are well described in this document from the ASMBS (American Society for Metabolic and Bariatric Surgery):

<https://asmbs.org/resources/bariatric-surgery-postoperative-concerns>

Please ensure that you read it carefully!

Avoiding malnutrition: Supplements

You will need nutritional supplements, and blood tests to monitor your levels of nutrients, indefinitely. Compliance with these is essential to avoid the risks of developing malnutrition-related diseases, which can be very serious.

Supplements include:

Multivitamins.	I recommend bariatric-specific multivitamin formulations such as BN Multi. 1-2 daily.
Calcium & Vitamin D.	I recommend Caltrate Bone & Muscle Health tablets x 2 daily. Do not confuse this with the plain Caltrate tablets. Caltrate Bone & Muscle tablets contain 600mg calcium plus 1000 IU Vitamin D per tablet.
Iron	Most (but not all) patients will need iron supplementation as iron is mostly absorbed in the bypassed duodenum. I recommend Maltofer tablets which are less irritating to the gut. Iron supplements must be taken at a different time to Calcium as they compete for absorption.

These supplements will cover most patients, however some may require additional supplementation (eg Vitamin B12, Zinc). You will be monitored and advised.

Avoiding ulceration at the anastomosis:

You will need to avoid non-steroidal anti-inflammatory drugs (**NSAIDs**), such as Aspirin, Nurofen, Voltaren and many other similar drugs **FOR LIFE**, as these increase the risk of ulcers forming. **SMOKING** is also strongly associated with ulcer formation (as well as cancer, emphysema, etc!). Ulcers at the anastomosis are called 'marginal ulcers'. They can bleed or perforate, leading to peritonitis and emergency surgery which could include reversing your bypass.

Alcohol:

Note that **ALCOHOL** is more readily absorbed after gastric bypass surgery, and "a little may go a long way"! Do not drink and drive! There is also an increased risk of developing alcohol dependence, so moderate your intake.

Gallstones:

Rapid weight loss can lead to the formation of gallstones, no matter how the weight is lost. Report any new types of upper abdominal pains to your surgeon so that this can be investigated. Your 3-monthly blood tests in the first year may also pick up on this.

A drug called **Ursofalk** (ursodeoxycholic acid) can reduce this risk by half if taken in the first 6 months, however it is not rebated for this purpose and is therefore costs \$3-4/day if purchased from a discount chemist.

If gallstones move *into the bile duct* in someone who has had a gastric bypass, the treatment is far more complex and may require referral to a liver surgeon. This is because the common treatment of an ERCP – a procedure where an endoscope is inserted through the mouth and stomach, to reach the bile duct in the duodenum – is no longer feasible through the mouth due to the change in anatomy. (This issue is not a concern for patients who have previously had their gallbladder removed, or for sleeve gastrectomy patients (who can still have a “standard” ERCP).

6. Outcomes from surgery

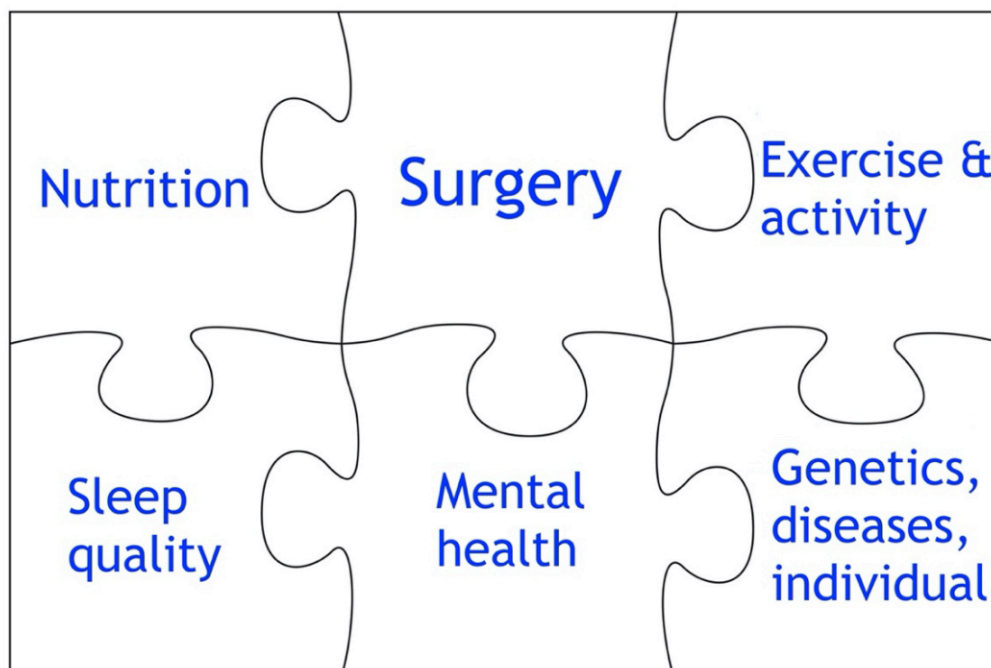
If 100 overweight people with the same starting weight and BMI went on the same “diet and exercise” program, you would get a wide range of results at the end of the program. Similarly, there will be a range of outcomes after weight loss surgery.

Think of this as a jigsaw puzzle of all the factors that influence your health, fitness and weight. Your age, health issues, muscle mass, activity levels, quality of nutrition, sleep quality, mental health and myriad other considerations will all play a part. Some people are overweight from eating too much good food – others from eating too much junk food or sweets. Every bit matters.

Surgery will form a big part of the puzzle for everyone who has it. So far as gastric bypasses go, the main consideration will be how long a length of small bowel to bypass. The range I use is between 150 to 200cm. Longer lengths tend to lead to more weight loss, but also greater risks of malnutrition.

Patients who are seeking revisional bypass surgery because their primary operation hasn't led to satisfactory results may not achieve as much weight loss as others having a primary bypass operation, but they are already a “select” group.

Think about what factors YOU can control. The weight you lose in the first 12 months after surgery will tend to mark the new “set point”. This is an especially important time. If you don't lose as much as you'd like in the first year, then don't expect a significant change after.



“Excess weight loss”.

Excess weight refers to the amount of weight above the arbitrary “normal” BMI of 25. For example, if a patient weighs 100kg but should ideally be 60kg, then the excess weight is 40kg. Excess weight loss means how much of this excess weight is lost after surgery.

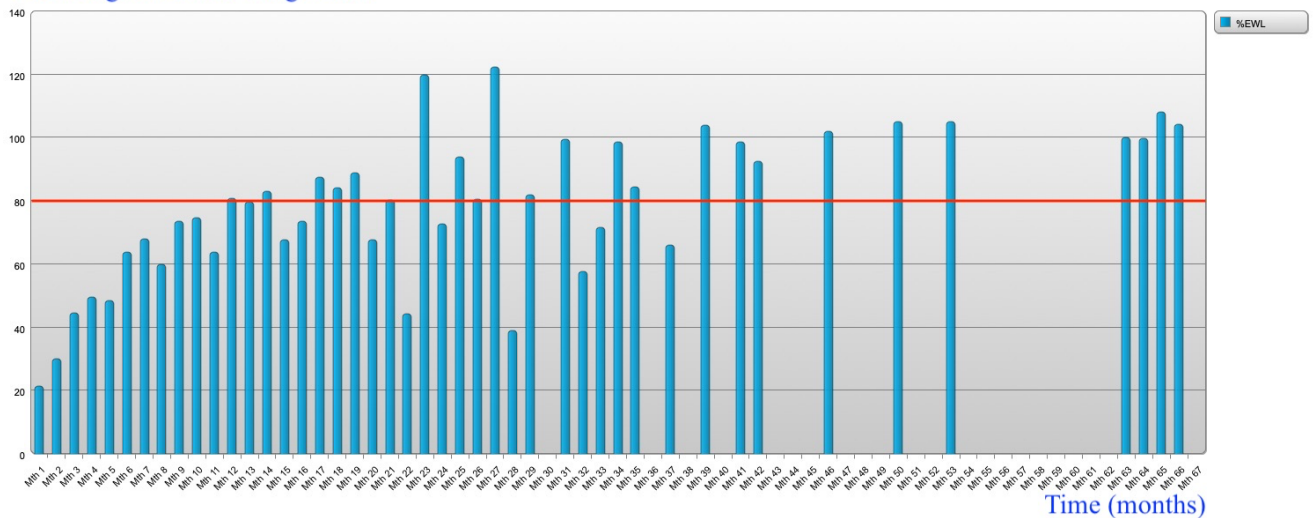
Losing 70% of the excess weight of 40kg would be losing 28kg from 100kg, resulting in a weight of 72kg.

My patients who have had a primary OAGB-MGB operation have typically lost an average of about 70% (or more) of their excess weight over the long term. A small number have lost less than they wanted whereas a good number have lost 100% or more of their excess weight.

This graph is from my practice software (as of July 2022) and gives you a real-world picture of what is achievable.

The vertical “Y axis” is the percentage of excess weight lost, and the horizontal “X axis” is time.

Percentage of excess weight lost



7. Surgery costs: (as of 7 November 2023). Please contact my rooms for separate consulting fees. Subject to change.

IMPORTANT – PLEASE READ CAREFULLY:

Due to highly variable and complex claims processes between the different Private Health Insurers, as of January 2023, the TOTAL surgical + assistant fees must be paid upfront BEFORE the surgery date will be confirmed. You can claim the Medicare rebate and whatever reimbursement your Private Health Insurer will pay, subsequent to the surgery.

It is possible that ADDITIONAL steps may need to be taken at the time of surgery, such as division of adhesions (if present) from previous surgery. There are different item numbers according to the length of time required to divide these adhesions, with different fees which will be charged at the schedule fee rate. If additional item numbers are incurred, you will receive an additional invoice after the surgery.

There is a gap between the schedule fee rate and what you can claim from Medicare. If you are insured, this component may be partly or completely covered by your Private Health Insurance.

Dr Gan charges the SAME fee for sleeve gastrectomy, mini-gastric and Roux en Y gastric bypasses. The choice of surgery is what is right for you. Medicare returns a lower rebate for sleeve gastrectomy than gastric bypass, so it will cost a bit more for a sleeve.

Bariatric surgery is MAJOR surgery, even if the laparoscopic technique is minimally invasive and allows faster recovery. There are RISKS inherent to such major surgery, which may require a return to theatre or re-operations and additional investigations, procedures, extended hospital stay and gap fees (eg anaesthetist). These risks include medical as well as surgical adverse events.

Private Health Insurance is STRONGLY recommended, as not only will the overall cost of the admission be significantly reduced compared with self-funding, but it will cover most of the costs that arise from managing adverse events.

Self-funding is considerably more expensive and costs can massively blow out if there are adverse events requiring further investigations, procedures or extended hospital stay. Self-funding is only by prior agreement with Dr Gan. It will be *considered* for patients felt to be at *relatively* lower risk, and with strict criteria:

- Age < 50
- BMI < 50
- No major co-morbidities (diseases) such as heart, lung or kidney diseases, or diabetes on insulin.
- Primary surgery only (no previous stomach operations).

Even “lower risk” patients can still have complications. Again, we strongly advise taking out Private Health Insurance.

Primary surgery – Sleeve Gastrectomy (No previous stomach / weight loss surgery)

Sleeve Gastrectomy (Item no. 31575)			
		Insured.	Non-insured
*Surgeon + Assistant fees:		\$6622.18	\$6622.18
(up-front payment)			
Item 31575 (surgeon):	Schedule:	\$935.15	Medicare rebate: \$701.40
Item for Assistant 51303:	Schedule:	~\$187.03	Medicare rebate: \$140.28
<u>Approximate gap:</u>		~\$5500.00	~\$5870.50
**Anaesthetist:		Quotation from anaesthetist	
***Hospital:		Excess, if applicable with your insurance policy. Check that your level of private health insurance covers the item number. Obtain a quote if self-funding.	

Surgical fees come from a combination of Medicare, Private Health Insurance and the patient gap (out of pocket). The out-of-pocket fee is higher for uninsured patients as there is no contribution from Private Health Insurance. Hospital fees are a very major additional cost for uninsured patients.

- * As per common practise, the assistant will be proportioned 20% of the surgeon's fee internally
- ** Anaesthetists are separate medical practitioners and determine their own fees.
- *** Hospital fees are generally covered by private health insurance (PHI) or billed directly to patients who do not have PHI. Costs can increase dramatically in the event of complications requiring prolonged admission, investigations, and procedures including return to theatre.

Uninsured / Self-Funded

Self-funding is always more expensive than taking out private health insurance (PHI). The only *potential* advantage may be a shorter waiting period, however this is usually minor. It takes time to

Bariatric and Metabolic Surgery
Dr Philip Gan, FRACS

book in for the initial assessment with Dr Fung, undergo further investigations including gastroscopy, consult with Dr Gan and then be scheduled for surgery. My advice is to take out PHI early. As a self-funding patient, you will be responsible for ALL costs not covered by Medicare, which include (but are not limited to):

- Hospital fees
- Theatre fees, including surgical equipment
- Pathology & radiology
- Professional out of pocket fees

Primary surgery – Gastric Bypass (No previous stomach / weight loss surgery)

Gastric Bypass (OAGB-MGB or RNY) (Item no. 31572)				
	Insured.		Non-insured	
*Surgeon + Assistant fees: (up-front payment)		\$6880.84		\$6880.84
Item 31575 (surgeon):	Schedule:	\$1150.70	Medicare rebate:	\$863.05
Item for Assistant 51303:	Schedule:	~\$230.14	Medicare rebate:	\$172.61
Approximate gap:		~\$5500.00		~\$ 5672.57
**Anaesthetist:	Quotation from anaesthetist			
***Hospital:	Excess, if applicable with your insurance policy. Check that your level of private health insurance covers the item number. Obtain a quote if self-funding.			
Surgical fees come from a combination of Medicare, Private Health Insurance and the patient gap (out of pocket). The out-of-pocket fee is higher for uninsured patients as there is no contribution from Private Health Insurance. Hospital fees are a very major additional cost for uninsured patients.				

* As per common practise, the assistant will be proportioned 20% of the surgeon's fee internally

**Anaesthetists are separate medical practitioners and determine their own fees.

*** Hospital fees are generally covered by private health insurance (PHI) or billed directly to patients who do not have PHI. Costs can increase dramatically in the event of complications requiring prolonged admission, investigations, and procedures including return to theatre.

Revisional surgery (Previous stomach / weight loss surgery) Privately insured patients only.

Revisional bariatric surgery is performed where previous weight loss surgery has not had the desired weight loss outcomes or where there are un-manageable side-effects. It is far more complex than primary surgery and is not for everyone. Examples include conversion from previous gastric banding or sleeve gastrectomy and may be performed in one or two stages (operations), depending upon circumstances and findings at surgery. Revisional surgery can take the same time as TWO primary operations and carries greater surgical risks. Surgical options are individualised and need to be discussed with Dr Gan.

Revision to Gastric Bypass (OAGB-MGB or RNY) INSURED ONLY

1 stage procedure (if suitable at the time of surgery; usual for revision from sleeve):

***Surgeon + Assistant fees:** \$9532.98
(up-front payment)

Item 31584(surgeon): Schedule: \$1694.15
Item for Assistant 51303: Schedule: ~\$338.83

Approximate gap: ~\$7500.00

****Anaesthetist:** Quotation from anaesthetist
*****Hospital:** Excess, if applicable with your insurance policy. Check that your level of private health insurance covers the item number. Obtain a quote if self-funding.

2 stage procedure (if suitable at the time of surgery):

Dr Gan is now more typically doing 1 stage procedures, which have been mostly found to be as safe as 2 stage procedures. Surgery that is planned as 1 stage, could potentially be performed as 2-stage if there are findings at surgery which seem unsafe to continue to the second stage (eg Lap Band erosion – where the band has eroded into the stomach, creating a hole).

Stage 1: Reversal of Lap Band (31585)

*Surgeon + Assistant fees: \$2099.08
(up-front payment)

Item 31584(surgeon): Schedule: \$915.90
Item for Assistant 51303: Schedule: ~\$183.18

Approximate gap: ~\$1000.00

Stage 2: Conversion to gastric bypass (3+ months later) (Item no. 31584)

*Surgeon + Assistant fees: \$8532.98
(up-front payment)

Item 31584(surgeon): Schedule: \$1694.15
Item for Assistant 51303: Schedule: ~\$338.83

Approximate gap: ~\$6500.00

**Anaesthetist: Quotation from anaesthetist

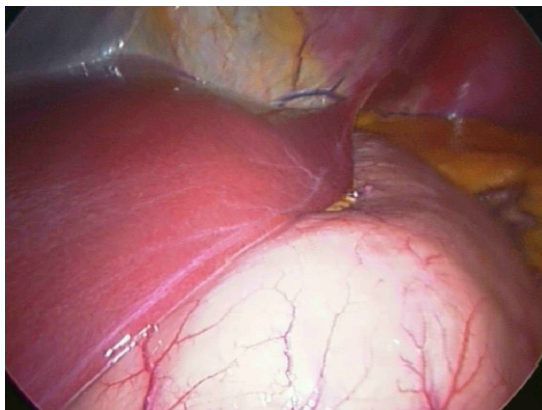
***Hospital: Excess, if applicable with your insurance policy. Check that your level of private health insurance covers the item number. Obtain a quote if self-funding.

- * As per common practise, the assistant will be proportioned 20% of the surgeon's fee internally
- **Anaesthetists are separate medical practitioners and determine their own fees.
- *** Hospital fees are generally covered by private health insurance (PHI) or billed directly to patients who do not have PHI. Costs can increase dramatically in the event of complications requiring prolonged admission, investigations, and procedures including return to theatre.

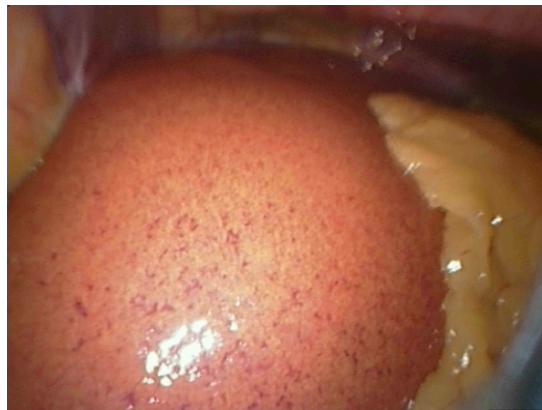
8. Preparation

Pre-op weight loss

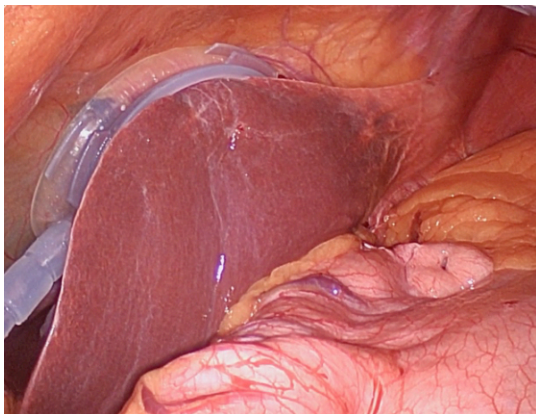
Once you have committed to surgery, the worst thing you could do is gain weight in the lead up to the date. The liver is the largest solid organ in the abdomen and lies over the stomach. It has to be lifted up in order to access the stomach. The size and thickness of liver varies greatly between patients. A very large liver can limit exposure of the stomach. Surgeons need to see what they are operating on, and a lack of exposure increases the risk of injuries to organs such as the spleen (which is next to the stomach and receives 20% of your heart's output), as well as making it difficult to manage problems such as bleeding.



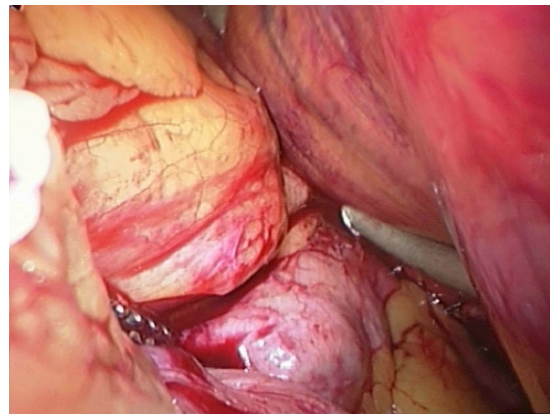
A normal liver in an obese patient



A huge, fatty liver hiding the stomach



Normal liver retracted – stomach on view.



Inadequate view (surgery cancelled)

If the stomach cannot be adequately inspected due to a huge liver, the surgery may be abandoned for safety, as in the example on the right above (the patient did not take her pre-op shakes).

The liver can expand rapidly with weight gain, but also shrink significantly with a low carbohydrate, low calorie diet. For most patients, two weeks of a Very Low Calorie Diet (VLCD) meal replacement programme prior to surgery is enough to ensure that the liver can be safely retracted.

Bariatric and Metabolic Surgery
Dr Philip Gan, FRACS

I recommend the following products:

i) **Formulite.** <https://formulite.com.au> These products are gluten-free, and pretty much the only option for patients with Coeliac disease or gluten intolerance. It is available to purchase on-line or in-store at Monaghan's Pharmacy in Warrnambool, Pharmacy Neo in Port Fairy, or Fraz Family Pharmacy in Terang. Plan ahead and try some samples for a taste test.

ii) **Optifast.** <https://www.optifast.com.au> Optifast has been around a long time and comes with a "Taste Guarantee" as well as App. It is available in many chemists. Use the Intensive level for 2 week pre-op weight loss.

iii) **BN Slim.** <https://www.bnhealthy.com.au/products/bn-slim-meal-replacements-3-flavours> Bariatric Nutrition "BN Healthy".

Ultimately, choosing the product that best matches your taste buds and which you can stick to is the most important consideration.

For patients who need to lose a larger amount to qualify for surgery at St John of God or to have a safer operation, a partial meal replacement program over a longer period is advisable. This is better done with the support of a dietitian.

If you are on diabetic medications, you will likely need to reduce or stop these whilst on a VLCD program – please DISCUSS with Dr Gan.

Dietitian

I strongly recommend the support of a dietitian who is familiar with weight loss surgery, and more specifically gastric bypass surgery. For patients in Warrnambool and surrounds, I have been working closely with Ruth Walker, PhD., who works out of Middle Island Clinic in Warrnambool.

A dietitian can:

- Assess your current nutrition
- Assist with pre-op weight loss (simple changes to make even before the intensive pre-op shakes)
- Guide the pre-op intensive weight loss shakes program if needed
- Guide the post operative diet transition from fluids to solids over weeks
- Guide long-term nutrition for completeness and troubleshoot dietary side effects.

Your GP could potentially assist with a **Care Plan** which may help fund some of these consultations, or you may be able to claim Extras with Private Health Insurance.

Exercise Physiologist / Physiotherapist

Patients come with highly variable backgrounds in terms of baseline level of fitness. Some are strong and active as well as overweight, whilst others are deficient in muscle mass (called sarcopaenia). If you are already strong, you may not need an exercise program, but if you are lacking in muscle mass or strength, then there are definitely benefits to participating in an exercise program, starting gently. I don't have any particular affiliations with exercise physiologists or physiotherapists in Warrnambool, so look this up or discuss with your GP.

Psychologist

Mental health problems are common enough in the general community and even more so in those who have had a long battle with over-weight. Please work with your GP if you feel that you need additional support in this area. Again, a Care Plan or PHI Extras can assist. There is no proven benefit in a routine psychological assessment for every patient presenting for weight loss surgery. A targeted approach is appropriate. Behavioural strategies can be very helpful in managing certain situations such as comfort or binge eating, or poor sleep patterns.

If you have needed to see a psychiatrist for your mental health, then it is vital that you inform us of this, so that we can work together for the best outcomes.

Prescriptions

It is helpful to fill some prescriptions before surgery. These include:

- **Proton Pump Inhibitor (PPI).** This refers to a category of medications that switch off acid production in the stomach. It is important to take these for 12 months after surgery as this reduces the risk of developing a marginal ulcer (an ulcer that forms where the stomach pouch joins the small intestine). Marginal ulcers can bleed or perforate!! A commonly prescribed PPI is Pantoprazole.
- **Gabapentin .** This drug is used as a pain-killer with chronic nerve-related (neuropathic) pain, but is also extremely useful for short term use around the time of surgery. I recommend 300mg twice daily, starting the night before surgery and a dose at 6am on the day of surgery so that it is already working by the time surgery starts. Continue it twice daily for the first few days after.
- **Buscopan.** This is an anti-spasmodic drug that works on smooth muscle – the type of muscle in your internal organs. The stomach pouch can go into spasm after it has been formed by staples, causing resistance to fluid going through straight after surgery. Buscopan 10mg is available over the counter. Buscopan Forte 20mg requires a prescription. It is generally only needed (if at all) in the first few days after surgery.

Supplements

Essential supplements for EVERYONE:

Supplement	Typical dose	Reason for taking
Multivitamins (Recommend BN Multi)	1 – 2 daily	Broad range of essential vitamins and minerals.
Caltrate <i>Bone & Muscle Health</i>	2 daily	Calcium + Vitamin D combination. Essential for bone health. Make sure you take the Bone & Muscle Health version which contains 1000 units of Vitamin D. Inadequate calcium absorption will lead to osteoporosis.

Further supplements as advised:

Supplement	Typical dose	Reason for taking
Iron supplement. Recommendations: <ul style="list-style-type: none"> • Maltofer • BN Iron 	1 – 2 daily	Iron replacement. Iron is mostly absorbed in the duodenum, which is bypassed. Most patients will need an iron supplement, but check with Dr Gan first. Take any iron supplements <i>at a different time of day</i> to Caltrate, as they compete for absorption!
Fish Oil <i>Ensure you use a high-quality fish oil that is fresh and in-date.</i> Recommendation: UltraClean EPA/DHA Plus®	2 daily	Source of Essential Fatty Acids (EFAs). DO NOT TAKE FISH OIL WITHIN 2 WEEKS BEFORE SURGERY. IT WILL INCREASE YOUR RISK OF BLEEDING.

Your usual prescription medications:

Diabetes:

Please discuss with Dr Gan.

Anticoagulants (Blood thinners):

Please discuss with Dr Gan.

Blood pressure tablets:

If your blood pressure tablets have a diuretic component, this may need to be removed for after surgery. To be discussed.

9. In Hospital

You will be admitted on the day of surgery and seen by the anaesthetist. The time in theatre varies, as there will be a short wait in the anaesthetic holding bay, time for the anaesthetic to start, surgery time (90 – 120 minutes for primary surgery is typical), then time to wake up and be monitored in recovery.

Once you're back on the ward, you will start with sips of water up to 50ml/hr for the first couple of hours, then progress to low sugar "free fluids" (protein water, soups, low sugar yoghurt). The key is small amounts frequently, as it will be hard to catch up if you go a couple of hours without intake.

STAND UP when you drink in the first 2 – 3 days. The stomach pouch and intestines straighten up when you stand, but can "concertina" when lying in bed, bent forward. Fluids will go down much more easily if you stand.

Go for walks on the ward as soon as you feel able. Most people are a bit wary of this initially but soon realise that they feel better after doing a lap of the ward. This also reduces your risk of deep vein thrombosis (DVT).

Your pain-killer regimen will include:

- Paracetamol. 500mg x 2 (1g) four times a day
- Gabapentin 300mg twice daily.
- Dexamethasone 8mg in the morning of day 1 post op.
- MINIMISE opioid pain-killers. These cause nausea, and increase the risk of retching which is the last thing you need after gastric surgery. I rarely need to prescribe any opioid pain-killers on discharge after weight loss surgery.
- Magnesium supplements are not routine but are very useful. They improve bowel function and can also have a mild pain-killer (analgesic) effect.

10. After Surgery

Analgesia As described above

Diet The **first ~7 – 10 days** will be liquids only, so stock your freezer with home-made soups beforehand! Make the soups with real stock, NOT stock cubes which are not nutritious. Protein water is readily available from supermarkets. Low sugar yoghurt is also soothing. You can continue with your VLCD shakes (Formulite, Optifast etc). Start taking your supplements when swallowing tablets is easy. Frequent “grazing” on fluids is the key. Don’t leave hours between drinks, or you won’t catch up and will get dehydrated. Make sure you add Benefiber or Fibresure (**soluble fibre**) to your drinks to avoid constipation.

The **next 14 days** will be “blended” foods. Think of this as a thicker version of the fluid diet, where you can blend in more vegetables and even meat into the soups. Again, small amounts frequently is the idea, and stay hydrated.

Weeks 3 – 5 will be soft foods. If you can mash it with a fork, it will likely be fine in regard to consistency. Focus on high quality protein (preferably fish) and vegetables. Chew well and eat slowly. Keep your food and fluids separate (preferably by 30 minutes). Add one or two portions of fruit. Go for a walk after eating, and DO NOT lie down or go to bed after eating. Allow 2+ hours after dinner before bed.

AVOID high sugar / refined carbohydrate foods, which will cause dumping syndrome (nausea, cramps, sweating, vomiting, feeling like collapsing, diarrhoea, racing heart) or creamy / oily foods (diarrhoea, terrible odour).

Lactose or dairy intolerance is COMMON after gastric bypass surgery.

Keep track of what foods disagree with you and avoid them in future.

Support from a dietitian is really helpful during this transition period. Plan for it in advance, well before surgery.

Dressings You will have showerproof dressings on the laparoscopic port wounds, and will likely also have a broad, white supportive tape (Mefix) across the abdomen. The Mefix holds your abdomen and adds comfort in the first few days after surgery. The ends of the tape can drag and cause blisters, though, so lift up a bit of the edges once or twice a day. **REMOVE the Mefix no later than three days after surgery** – you may cut squares around the wound dressings with a pair of scissors.

Exercise Regular exercise will boost your energy, fitness and weight loss. Start gently and listen to your body. Do not do weight training in the first 6 weeks, as you will have a greater risk of developing a hernia at the umbilical / 12mm port laparoscopic site. Early activity reduces your risk of Deep Vein Thrombosis (DVT). Aim for 30 minutes, 5 – 7 times a week.

11. Follow up

Initial post op appointment: Usually 7 – 10 days after surgery

Subsequent post op appointment: Usually about 5 weeks after surgery

Long term review appointments (with blood tests 1-2 weeks before hand):

Year 1: Every 3 months (Dr Phil Gan or Dr Ping Fung)

Year 2: Every 6 months (Dr Ping Fung)

Years 3+: Every 12 months (Dr Ping Fung)

This is just a guide. If you have abnormal blood tests or other issues, the review schedule will change accordingly.

Bariatric Surgery Registry

Dr Gan is a founding member of the **Bariatric Surgery Registry**, which is a quality and safety registry measuring outcomes for patients undergoing bariatric surgery in Australia and New Zealand. You will be put onto this register at the time of surgery, and weight and co-morbidity data updated over the long term. It is an opt-out program (automatically registered, with option to opt-out).

Find out more:

<https://www.monash.edu/medicine/sphpm/registries/bariatric/for-patients>

<https://www.monash.edu/medicine/sphpm/registries/bariatric>

12. Resources

Some other general resources you may find helpful include:

International Federation for the Surgery of Obesity (IFSO) and metabolic disorders:

Overview: <https://www.ifso.com/bariatric-surgery/>

OAGB-MGB: <https://www.ifso.com/one-anastomosis-gastric-bypass.php>

RNY: <https://www.ifso.com/roux-en-y-gastric-bypass/>

Sleeve: <https://www.ifso.com/sleeve-gastrectomy/>

Australia & New Zealand Metabolic and Obesity Surgery Society:

<https://anzmoss.com.au>

American Society for Metabolic and Bariatric Surgery (ASMBS):

<http://asmbs.org/patients/bariatric-surgery-procedures>

13. Summary checklist

- Referral from GP / Specialist
- Appointment with Dr Ping Fung – preliminary workup
- Gastroscopy referral (if no recent gastroscopy)
- Ultrasound referral (unless gallbladder previously removed)
- Blood tests
- Appointment with Dr Philip Gan
 - Choice of surgery: OAGB-MGB, RNY, Sleeve
 - +/- further investigations/referrals if needed
- Pre-op
 - Upfront fee payment (theatre booking is only confirmed after fee payment)
 - Weight loss (shakes)
 - Prescriptions:
 - Pantoprazole (or equivalent – acid reduction)
 - Gabapentin (pain-relief for surgery)
 - Pathology request (Group & Hold within 5 days)
 - Pre-admission clinic @ St John of God
 - Prepare soups & shakes for after surgery
 - Prepare supplements for after surgery
 - Dietitian referral – plan for support post op
- Start pain-relief (Gabapentin) night before surgery
 - and** @ 6am in the morning of day of surgery
- Surgery – usually 1 – 2 nights
 - Focus on fluid intake & mobilisation
- First post op visit @ 7 – 10 days after surgery
 - Wound checks, start supplements
- Second post op visit @ about 5 weeks after surgery
 - Dietary progress.
- Follow up: Dr Philip Gan / Dr Ping Fung
 - Three monthly visits with bloods – first year.
 - Six monthly visits with bloods – second year
 - Annual visits with bloods thereafter

3. Referral Pathway

Referral from GP/doctor to Dr Philip Gan

Baseline workup includes:
Blood tests
Abdominal ultrasound if
gallbladder still present
Gastroscopy

Initial workup appointment by Dr Ping Fung

Initial consultation with Dr Philip Gan

Gallbladder surgery
first if gallstones are
found on ultrasound!

Possible further referrals or
investigations
+/- dietitian, psychologist
Medical specialist, etc

+/- Review

Pre-op weight loss diet / shakes
(standard: 2 weeks, longer for high BMI)

Surgery

Post operative reviews @ 1 & 5 weeks

Dietitian support

Long term reviews: Every 3 months for 1st year, 6 monthly in the 2nd year, then annual
Blood tests prior to every review

