

Weight Loss Surgery

It's not just
the weight
you lose.
It's the weight
that's lifted.



Meet John

*"My diabetes is resolved.
My sleep apnea is gone,
I've got my life back."*

Introduction to a healthier weight

The decision to undergo bariatric surgery should be well informed. The information in this booklet will serve as a guide to developing a better understanding of the benefits and risks of bariatric surgery as a treatment for obesity.

Weight helps to determine your health

Your weight affects much more than just your appearance. Losing weight can help you live a healthier life. A review of studies has shown there are numerous diseases associated with obesity, including:¹

- Type 2 diabetes
- Joint pain
- High blood pressure
- High cholesterol
- Hypertension
- Stroke
- Heart disease
- Sleep apnea

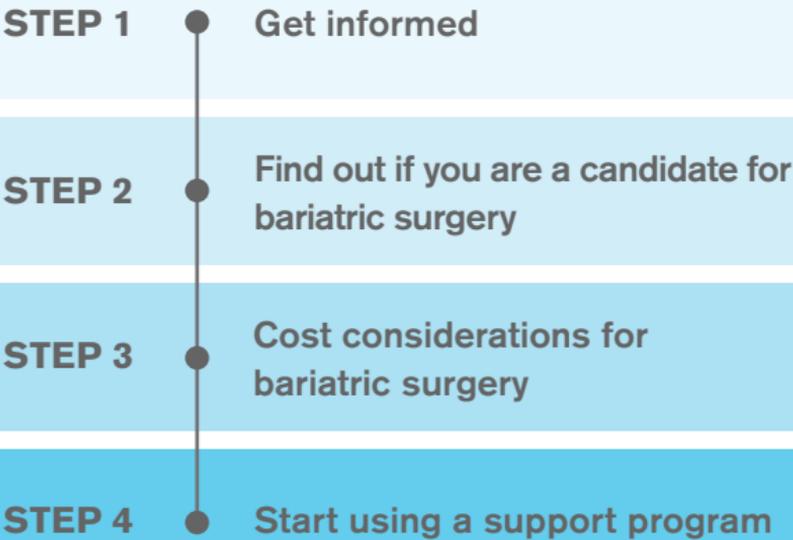


Obesity is a threat to your health. Reducing your weight, however, can help you reduce your risk for and may minimize the severity of other diseases.

Taking the first step

Your interest in this information shows that you want to learn more about living your life at a healthier weight. Bariatric surgery has been proven to help people achieve and maintain a healthier weight when diet and exercise alone have failed.¹

Surgery is a serious decision. Taking certain steps in the right order can help ensure you get all the necessary information to identify the most effective treatment for you. With these steps, you will know how to get started and what to do next. The goal is to have everything in place so you can feel confident with your decision to achieve and maintain a healthier weight. Reducing your weight could help you reduce the risk and impact of other diseases, such as diabetes, hypertension, or heart disease.¹



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STEP 1 – Get informed

Living with excess weight has been shown to put your health at risk.² The risk increases sharply as your obesity becomes more severe². Serious health problems may also result when dieting leads to “weight cycling” (the repeated loss and regain of body weight).³ Bariatric surgery has helped thousands of people discover life at a healthier weight and resolve many of the health risks associated with severe obesity.



But all surgery has risk, so it is critical to have a clear understanding of what this life-changing treatment involves. That starts with getting reliable information.

● **What is obesity?**

The Australian National Medical Health and Research Council defines obesity as a disease in which fat has accumulated to the extent that health is impaired.² It is commonly measured by body mass index (BMI), which calculates the relationship of weight to height. An adult with a BMI of 30 or more is considered obese.⁵



● Obesity becomes clinically severe obesity when an adult has a BMI of 40 or more^{3,4} or has a BMI of 35 or more in combination with a health-related condition such as obstructive sleep apnea or a disease such as type 2 diabetes or heart disease.^{4,5} For patients of Asian descent, BMI thresholds are lower.²

Get informed

Obesity puts your health at risk

Obesity dramatically increases the risk of:

- Type 2 diabetes⁵
- High blood pressure⁵
- High levels of triglycerides (a type of blood fat)⁵
- Heart disease and stroke⁵
- Arthritis⁵
- Obstructive sleep apnea⁵

Higher body weights are also associated with cancer and early death.⁵

Options for treatment

Most nonsurgical weight loss programs are based on a combination of diet, behavior modification, and regular exercise. However, research has shown that these methods rarely resolve severe obesity because they fail to help people maintain weight loss.⁶ In fact, the overwhelming majority of people regain the weight they lose over the long-term.⁷

Body mass index (BMI)

Use this chart to find your own BMI.

HEIGHT (cm)

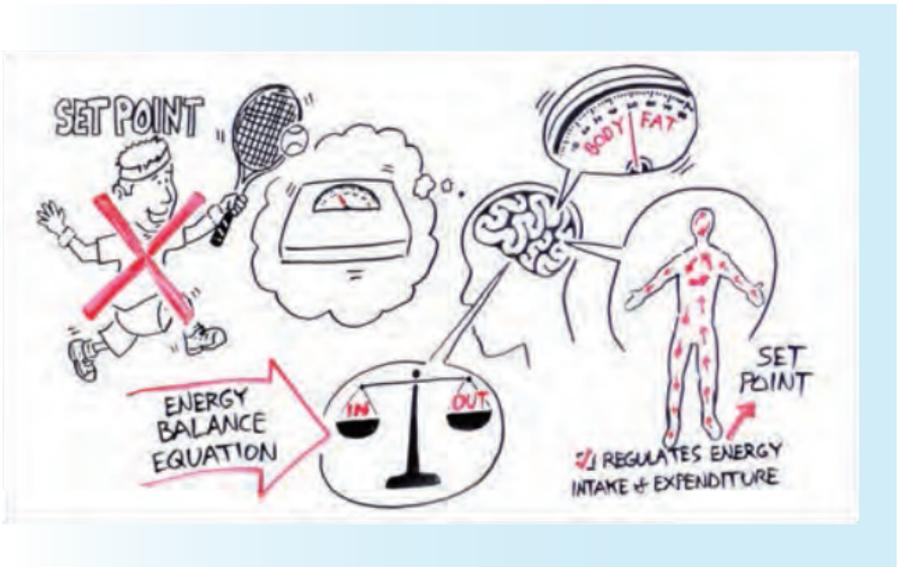
- Underweight
BMI: < 18.5
- Healthy weight
BMI: 18.5 to 24.9
- Overweight
BMI: 25 to 29.9
- Class 1 obesity
BMI: 30 to 34.9
- Class 2 obesity
BMI: 35 to 39.9
- Class 3 severe obesity
BMI: ≥ 40

WEIGHT (kg)

	152	157	163	168	173	178	183	188	193
54	24	22	21	19	18	17	16	15	15
59	25	24	22	21	20	19	18	17	16
64	27	26	24	23	21	20	19	18	17
68	29	28	26	24	23	22	20	19	18
73	31	29	28	26	24	23	22	21	20
77	33	31	29	28	26	24	23	22	21
82	35	33	31	29	27	26	24	23	22
86	37	35	33	31	29	27	26	24	23
91	39	37	34	32	30	29	27	26	24
95	41	39	36	34	32	30	29	27	26
100	43	40	38	36	34	32	30	28	27
104	45	42	40	37	35	33	31	30	28
109	47	44	41	39	37	35	33	31	29
113	49	46	43	40	38	36	34	32	31
118	51	48	45	42	40	37	35	33	32
123	53	50	46	44	41	39	37	35	33
127	55	51	48	45	43	40	38	36	34
132	57	53	50	47	44	42	39	37	35
136	59	55	52	49	46	43	41	39	37
141	61	57	53	50	47	45	42	40	38
145	63	59	55	52	49	46	44	41	39
150	65	61	57	53	50	47	45	42	40
154	67	62	59	55	52	49	46	44	41
159	69	64	60	57	53	50	48	45	43
163	71	66	62	58	55	52	49	46	44
168	72	68	64	60	56	53	50	48	45
173	74	70	65	62	58	55	52	49	46
177	76	72	67	63	59	56	53	50	48
181	78	73	69	65	61	58	54	51	49
186	80	75	71	66	63	59	56	53	50
191	82	77	72	68	64	60	57	54	51
195	84	79	74	70	66	62	58	55	52
200	86	81	76	71	67	63	60	57	54
204	88	83	77	73	69	65	61	58	55
209	90	84	79	74	70	66	63	59	56
213	92	86	81	76	72	68	64	61	57
218	94	88	83	78	73	69	65	62	59
222	96	90	84	79	75	71	67	63	60
227	98	92	86	81	76	72	68	64	61

Your body's set point and

Introducing the theory of weight loss: if you've been trying to lose and maintain weight but you haven't had any luck, you may be fighting against the normal workings of your body. Body weight and fat levels are regulated by a complex system of signals in your body. These signals control your appetite, digestion, energy balance, and metabolism to keep your body weight and fat at a steady level, or "set point".



Your body's set point is part of a basic biological instinct. When body weight and fat levels fall below your set point, your body activates defense mechanisms to maintain body weight and fat in order to prevent starvation, even in people with obesity. Dr. David Katz, the founding director of the Yale University Prevention Research Center, says, "Throughout most of human history, calories were scarce and hard to get, so we have numerous natural defenses against starvation. We have no defenses against overeating because we never needed them before."

how it affects your weight

Everyone's set point is different and can be changed. It appears that the body regulates fat set points similarly to how it regulates other body functions such as blood glucose, cholesterol, and blood pressure. Set points are affected by genetic, developmental, and environmental factors. Changes in any of these factors can lead to an elevated set point for body fat storage. For example, changes in the chemicals and nutrients contained in our foods can affect our brains in ways that increase the amount of food we eat and increase our body fat set point.



Additionally, as you gain weight, your set point is increased and your body works to defend the higher set point. Your body is smart, and it adapts when new things come its way. But, sometimes it's not for the better. Your body doesn't realize it's overweight and it continues to store higher amounts of fat than necessary.

Why dieting and exercise may not be enough to fight obesity

Because your body may be working to defend its set point, dieting and exercising are rarely effective in helping people with obesity achieve and maintain a healthy weight long-term. When you go on a diet, your body thinks it's being starved and its survival instincts kick in. As a result, your body stores energy-rich body fat, and you can't lose weight easily. A landmark Swedish study found that, on average, a 100kg patient fighting obesity with diet and exercise alone would only be able to achieve a sustained weight loss of 3kg over 20 years.⁸

Unfortunately, your body's hormones are working against you

When weight is lost, lower body fat levels trigger hormones that encourage the body to get back to its previous weight set point. A published study showed that while dieters may initially lose weight, their bodies change levels of hormones that encourage weight regain in response to the weight loss. These hormones increase appetite, decrease feelings of fullness, and slow down metabolism. The study also found that these hormones had not returned to prediet levels even 12 months after the initial weight loss, meaning their bodies were still encouraging weight regain a year after they stopped dieting.⁹ This is a powerful defense mechanism and may explain why the majority of weight loss attempts fail.

The overwhelming majority of obese people who lose weight with a rigorous weight loss program will regain the weight over the long-term.^{7,10}



Bariatric surgery may reset your set point

In order for a person with obesity to achieve significant long-term weight loss, the body's weight regulation system must be reset so that the body will stop storing excess fat. By altering the complex relationship your body has with food and its metabolism, bariatric surgery may help to reset your body's ability to effectively manage weight. Research indicates that some types of bariatric surgery (gastric bypass, sleeve gastrectomy, and biliopancreatic diversion) have metabolic impacts that enable a new, lower set point, allowing the body to return to a lower body fat level. By altering the anatomy of the stomach and/or intestine, these surgeries affect hormonal signals, resulting in decreased appetite, increased feelings of fullness, increased metabolism, and healthier food preferences. These positive changes allow your body to lose weight without the internal fight to return to the higher set point.



● **Health benefits of bariatric surgery**

Without the medical intervention that bariatric surgery provides, many patients with severe obesity are not successful in managing their weight and related health conditions. “[Bariatric and metabolic surgery] is the most effective treatment to date, resulting in sustainable and significant weight loss along with resolution of weight-related health conditions in up to 80% [of people].”¹¹ Bariatric surgery has been shown to help patients resolve diabetes, sleep apnea, joint pain, high blood pressure, and high cholesterol.

● *Surgical intervention is the most effective treatment for obesity to date. Weight-related health conditions were resolved in up to 80% of people.¹¹*

Significant improvement with type 2 diabetes

Evidence suggests that bariatric and metabolic surgery changes the chemical signals between the stomach, intestine, brain, and liver – changing the underlying mechanisms of diabetes. Research from the Cleveland Clinic has shown that intensive medical treatment in conjunction with either gastric bypass or sleeve gastrectomy were more effective than intensive medical treatment alone on patients in regards to managing uncontrolled type 2 diabetes in obese patients.¹² The study authors concluded that “bariatric surgery represents a potentially useful strategy for management of uncontrolled type 2 diabetes, capable of completely eliminating the need for diabetes medication in some patients and a marked reduction in need for drug treatment in others.”

Findings indicated that:*

- **At least 3 times more surgery patients achieved normal blood sugar levels than intensive medical therapy patients.**
- **T2DM was resolved in 42% of gastric bypass and 27% of sleeve gastrectomy patients compared to 0% for patients who only received medical therapy.[†]**
- **Bariatric surgery significantly reduced the need for diabetes medications and eliminated the need in more than 50% of patients.**

In a study, diabetes was controlled in 68% of patients following gastric bypass.¹³



To learn more, view the STAMPEDE study including 3 and 5-year data results: Schauer, P. R., Bhatt, D. L., Kirwan, J, et al. Bariatric Surgery versus Intensive Medical Therapy for Diabetes — 3-Year Outcomes. N Engl J Med 2014; 370(21): 2002-2013 Schauer P, Bhatt D, Kirwan J, et al. Bariatric surgery versus intensive medical therapy for diabetes - 5-year outcomes. N Engl J Med 2017; 376: 641-51

* Data source from STAMPEDE study 1-year outcomes: Schauer PR, Kashyap SR, Wolski K, et al. Bariatric surgery versus intensive medical therapy in obese patients with diabetes. N Engl J Med 2012;366(17): 1567-1576

† Resolution is defined as HbA1c \leq 6.5% without medication.

How to evaluate surgical

As you consider treatment with bariatric surgery, it is important to assess your options using these critical factors: safety, effectiveness, and support.

The safety of a procedure can be indicated by complication rates, mortality rates, or the need for secondary procedures to resolve problems.

The effectiveness of bariatric surgery can be measured in weight loss at 1 year and weight loss at 3 years or more. Most bariatric procedures have 1-year results. However, longer-term results are a better indicator of effectiveness. Improvements in obesity-related health conditions after surgery, such as type 2 diabetes, high cholesterol, high blood pressure, and obstructive sleep apnea are also good indicators of effectiveness.



options

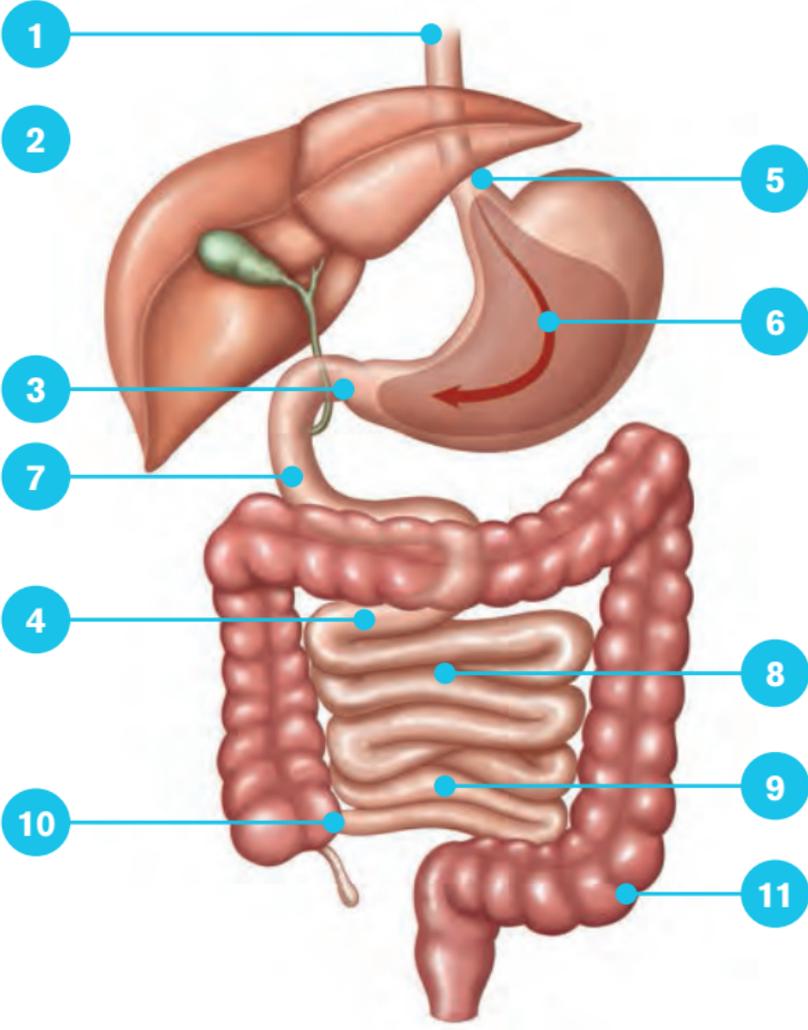
Experts agree that ongoing support following any procedure is essential to help patients modify behaviors, lose weight, and keep the weight off. The surgeon and staff at the surgeon's office play vital roles in providing support before and after surgery. The clinic may also offer support groups for patients and provide access to counselors, dietitians, and nutritionists. Talking with the surgeon's staff and patients is a good way to find out how much support is offered by the bariatric clinic. It is also important to speak with your friends and family about their willingness to provide encouragement and support.



Evidence showed that a 5-10% reduction in weight reduced the risk of developing heart disease and diabetes.³⁴

Understanding the gastro

To better understand how bariatric surgery works, it's important to understand what happens during the normal digestive process. The following visual aid shows how food that's eaten moves through the GI tract, the stages where various digestive juices and enzymes are introduced to allow absorption of nutrients, and where food material that is not absorbed is prepared for elimination. For more information, ask your doctor.



intestinal (GI) tract

The digestive system

1. The esophagus is a long, muscular tube that moves food from the mouth to the stomach.
2. The abdomen contains all of the digestive organs.
3. The pylorus is a small, round muscle located at the outlet of the stomach and the entrance to the small intestine. It closes the stomach outlet while food is being digested into a more easily absorbed form. When food is properly digested, the pylorus opens and allows the contents of the stomach into the first portion of the small intestine.
4. The small intestine is about 15 to 20 feet long and is where the majority of absorption of the nutrients from food takes place. The small intestine is made up of three sections: the duodenum, the jejunum, and the ileum.
5. A valve at the entrance to the stomach from the esophagus allows the food to enter, while keeping the acid-laden food from “refluxing” back into the esophagus, causing damage and pain.
6. The stomach, situated at the top of the abdomen, normally holds just over 3 pints (about 1500 mL) of food from a single meal. Here, the food is mixed with an acid that is produced to assist in digestion. In the stomach, acid and other digestive juices are added to the ingested food to facilitate breakdown of complex proteins, fats, and carbohydrates into small, more absorbable units.
7. The duodenum is the first section of the small intestine and is where the food is mixed with bile produced by the liver and with other juices from the pancreas. This is where much of the iron and calcium is absorbed.
8. The jejunum is the middle part of the small intestine, extending from the duodenum to the ileum; it is responsible for the absorption of nutrients.
9. The last segment of the intestine, the ileum, is where the absorption of fat-soluble vitamins A, D, E and K and other nutrients occurs.
10. Another valve separates the small and large intestines to keep bacteria-laden colon contents from flowing back into the small intestine.
11. In the large intestine, protein and excess fluids are absorbed and a firm stool is formed.

About laparoscopic or mi

Laparoscopic surgery is a minimally invasive technique used in a wide variety of general surgeries, including bariatric and metabolic surgery. Many bariatric surgeons have received the necessary training to perform laparoscopic bariatric surgeries and offer patients this less invasive surgical option.

When a laparoscopic operation is performed, a small video camera is inserted into the abdomen. The surgeon views the procedure on a separate video monitor. Most laparoscopic surgeons believe this offers better visualization and access to key anatomical structures.

The camera and surgical instruments are inserted through small incisions made in the abdominal wall (see Figure 1). This approach is considered less invasive because it replaces the need for one long incision to open the abdomen (see Figure 2). Benefits, as compared with open surgery, may include a marked decrease in surgery-related discomfort, reduced time in hospital and hospital costs, and an earlier return to a full, productive lifestyle.¹⁴

Laparoscopic procedures for bariatric surgery use the same principles as open surgery and produce similar excess weight loss results;¹⁴ however, not all patients are candidates for this approach.

minimally invasive surgery

Figure 1: Incisions for laparoscopic bariatric surgery*



Figure 2: Incisions for open bariatric surgery*



* The location, number and size of incisions may vary from surgeon to surgeon.

Sleeve gastrectomy

How it works to help you lose weight

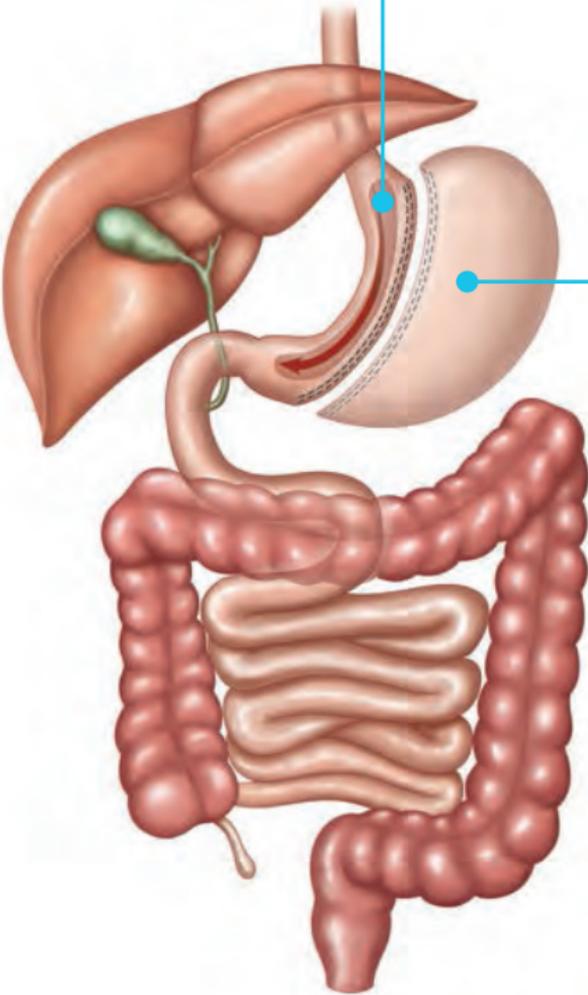
A sleeve gastrectomy is a procedure that limits the amount of food you can eat by reducing the size of your stomach. Like other metabolic surgeries, it also helps to establish a lower, healthier body fat set point by changing the signals between the stomach, brain, and liver.

Vertical sleeve gastrectomy can be the first step before other surgical procedures (eg, gastric bypass) or it may be employed as a single procedure for weight loss.

- **The surgeon creates a small stomach “sleeve” using a stapling device. This sleeve will typically hold 50 mL to 150 mL and is about the size of a banana. The rest of the stomach is removed.**
- **This procedure induces weight loss in part by restricting the amount of food (and therefore calories) that can be eaten without bypassing the intestines and absorbed.**
- **If vertical sleeve gastrectomy is used as the first step before gastric bypass, in the second step the surgeon attaches a section of the small intestine directly to the stomach pouch, which allows food to bypass a portion of the small intestine.**

The procedure

A thin vertical "sleeve" of stomach is created using a stapling device. This sleeve is about the size of a banana.



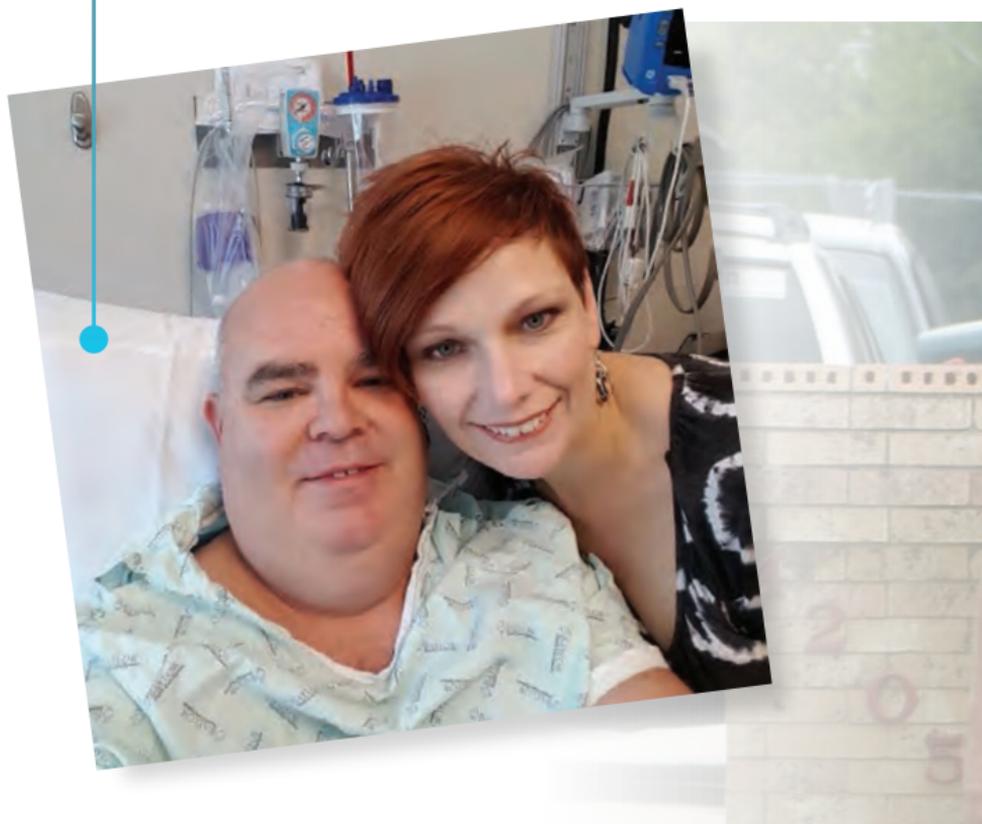
The excised, unused portion of the stomach is removed.

Sleeve gastrectomy

Advantages

- Limits the amount of food that can be eaten at a meal.
- Allows the body to adjust to its new, healthier set point.²⁹
- Food passes through the digestive tract in the usual order, allowing vitamins and nutrients to be fully absorbed into the body.
- No postoperative adjustments are required
- In clinical studies patients lost an average of 66% of their excess weight.¹⁹
- Shown to control type 2 diabetes (45%) and help improve high blood pressure (56%), obstructive sleep apnea (54%), and high cholesterol (77%).^{1,13,20,21}

*Figure is for hyperlipidemia. Hyperlipidemia is a general term for high fats in blood, which may include cholesterol and/or triglycerides.



Risks

The following are in addition to the general risks of surgery:

- Complications due to stomach stapling, including separation of tissue that was stapled or stitched together and leaks from staple lines.
- Gastric leakage
- Ulcers
- Dyspepsia
- Esophageal dysmotility
- Gastroesophageal reflux
- Malnutrition
- Nonreversible since part of the stomach is removed

Talk with your surgeon about the possible surgical risks.



Gastric bypass

How it works to help you lose weight

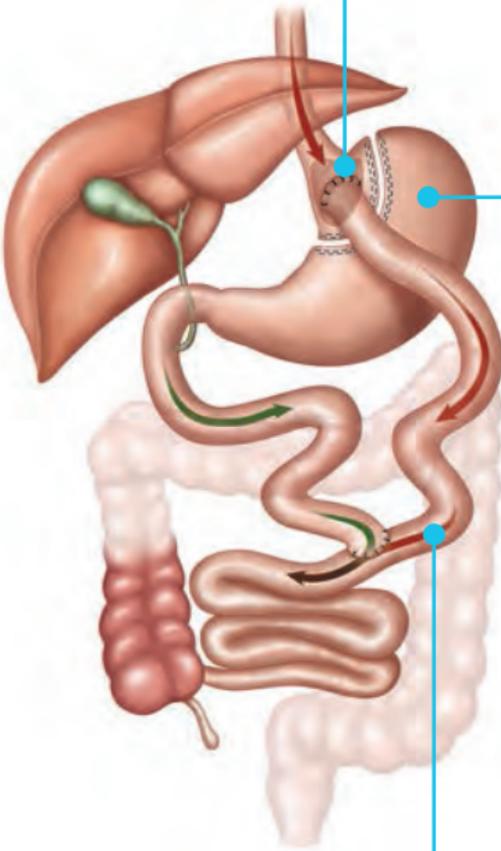
The gastric bypass surgical technique limits food and keeps it from being absorbed completely. This technique alters the complex relationship your body has with food and its metabolism. This change helps reset your body's ability to effectively manage weight. The surgery allows the body to establish a new, lower, healthier body fat set point.

- **The surgeon creates a stomach pouch that significantly reduces overall stomach size and the amount of food it can hold.**
- **The pouch is surgically attached to the middle of the small intestine, thereby bypassing the rest of the stomach and the upper portion of the small intestine (duodenum).**
- **The smaller stomach size helps patients feel full more quickly, which reduces food intake.**
- **Bypassing part of the intestine limits calorie absorption.**
- **Gastric bypass also produces positive metabolic changes in many organs as a result of surgical anatomic manipulation.¹**

The procedure

The surgeon creates a small stomach pouch using staples, then attaches a section of the small intestine directly to the pouch.

The remaining stomach area is stapled shut and divided from the smaller pouch.



This allows food to bypass a portion of the small intestine where calories and nutrients are normally absorbed.

Gastric bypass

Advantages

- Limits the amount of food that can be eaten at a meal and reduces the desire to eat.
- Allows the body to adjust to its new, healthier set point.
- Average excess weight loss is generally higher than with gastric banding or sleeve gastrectomy.
- No postoperative adjustments are required.



- An analysis of clinical studies reported an average excess weight loss of 62%.¹⁵
- Shown to control type 2 diabetes (68%) and help improve high blood pressure (66%), obstructive sleep apnea (76%), and high cholesterol (93%).^{1,16,17}
- In a study of 608 gastric bypass patients, 553 maintained contact for 14 years; the study reported that significant weight loss was maintained at 14 years.¹⁸



Gastric bypass

Risks

The following are in addition to the general risks of surgery:

- Because the duodenum is bypassed, poor absorption of iron and calcium can result in the lowering of total body iron and a predisposition to iron deficiency anemia. Women should be aware of the potential for heightened bone calcium loss.
- Bypassing the duodenum has caused metabolic bone disease in some patients, resulting in bone pain, loss of height, humped back and fractures of the ribs and hip bones. All of the deficiencies mentioned above, however, can be managed through proper diet and vitamin supplements.
- Chronic anemia due to vitamin B12 deficiency can occur. This can usually be managed with vitamin B12 pills or injections.
- When removing or bypassing the pylorus, a condition known as dumping syndrome can occur as the result of rapid emptying of stomach contents into the small intestine. This is sometimes triggered when too much sugar or large amounts of food are consumed. While generally not considered to be a serious risk to your health, the results can be extremely unpleasant and can include nausea, weakness, sweating, faintness and, on occasion, diarrhea after eating.

- In some cases, the effectiveness of the procedure may be reduced if the stomach pouch is stretched and/or if it is initially left larger than 15mL to 30mL.
- Rerouting of bile, pancreatic and other digestive juices beyond the stomach can cause intestinal irritation and ulcers.
- The lower stomach pouch and segments of the small intestine cannot be easily visualized using x-ray or endoscopy if problems such as ulcers, bleeding or malignancy should occur.

Talk with your surgeon about the possible surgical risks.



Biliopancreatic diversion with

How it works to help you lose weight

The BPD-DS procedure reduces the amount of calories absorbed by the body by permanently altering the normal digestive process. It also limits the amount of food that can be eaten by reducing the size of the stomach; however, BPD-DS is considered a malabsorptive procedure. Like other metabolic surgeries, it also helps to establish a lower, healthier body fat set point by changing the signals between the stomach, brain, and liver.¹

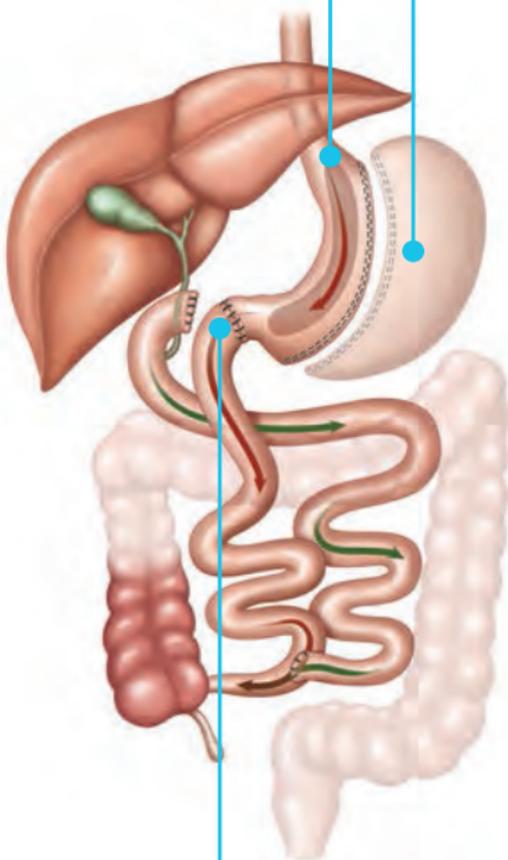
- **Stomach removal is restricted to the outer margin, leaving a sleeve of stomach with the pylorus and the beginning of the duodenum intact.**
- **The small intestine is then divided with one end attached to the stomach pouch to create what is called an alimentary limb.**
- **All the food moves through this segment; however, not much is absorbed. The bile and pancreatic juices move through the biliopancreatic limb. This separates digestive juices until they join at the common channel.**

h duodenal switch (BPD-DS)

The Procedure

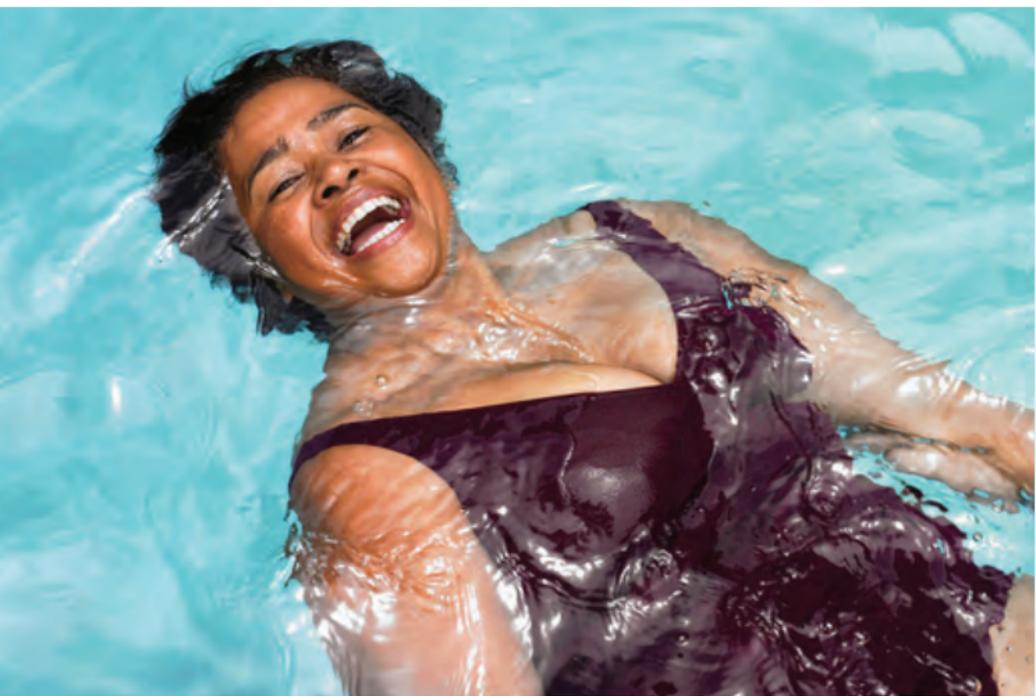
The surgeon reduces the stomach using a stapling device, then attaches a section of the small intestine to the stomach.

The excised, unused portion of the stomach is removed.



This allows food to bypass much of the small intestine, where calories and nutrients are normally absorbed.

Biliopancreatic diversion with



Advantages

- Does not restrict types of food that can be eaten and allows for larger meals compared with other bariatric procedures.
- Average excess weight loss is generally greater than with gastric banding or sleeve gastrectomy because it provides the highest level of malabsorption.
- No postoperative adjustments are required.
- In a clinical study of BPD-DS patients, 94% lost more than 70% of their excess weight at 1 year, 62% lost 75% of their excess weight at 3 years, and 31% lost 81% of their excess weight at 5 years.²⁴
- Shown to help resolve type 2 diabetes, high blood pressure, obstructive sleep apnea, and to improve high cholesterol.¹

h duodenal switch (BPD-DS)

Risks

The following are in addition to the general risks of surgery:

- For all malabsorption procedures, there is a period of intestinal adaptation when bowel movements can be very liquid and frequent. This condition may lessen over time, but may be a permanent lifelong occurrence.
- Abdominal bloating and malodorous stool or gas may occur.
- Close lifelong monitoring for protein malnutrition, anemia, and bone disease is recommended.
- Lifelong vitamin supplementation is required. If eating and vitamin supplement guidelines are not rigorously followed, at least 25% of patients will develop problems that require treatment.
- Changes to the intestinal structure can result in the increased risk of gallstone formation and the need for removal of the gallbladder.
- Rerouting of bile, pancreatic, and other digestive juices beyond the stomach can cause intestinal irritation and ulcers.
- When removing or bypassing the pylorus, a condition called dumping syndrome can occur as the result of rapid emptying of stomach contents into the small intestine. This is sometimes triggered when too much sugar or large amounts of food are consumed. While generally not considered to be a serious risk to your health, the results can be extremely unpleasant, and can include nausea, weakness, sweating, faintness, and on occasion, diarrhea after eating.

Talk with your surgeon about the possible surgical risks.

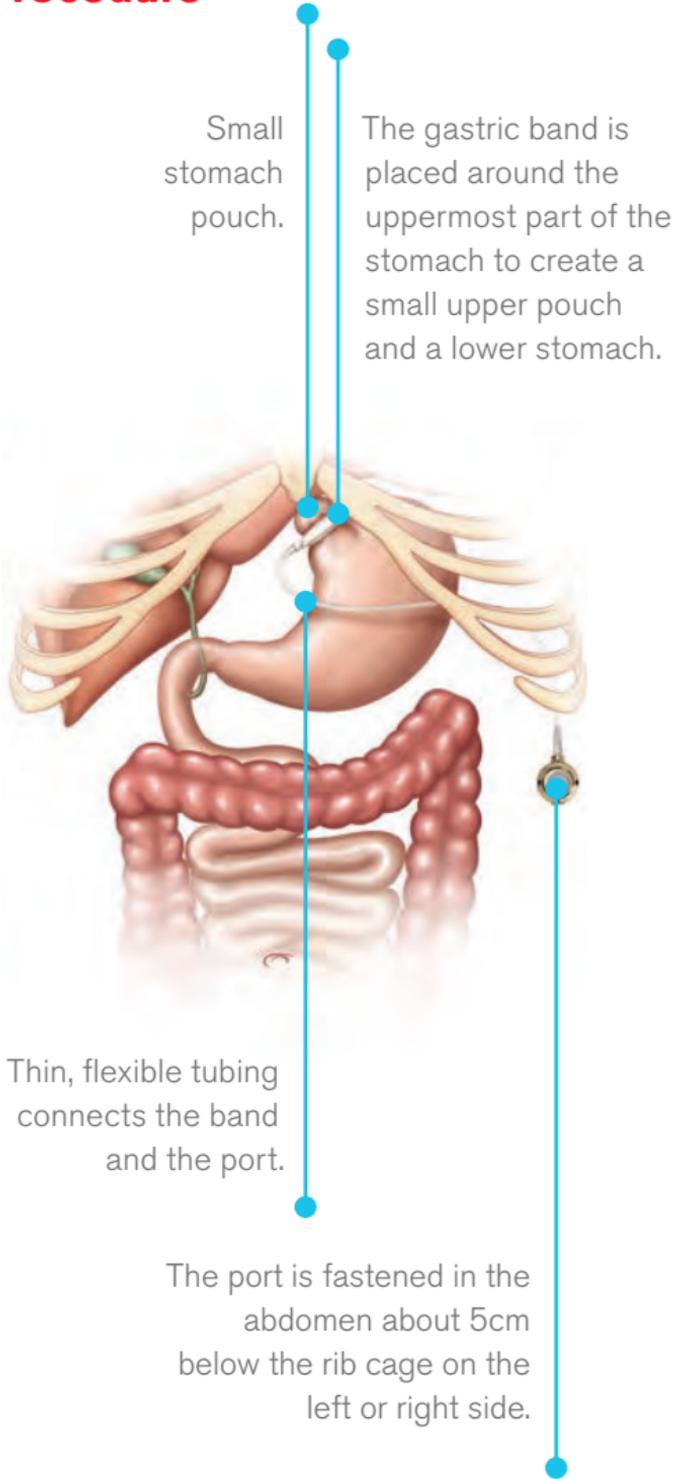
Gastric banding

How it works to help you lose weight

Gastric banding is a procedure that limits the amount of food you can eat at one time. During this procedure, the gastric band is placed around the stomach, dividing it into 2 parts: a small upper pouch and a lower stomach. The upper pouch holds about 120mL (1/2 cup) of food. This helps a person feel full sooner and for longer than usual.

- **The level of the food passage restriction can be adjusted by adding to or removing saline solution from the band through a port that is subcutaneously placed.**

The Procedure



The goal is to lose weight at a healthy rate of 0.5 to 1kg per week.

Gastric banding

Advantages

- Limits the amount of food that can be eaten at a meal.
- The surgery can be reversed.
- No part of the stomach or digestive system is stapled, cut or removed; food passes through the digestive tract in the usual order, allowing it to be fully absorbed into the body.
- In a clinical trial, gastric band patients lost an average of 38% of excess weight at 1 year and nearly 43% at 3 years.²²
- Shown to help resolve other conditions, such as type 2 diabetes (59%), obstructive sleep apnea (45%), and high cholesterol (71%).^{1,23}

Risks

The following are in addition to the general risks of surgery:

- Gastric perforation or tearing in the stomach wall may require an additional operation.
- Access port leakage or twisting may require an additional operation.
- May not provide the necessary feeling of satisfaction that one has had enough to eat.
- Nausea and vomiting
- Outlet obstruction
- Pouch dilatation
- Band migration/slippage

Talk with your surgeon about the possible surgical risks.

Gastric banding

Why the band is adjustable

Over time, your surgeon adjusts the tightness of the band to help you continually meet your weight loss goals. During an adjustment, saline is delivered through the port into the band balloon, making the band fit more snugly around your stomach. Saline can also be removed from the band. After an adjustment, you'll feel full sooner, stay satisfied longer and maintain gradual weight loss. Band adjustments take place at your surgeon's office, clinic, or hospital. Your first adjustment will probably be scheduled 4 to 6 weeks after your surgery.



Your band adjustment schedule

Your weight, the physical symptoms you report, and other factors help your surgeon decide if a band adjustment is necessary. The timing and number of band adjustments are different for everyone and can only be determined by your surgeon.



Comparison of bariatric s

Sleeve Gastrectomy



Procedure description	During the sleeve gastrectomy procedure, a thin vertical sleeve of stomach is created using a stapling device. The sleeve is about the size of a banana. The rest of the stomach is removed.
How it works to help you lose weight	By creating a smaller stomach pouch, a sleeve gastrectomy limits the amount of food that can be eaten at one time, so you feel full sooner and stay full longer. As you eat less food, your body will stop storing excess calories and start using its fat supply for energy.
How it affects digestion	Does not significantly affect normal digestion and absorption. Food passes through the digestive tract in the usual order, allowing it to be fully absorbed in the body.
Total percent excess body weight lost (at 3 years)	66% ²⁹

Health benefits shown in clinical trials

Type 2 diabetes	45% controlled ^{13,23†}
High blood pressure	56% resolved ²⁰
High cholesterol	77% resolved ³⁰
Obstructive sleep apnea	54% resolved ²⁰
Average surgery time	1.5 to 3.5 hours ²⁹
Length of hospital stay	2 to 12 days ³¹

[†] Diabetes controlled in patients without medication. Control of diabetes is defined as HbA1c \leq 7.0%.

* To learn more about 3 and 5-year results see: Schauer, P. R., Bhatt, D. L., Kirwan, J, et al. Bariatric Surgery versus Intensive Medical Therapy for Diabetes — 3-Year Outcomes. *N Engl J Med* 2014; 370(21):2002-2013. Schauer P, Bhatt D, Kirwan J, et al. Bariatric surgery versus intensive medical therapy for diabetes - 5-year outcomes. *N Engl J Med* 2017; 376: 641-51

Surgical procedures

Gastric Bypass



Gastric Banding



In this procedure, the surgeon creates a small stomach pouch and attaches a section of the small intestine directly to the pouch. This allows food to bypass a portion of the small intestine.

The gastric band wraps around the upper part of the stomach, dividing the stomach into a small upper pouch that holds about ½ cup of food and a larger lower stomach. The degree of band tightness affects how much food you can eat and the length of time it takes for food to leave the stomach pouch.

By creating a smaller stomach pouch, a gastric bypass limits the amount of food that can be eaten at one time, so you feel full sooner and stay full longer. By bypassing a portion of the small intestine, your body also absorbs fewer calories. As you eat less food and absorb fewer calories, your body will stop storing excess calories and start using its fat supply for energy.

By creating a smaller stomach pouch, the gastric band limits the amount of food that can be eaten at one time, so you feel full sooner and stay full longer. As you eat less food, your body will stop storing excess calories and start using its fat energy supply.

Reduces the amount of calories (in the form of nutrients) that are absorbed.

Does not significantly affect normal digestion and absorption. Food passes through the digestive tract in the usual order, allowing it to be fully absorbed in the body.

71%²⁵

55%²⁵

68% controlled^{13,23†}

(-)^{23†}

66% resolved¹³

42% resolved²⁶

94% resolved¹

40% resolved²³

76% resolved²³

45% resolved²³

2 to 3.7 hours²³

1 to 2.5 hours²³

2 to 8 days²³

1 to 3 days²³

Important Safety Information

This procedure is for the treatment of patients suffering from severe obesity only. Patients should consult their physicians to determine if this procedure is appropriate for their condition. All surgery presents risk. Risk of bariatric surgery are generally low and similar to other commonly performed procedures like gallbladder surgery. Risks include adverse reactions to medications, problems with anesthesia, problems with breathing, bleeding, blood clots, inadvertent injury to nearby organs and blood vessels, nutritional deficiency, even death.

The bariatric surgery life

Bariatric surgery is an effective treatment for obesity and related diseases. But you have to do your part, too. Understanding and actively engaging in a lifestyle that supports achieving and maintaining a healthier weight is vital for success. Staying connected with your bariatric team is just as important.



Preparing for bariatric surgery

Whichever procedure you choose to have, it is important that you begin your new lifestyle preoperatively. Weight loss surgery can be considered one of the tools available to help you lose weight. Making appropriate lifestyle adjustments is crucial to the success of your procedure.

Work with your medical team to understand what changes you will need to make in your daily routine to help ensure the success of your surgery.



You should understand and agree with your postoperative dietary requirements, exercise needs, and any other changes you will be making before you receive surgery. It is a good idea to implement these changes as well as any other behavior modifications preoperatively to help you transition more easily into your new postoperative lifestyle.

Life after surgery

Diet

The modifications made to your gastrointestinal tract will require permanent changes in your eating habits that must be adhered to for successful weight loss. Postsurgery dietary guidelines will vary by surgeon. You may hear of other patients who are given different guidelines following their bariatric surgery. It is important to remember that every surgeon does not perform the same bariatric surgery procedure and that the dietary guidelines will be different for each surgeon and each type of procedure. What is most important is that you adhere strictly to your surgeon's recommended guidelines.

The following are some of the generally accepted dietary guidelines a bariatric surgery patient may encounter:

- **When eating solid food, it is essential that you chew thoroughly. You will not be able to eat chunks of meat if they are not ground or chewed thoroughly.**
- **Do not drink fluids while eating.**
- **Omit desserts and other items with sugar listed as one of the first three ingredients.**
- **Omit carbonated drinks, high-calorie nutritional supplements, milk shakes, high-fat foods and foods with high fiber content.**
- **Avoid alcohol.**
- **Limit snacking between meals.**

Going back to work

Your ability to resume presurgery levels of activity will vary according to your physical condition, the nature of the activity and the type of bariatric surgery you had. Many patients return to full presurgery levels of activity within 6 weeks of their procedure. Patients who have had a minimally invasive laparoscopic procedure may be able to return to these activities within a few weeks.



Birth control and pregnancy

It is strongly advised that women of childbearing age use the most effective forms of birth control during the first 16 to 24 months after bariatric surgery. The added demands pregnancy places on your body and the potential for fetal damage make this a most important requirement.

Long-term follow-up

Although the short-term effects of bariatric surgery are well understood, there are still questions to be answered about the longer-term effects on nutrition and body systems.

Nutritional deficiencies that occur over the course of many years will need to be monitored. Over time, you will need periodic checks for anemia (low red blood cell count) and vitamin B12, folate, and iron levels. Follow-up tests will initially be conducted every 3 to 6 months or as needed and then every 1 to 2 years. Follow-up care is recommended for life.



● **Support groups**

The widespread use of support groups has provided bariatric surgery patients with an excellent opportunity to discuss their various personal or other issues. Most learn, for example, that bariatric surgery will not immediately resolve existing emotional issues or heal the years of damage that morbid obesity might have had on their emotional well-being.

Most surgeons have support groups in place to assist you with short-term and long-term questions and needs. Bariatric surgeons who frequently perform bariatric surgery will tell you that ongoing postsurgical support helps produce the greatest level of success for their patients.

Step 2 — Find out if you're a

To know whether bariatric surgery is an appropriate obesity treatment tool for you, let's look at the guidance provided by the Australian and New Zealand Metabolic and Obesity Surgery Society:

You may be a candidate for surgery if you meet at least one of the following two criteria:

- Weigh greater than 45kg above the ideal body weight for sex, and height
- Have a BMI > 40 by itself or >35 if there is an associated obesity illness, such as diabetes or sleep apnoea

And meet both of the following criteria:

- Have made reasonable attempts at other weight loss techniques
- Are 18-65 year of age
- Have obesity related health problems
- Have no psychiatric or drug dependency problems
- Have a capacity to understand the risks and commitment associated with the surgery

candidate for bariatric surgery

There are other things to consider, too. You need to think about your determination and ability to make some serious changes in the way you live your life. Bariatric surgery is a tool to help improve your health.

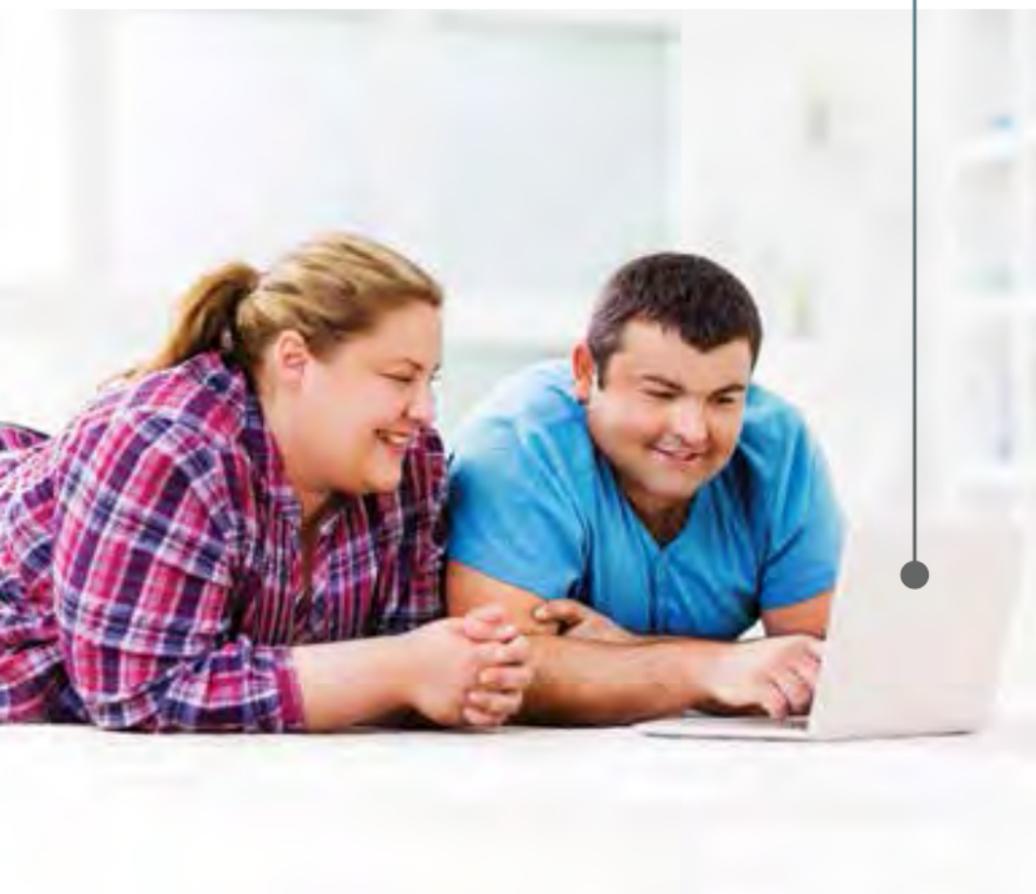


Talk to your doctor to see if bariatric surgery is right for you.

Step 3 — Cost considerations

Weight loss surgery in Australia is not fully covered by Medicare. This means that there are some out of pocket expenses that you will need to manage.

There is a range of private health insurance policies that cover weight loss surgery. It is important you review the policies in detail to understand what exactly is covered. Ensure you check the fine print to be clear on the requirements to qualify for surgery e.g. waiting periods, partner hospitals.



for surgery

Do you currently have private health insurance?

Yes

No

Does your insurance plan provide coverage for bariatric surgery?

Yes Print out a copy of the coverage policy if you have access to it and give it to your surgeon at your next visit.

No

NOTES _____

If **NO**, what are other options to be considered?

NOTES _____

Bring this information to your next visit with your surgeon for further discussion.

Step 4 – Start using a support

Bariatric surgeons recognise that ongoing support before and after surgery is critical for success.



Help to lose weight—and keep it off

Many factors can influence your ability to achieve and maintain a healthier weight. Bariatric specialists have identified several behaviors that are important to maintain weight loss over time. These include self-monitoring of weight, food intake, and physical activity; long-term use of smaller meals; increased physical activity; and long-term contact with your healthcare provider.

program

There are a variety of tools available to assist you in your postoperative lifestyle changes, including support groups, regular follow-up visits and online support programs.



When selecting an online support program, be sure to choose one that is specifically designed for bariatric patients. Talk to your health care provider to find out which support tools are best for you.

Patient stories

Tim

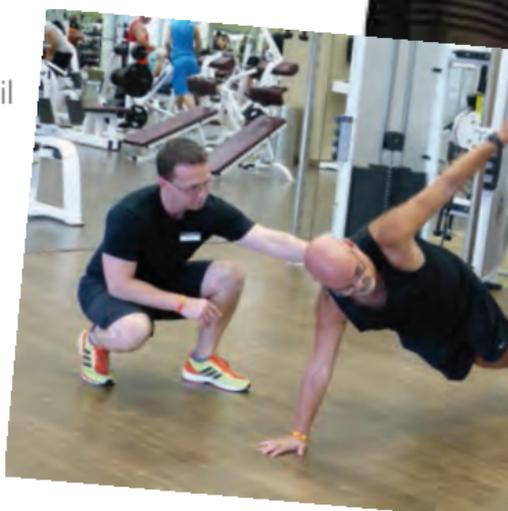
Procedure: Sleeve Gastrectomy
Weight lost: 48kg

Tim started struggling with weight in his early thirties, and his blood pressure issues became a big concern as his weight climbed.

In 2008, Tim had a major heart attack when he woke up in the middle of the night. He had 4 stents and was kept in the ICU. But things only got worse from there. In 2015, he had another episode of heart attack and during his procedure, he heard the doctor saying “His right coronary artery is 99 plus percent blocked...”

When Tim was laying there, he thought to himself: “I’m 50, and this is going to be stent number five. What if I don’t make it? What if something happens? I thought I was invincible.” And that was the moment Tim decided that he needed to do something to get his life back.

Tim had his surgery in April 2016, and was training for a marathon that December.



"I never thought I would be training for a marathon, I want to leave that legacy to my kids, my grandkids, that health is important."

"This is the second half of my life, and it is going to be better than the first half."



Patient stories

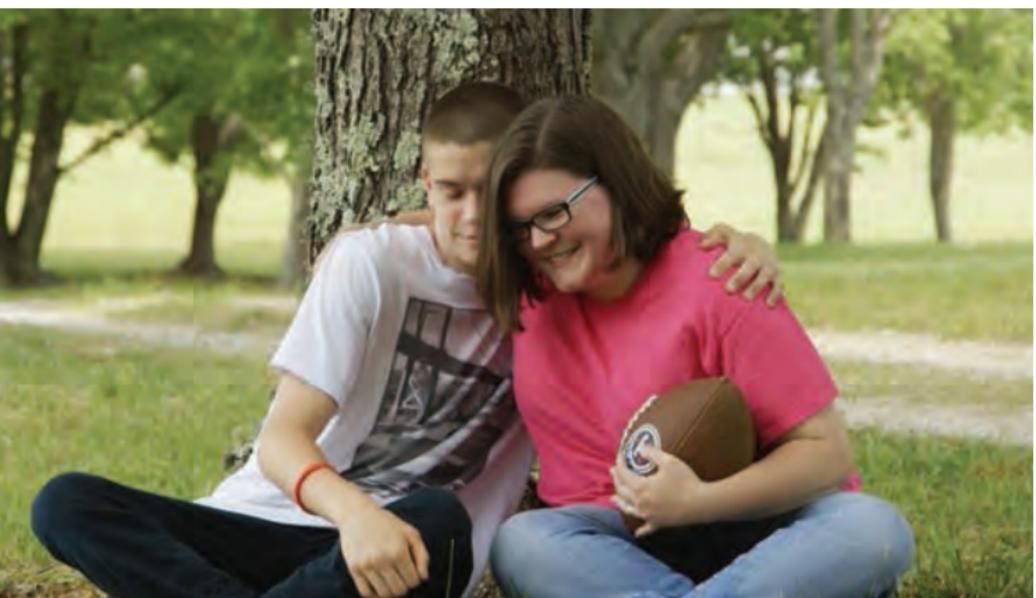
Joy

Procedure: Gastric Bypass

Weight lost: 61kg

Joy has always been overweight, she started Weight Watchers for the first time when she was nine years old. When she decided to start a family, it took her 16 months to conceive.

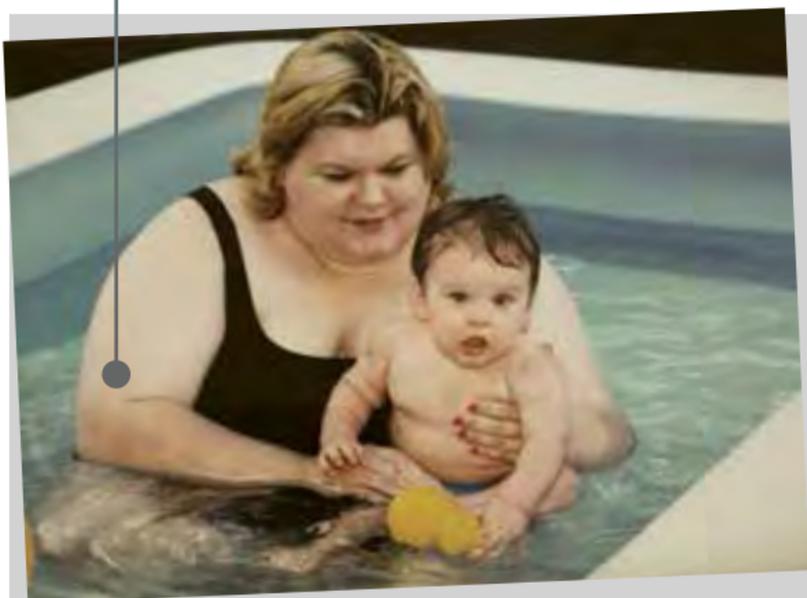
During her pregnancy, she was diagnosed with gestational diabetes and was on 71 units of insulin a day before giving birth. They had to deliver her son early to save her life through an emergency C-section, as the result of severe pre-eclampsia. She knew she wanted more children eventually, and she just hoped that conceiving and pregnancy would be healthier.



Joy had her surgery in February 2015, and has lost 61kg. The procedure helped her find and maintain a healthier weight and lifestyle, and finally, she no longer dreaded but enjoyed the time playing with her children.

“I didn’t want him to grow up remembering, mom can’t... if she gets down on the floor to play with me, she can’t get back up on her own.”

“I don’t look at this couch or sit down on the floor with the kids with dread, not knowing if I’ll be able to get back up by myself. Now I just don’t even think about it. I just get to enjoy life a lot more.”



Patient stories

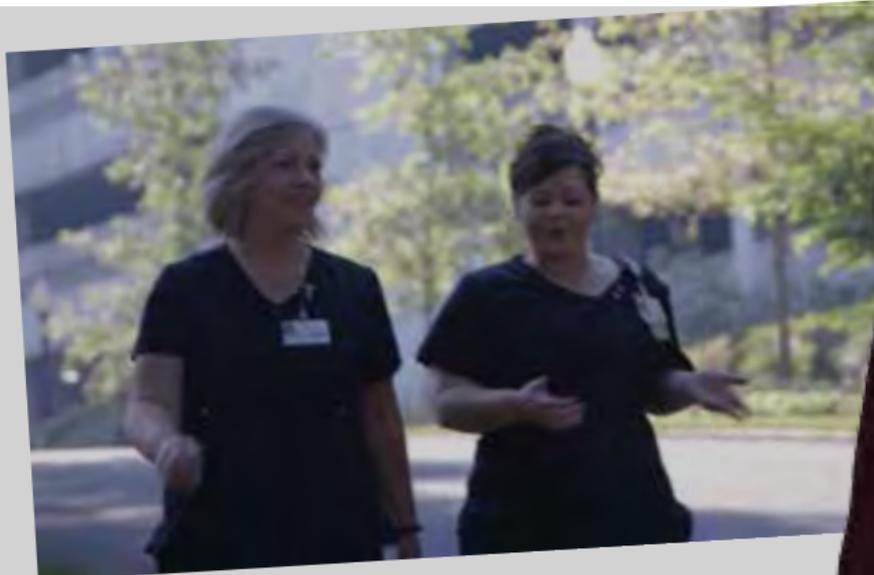
Marybeth

Procedure: Gastric Bypass

Weight lost: 52kg

Marybeth started to gain weight when she quit smoking. The weight started impacting her joints. "I would be in pain, through a normal day, not doing anything. Mostly, I would just become exhausted. I would get as close as I could to the grocery store and I had several times where I just rode the little mobile cart around the grocery store." She thought there was something wrong with her ankle until her doctor told her: "There is nothing wrong with your feet that losing about 45kg can't help".

Marybeth turned the pain and anger into motivation, and went to see a bariatric surgeon. She had weight loss surgery six weeks later. Now she walks about two miles 4 to 5 days a week. She took part in a 50,000-step challenge at her work place, and ended up getting 58,000 steps in the 7-day time frame.





"The surgery is just a tool. It's not going to work if you don't do all the stuff you're supposed to do. I've maintained for 14 years but I've had to work at it, but it's worth everything I do."

Glossary

Bariatric	Pertaining to weight or weight reduction
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Body mass index (BMI)	Method of calculating degree of excess weight; based on weight and body surface area
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Contraindications	Any symptom or circumstance indicating the inappropriateness of an otherwise advisable treatment
--------------------------	--

Dumping syndrome	Uncomfortable feeling of nausea, lightheadedness, upset stomach, and diarrhea associated with ingestion of sweets, high-calorie liquids or dairy products
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Dyspepsia	A condition characterized by chronic or recurrent pain in the upper abdomen; commonly referred to as upset stomach or indigestion
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Esophageal dysmotility	Disruptions to the normal delivery of food and saliva from the mouth to the stomach that may cause heartburn, regurgitation, cough, throat clearing, lump in the throat, and hoarseness
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Hyperlipidemia	Excessive levels of fat or fatty substances in the blood
-----------------------	--

Hypertension	High blood pressure
---------------------	---------------------

Laparoscopy	Method of visualizing and treating intra-abdominal problems with long fiber-optic instruments
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Metabolic	Pertaining to physical and chemical processes that happen in living organisms to sustain life
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Important Safety Informa

As with any surgical procedure, bariatric surgery may present risks. One or all of the following conditions and complications are possible following all the bariatric surgery procedures discussed in this brochure, as well as for all types of gastric surgical procedures. Your doctor can provide you with a more detailed and complete list of potential complications. Talk to your doctor to see if bariatric surgery is right for you.

Surgical

Perforation of stomach/intestine or leakage causing peritonitis or abscess. Internal bleeding requiring transfusion. Severe wound infection, opening of the wound, incisional hernia. Spleen injury requiring removal. Other organ injury. Gastric outlet or bowel obstruction.

Pulmonary

Pneumonia, collapse of lung tissue, fluid in chest. Respiratory insufficiency, pulmonary edema (fluid in lungs). Blood clots in legs/lungs.

Cardiovascular

Myocardial infarction (heart attack), congestive heart failure. Arrhythmias (irregular heartbeats). Stroke.

Kidney and liver

Acute kidney failure. Liver failure, hepatitis (may progress to cirrhosis).

Psychosocial

Anorexia nervosa, bulimia. Postoperative depression, dysfunctional social problems. Psychosis.

Death

Other complications (may become serious)

Minor wound or skin infection, scarring, deformity, and loose skin. Urinary tract infection. Allergic reactions to drugs or medications. Vomiting or nausea. Inability to eat certain foods. Improper eating. Esophagitis (inflammation of the esophagus), acid reflux (heartburn). Low sodium, potassium, or blood sugar. Low blood pressure. Problems with the stomach outlet (narrowing or stretching). Anemia. Metabolic deficiency (iron, vitamins, minerals). Temporary hair loss. Constipation, diarrhea, bloating, cramping, or malodorous stool or gas. Development of gallstones or gallbladder disease. Stomach or outlet ulcers (peptic ulcer). Staple-line disruption. Weight gain, failure to lose satisfactory weight. Penetration of foreign material (eg, gastric band) inside the stomach. Intolerance to refined sugars (dumping), with nausea, sweating, and weakness.

Questions to ask a surgeon

These are questions you should ask before deciding on a bariatric and metabolic surgeon. Make sure you understand the answer to each question. Plan to take notes to record the answers. You may also find it helpful to have a family member or friend come along to listen and ask questions.



What types of bariatric surgery procedures have you performed?

How many of each procedure have you performed?

Can this surgery be performed using minimally invasive techniques?

Can I be considered a candidate for surgery even though I have one or more associated health conditions related to my obesity?

Which procedure is best for me? Why? What are the risks involved?

How long will I be in surgery?

What is the anticipated length of my hospital stay?

How long will it be before I can return to presurgery levels of activity?

How will my eating habits change?

Do you have information about surgery costs and payment options?

What is the typical excess weight loss and improvement of associated health conditions for your other patients?

Do you have patients who are willing to share their experiences, both positive and negative?

What information can you give me to help family and friends better understand this surgery?

What type of long-term after-care services (such as support groups and counseling) can you provide for me?

What do you expect from me if I decide to choose a surgical solution?

Important Safety Informa

Important Safety Information

This procedure is for the treatment of patients suffering from severe obesity only. Patients should consult their physicians to determine if this procedure is appropriate for their condition. All surgery presents risk. Risk of bariatric surgery are generally low and similar to other commonly performed procedures like gallbladder surgery. Risks include adverse reactions to medications, problems with anesthesia, problems with breathing, bleeding, blood clots, inadvertent injury to nearby organs and blood vessels, nutritional deficiency, even death.

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The information in this brochure is for educational purposes only. Weight loss surgery is for patients with severe obesity. It may not be right for individuals with certain digestive tract conditions. All surgery presents risks. Weight, age, and medical history determine your specific risks. Ask your doctor if weight loss surgery is right for you.

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