

BARIATRIC SURGERY

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WHAT IS OBESITY?

Obesity results from the excessive accumulation of fat that exceeds the body's skeletal and physical standards.

There are multiple inherited, physiological and environmental factors, combined with diet, physical activity and exercise choices which ultimately lead to **Obesity**.

According to the United States National Institute of Health (NIH), an increase in **20% or more above your ideal body weight** is the point at which excess weight becomes a health risk.

Morbid obesity is a serious and chronic disease, and its symptoms build slowly over an extended period of time. Obesity becomes morbid when it reaches the point of significantly increasing the risk of one or more **obesity-related health conditions** (also known as co-morbidities).

Fortunately, there are multiple **safe treatment options** available today depending upon the grade of Obesity.

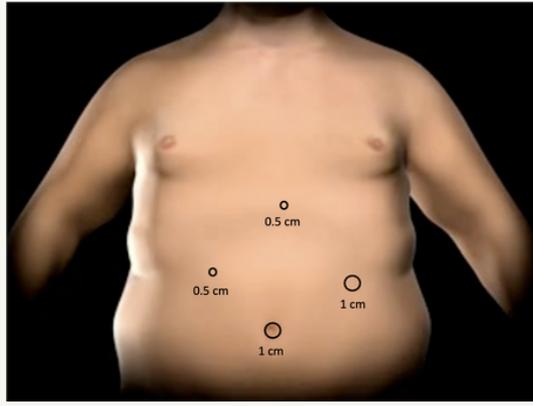


Obesity is a risk factor for life-threatening diseases, including:

- Diabetes
- High Blood Pressure (Hypertension)
- Dyslipidemia (Raised Cholesterol)
- Heart Disease
- Obstructive Sleep Apnea
- Stroke
- Heartburn or Acid Reflux Disease (GERD)
- Cancer (in women: breast, endometrial, gallbladder, cervical and uterine; in men: colorectal and prostate)

Studies show that the risk of death from these conditions drops significantly after **weight loss**.

WHAT IS BARIATRIC SURGERY



Bariatric Surgery, or weight loss surgery, is the most scientific way of losing a significant amount of weight slowly over a period of 8-10 months.

If you are someone for whom non-surgical procedures have failed to provide sustained weight loss, you can be evaluated for, and if appropriate, undergo lifesaving weight loss surgery. This surgery is known as Bariatric Surgery (also known as Metabolic Surgery).

HOW DOES IT WORK

After any type of Bariatric Surgery, the amount of food you can eat in one sitting is reduced. Because of this, the brain utilises the fat stored in your body for its energy needs. This burns the excess fat in your body, thus helping you lose weight.

Also, the fundus of the stomach is cut. This is the area of the stomach which produces the hunger hormone **Ghrelin**. Since the source of your **hunger hormone is removed**, you do not feel hungry all the time, and are satisfied with the small amount of food you eat without feeling tired or weak.

The **malabsorptive** effect because of the bypass of the small intestine in any type of Bypass causes markedly **reduced absorption of fats** from your intestine. This further adds to the weight loss effect.

Another great beneficial effect of any Bypass of the small intestine is that it causes major changes in the hormonal axis of the body for **better control of blood sugar levels**. This means, that almost 95% of patients who were diabetic **may STOP all medications (including insulin) for Diabetes** after undergoing a Gastric Bypass.

TECHNIQUE

Bariatric Surgery is done by minimally invasive methods – **Laparoscopically or Robotically**. This means, there will be 4 or 5 small cuts on your tummy, and no large ugly looking scars. In some cases, there may be only 1 scar inside your belly button (SILS).

AM I ELIGIBLE?

If you have a **BMI of 37.5 kg/m² or more, or a BMI of 32 kg/m² or more with illness related to excess weight**, and have not been able to sustain weight loss through diet and exercise, you probably are a candidate for weight-loss surgery.

If you do not meet these guidelines, or we find that you are not eligible for surgery for health reasons, don't despair. Through our intensive **non-surgical weight management program**, we can help you lose weight by helping you change your eating habits, modify your behaviour and increase your physical activity.

Bariatric Surgery is not a quick fix weight loss treatment. This is not a cosmetic procedure, because **this surgery is done for your health** and not for your looks.

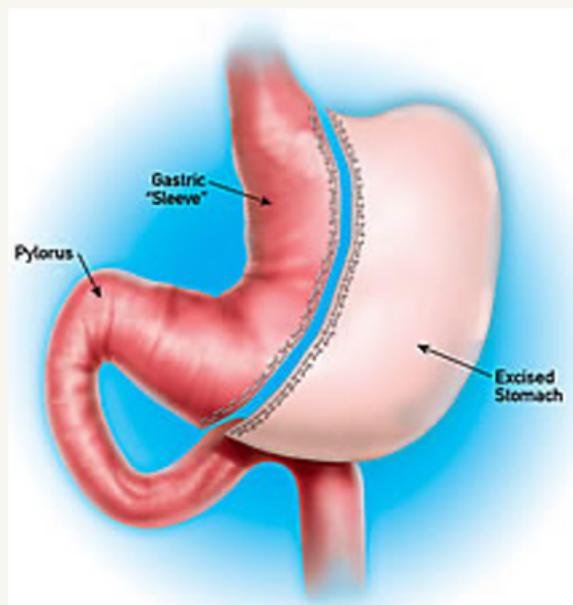
TYPES OF BARIATRIC SURGERY

1. Sleeve Gastrectomy
2. Roux-en-Y Gastric Bypass (Standard Gastric Bypass)
3. Mini Gastric Bypass
4. Sleeve Gastrectomy + Duodeno-jejunal Bypass
5. Other novel procedures

SLEEVE GASTRECTOMY

The Sleeve Gastrectomy is a type of **restrictive** weight loss surgery. Sleeve Gastrectomy causes weight loss by restricting the amount of food that a person can consume before feeling full.

The size of the stomach is reduced to about 10% of its original volume, leaving behind a stomach measuring **80-100 ml**. This results in a limited capacity of food intake. There have been multiple reports in medical literature proving the beneficial effects of a Sleeve Gastrectomy not only in losing weight, but also in the improvement of medical diseases such as Diabetes, Hypertension, Sleep Apnea and many more.



Sleeve Gastrectomy is typically performed on individuals who do not suffer from severe co-morbidities and are young.

This surgery is also done as **first line surgery** on patients who are too heavy to tolerate other types of weight loss surgeries (like the Gastric Bypass) with the expectation that a second surgery will be performed once weight has been lost.

Pre Operative preparation	Liquid diet (depending on your BMI)
Pre Operative Tests	Full body check-up
Hospital stay	2-3 days
Number of cuts (0.5-1 cm)	3-5 (Laparoscopy/ Robotics) or 1 (Single incision surgery)
Return to work	Within a week
Expected Weight loss	60-70% of excess weight

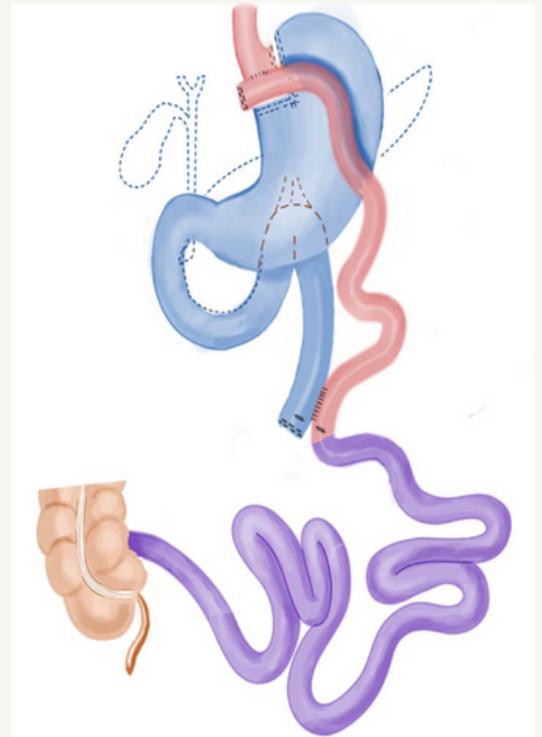
TYPES OF BARIATRIC SURGERY

ROUX-EN-Y GASTRIC BYPASS

Roux-en-Y Gastric Bypass is a type of **restrictive as well as malabsorptive surgery** that can be performed by a minimally invasive surgical methods.

Usually 4-5 small cuts of 0.5 – 1 cm are made on the abdomen. The Roux-en-Y Gastric Bypass is then performed Laparoscopically or Robotically, using highly advanced technology to make it safe.

In a Roux-en-Y Gastric Bypass, the stomach is divided into 2 parts – a small functional stomach pouch (approximately 30-50 ml) and a larger excluded stomach. Following this the upper portion of the small intestine is bypassed, ensuring minimal absorption of carbohydrates and fats.



There is immense medical evidence to conclusively prove that Roux-en-Y Gastric Bypass can help with **complete reversal of Type II Diabetes Mellitus in 85-90% of patients for 10-15 years**. This means, that almost 90% of patients who were diabetic can STOP all medications for Diabetes after undergoing a Roux-en-Y Gastric Bypass.

In addition, after a Roux-en-Y Gastric Bypass, **marked improvement is seen in many other medical problems which are caused due to obesity, such as hypertension, sleep apnea, Hypothyroidism, Osteoarthritis, PCOS, etc.**

Roux-en-Y Gastric Bypass is a **completely reversible** procedure. This requires a second surgery, which can again be performed by minimally invasive techniques (laparoscopically or robotically).

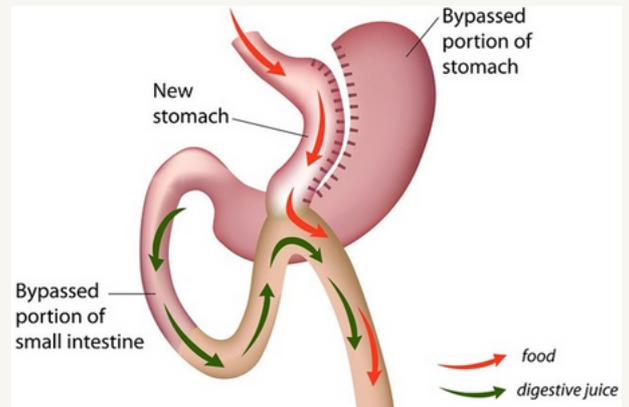
Pre Operative preparation	Liquid diet (depending on your BMI)
Pre Operative Tests	Full body check-up
Hospital stay	2-3 days
Number of cuts (0.5-1 cm)	4-5 (Laparoscopy/ Robotics)
Return to work	In a week
Expected Weight loss	70-80% of excess weight

TYPES OF BARIATRIC SURGERY

MINI GASTRIC BYPASS

The Mini Gastric Bypass is a **restrictive and malabsorptive procedure** that not only reduces food intake, but also reduces the absorption of carbohydrates and fats from the food.

Usually 4-5 small cuts of 0.5 – 1 cm are made on the abdomen. In the first step of a Mini Gastric Bypass, a stomach sleeve is created measuring about 70-90 ml and separated from the rest of the stomach. The small intestine is then joined in continuity without disconnecting it. This bypasses a part of the intestine which **reduces absorption of carbohydrates and fats.**



Of all weight loss surgeries, Mini Gastric Bypass is the one associated most strongly with **complete reversal of Type II Diabetes Mellitus in 90-95% of patients for 10-15 years.** This means, that almost 95% of patients who were diabetic can STOP all medications (including insulin) for Diabetes after undergoing a Mini Gastric Bypass. This occurs due to beneficial effect of the bypass of the small intestine that causes major **changes in the hormonal axis** of the body for better control of blood sugar levels.

In addition, after a Mini Gastric Bypass, **marked improvement is seen in many other medical problems** which are caused due to obesity, such as hypertension, sleep apnea, Hypothyroidism, Osteoarthritis, PCOS, etc. (similar to those seen in other weight loss surgeries).

Mini Gastric Bypass is a **completely reversible** procedure. This requires a second surgery, which can again be performed by minimally invasive techniques (laparoscopically or robotically).

Pre Operative preparation	Liquid diet (depending on your BMI)
Pre Operative Tests	Full body check-up
Hospital stay	2-3 days
Number of cuts (0.5-1 cm)	4-5 (Laparoscopy/ Robotics)
Return to work	In a week
Expected Weight loss	80-90% of excess weight

TYPES OF BARIATRIC SURGERY

SLEEVE + DJ BYPASS

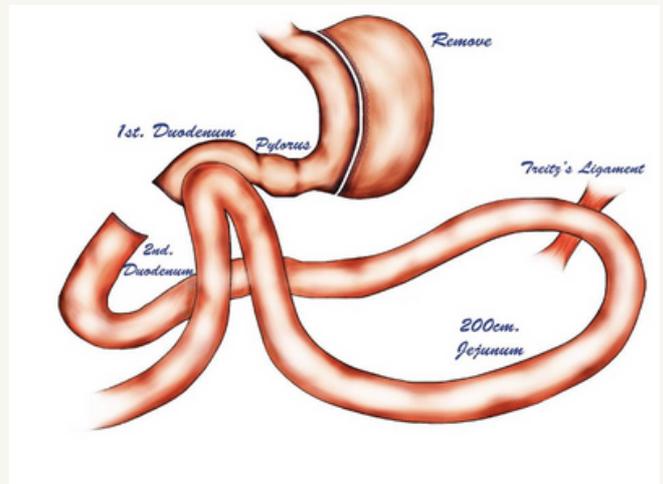
The Sleeve Gastrectomy with Duodenojejunal Bypass is also a **restrictive and malabsorptive procedure** (like the Roux-en-Y Gastric Bypass and Mini Gastric Bypass) that not only reduces food intake, but also reduces the absorption of nutrients from the food. Absorption of nutrients is limited because a part of the upper small intestine is bypassed and not used for digestion.

Usually 4-5 small cuts of 0.5 – 1 cm are made on the abdomen. In the first step of a Sleeve + DJ Bypass, a Sleeve Gastrectomy is performed. The volume of the stomach sleeve is between 80-100 ml. The first part of the small intestine is then disconnected just below the stomach and the small intestine is then joint in continuity to this cut portion without disconnecting it.

Sleeve + DJ Bypass is associated **very strongly with complete reversal of Type II Diabetes Mellitus in 90-95% of patients for 10-15 years.** This means, that almost 95% of patients who were diabetic can STOP all medications (including insulin) for Diabetes after undergoing a Sleeve + DJ Bypass.

In addition, after a Sleeve + DJ Bypass, **marked improvement is seen in many other medical problems which are caused due to obesity.**

Sleeve + DJ Bypass is **not a fully reversible procedure.** The small intestinal joint has to be disconnected and a new joint created between the small intestine and stomach without the bypass effect. This second surgery can again be performed by minimally invasive techniques (laparoscopically or robotically) to create a near normal architecture. It is a very complex surgery requiring a high degree of surgical skill and intensive post-operative care.



Pre Operative preparation	Liquid diet (depending on your BMI)
Pre Operative Tests	Full body check-up
Hospital stay	2-3 days
Number of cuts (0.5-1 cm)	4-5 (Laparoscopy/ Robotics)
Return to work	In a week
Expected Weight loss	70-80% of excess weight

ENDOSCOPIC BARIATRIC SURGERY

For some patients, Bariatric Surgery is not a practical option. This may be either due to a **very high BMI (>70 kg/m²)** or when the BMI is not high enough to warrant a surgical procedure (**BMI between 25-32 kg/m²**).

For such patients, Endoscopic options are available.

These include:

1. Endoscopic Intra-gastric Balloon

2. Endoscopic Sleeve Gastroplasty

These procedures are done only via Endoscopy, so there are no cuts on your tummy, and hospital admission is not needed.

INTRAGASTRIC BALLOON

An Intra-gastric Balloon is a device which is inserted in your stomach with the help of an endoscope. It is made of **silicone**, which is a completely inert material and does not disturb body tissues.

The Intra-gastric Balloon is inserted in the stomach with the help of an Endoscope. The balloon is then filled with saline till a volume of 350-500 ml and left in your stomach for **6 or 12 months**.

The balloon occupies space in your stomach, because of which the amount of food you can eat decreases. Because of this **decreased intake**, you lose weight. This has to be complimented with a healthy diet and exercise.

The Intra-gastric Balloon causes you to lose **5-15% of your excess weight**. For most people this means a weight loss of 5-15 kg.

This is a **day care procedure**, which means no overnight admission in the hospital is required.



SLEEVE GASTROPLASTY

Endoscopic Sleeve Gastroplasty, or **ESG**, is an Endoscopic procedure in which your stomach is reduced to a smaller size, to help you lose weight.

ESG is done completely with the help of an Endoscope. The **stomach capacity is reduced with the help of multiple stitches** (similar to a Sleeve Gastrectomy surgery). With this, your food intake reduces and you lose weight naturally. This has to be complimented with a healthy diet and exercise.

ESG can help you to lose **15-25% of your excess weight**. For most people this means a weight loss of 15-20 kg.

This is a **day care procedure**, which means no overnight admission in the hospital is required.

It is very important to stay in touch with the primary surgeon and come for follow up visits.



WHAT TO EXPECT POST BARIATRIC SURGERY?

Now that you have undergone Bariatric Surgery, it is critical that you change your **lifestyle**. Starting a daily exercise regime and sticking to a healthy diet is a **lifelong process**, and Bariatric Surgery makes it easier to stick to this schedule.

A **close follow up with your primary surgeon is most important**. This will ensure that you stay on track with your lifestyle, and any changes can be made if needed. Usually, patients need to follow up at 1, 3, 6, 12, 18 and 24 months after the surgery, and once a year thereafter.

DIETARY CHANGES

Immediately following surgery, you will begin with a clear **liquid** diet. You may gradually start adding thicker liquids to your diet after you are discharged from the hospital.

It is important to know that following surgery, your stomach size is very small. The opening that allows food to pass out of your stomach is also very narrow. For this reason, it is important to take only two to three sips or bites at a time of any new food and then wait 10 minutes before taking more. This will help you learn your limits and tolerance. Liquids will empty faster from your stomach than soft solids.

If you overeat or eat too quickly, you may experience nausea or pain. You should avoid rich, creamy liquids such as gravies, sauces and ice creams.

Within a month of surgery, you will be on a normal diet. **The diet has to be rich in proteins, low in carbohydrates and fats, and full of fibre.**

Your **water** intake has to be adequate. It is the key to ensuring you do not develop any weakness or dehydration post surgery.

LIFESTYLE CHANGES

- Do not eat/ drink in front of the TV/ while reading/ while working. These habits cause you to overeat without you realizing it.
- Keep a **food and exercise diary**. Note down your daily calorie intake and expenditure. Health apps on your smartphone are very useful.
- Do not take second helpings.
- Keep tempting foods (bread, sev, bhel, biscuits, wafers, etc) out of the house. Your family members will also eat healthy!
- Read **nutrition labels** carefully. These are a very helpful to guide your daily calorie and protein intake.
- Continue **walking** at a fast pace daily, and slowly progress to **jogging**.
- Start vigorous **exercise** 1 month after the surgery.
- Take the **stairs** instead of the elevators.
- Do not eat anything at least 3 hours before your bedtime.
- Get adequate **sleep**.
- **Take your nutritional supplements on time.**

WHY CHOOSE US

DR NIDHI KHANDELWAL

Dr Nidhi Khandelwal is a GI and Bariatric surgeon trained in Minimally Invasive surgery. After completing her MBBS from Grant Medical College, Mumbai she pursued her specialty degree in General Surgery from Bombay Hospital. She passed her MS General Surgery as the university topper of her batch in 2014 (Gold medalist from MUHS). She has received extensive training in Gastro-intestinal and Hepato-Biliary-Pancreatic surgery at Bombay Hospital, P D Hinduja Hospital and Kokilaben Dhirubhai Ambani Hospital. She has been working in the field of Bariatric and Minimal Access Surgery since 9 years.



Spectrum of cases:

These include all kinds of Bariatric surgeries, Hernia surgeries, Bilio-Pancreatic surgeries (Laparoscopic + Robotic). She has published multiple peer-reviewed articles in international journals and is invited across the country and abroad to give talks in her fields of interest.

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