

Bariatric Procedure

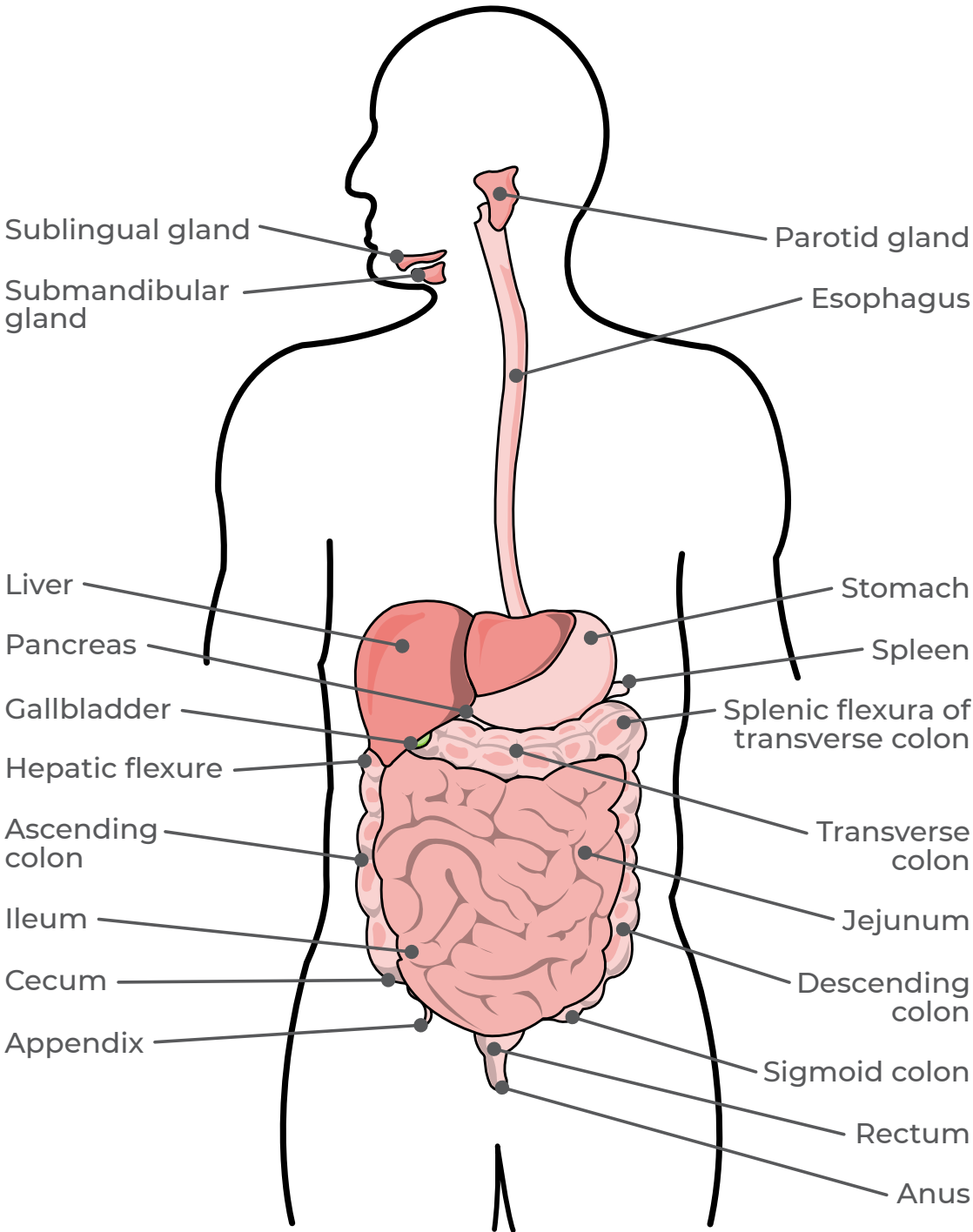
Overview



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Normal GI Tract



Bariatric Surgeries: Mechanisms of Action

- 1 Restrictive
- 2 Malabsorptive
- 3 Combination

Laparoscopic Sleeve Gastrectomy

The stomach is divided vertically (up and down) by stapling. The portion of the stomach that is left is shaped like a very slim banana (or sleeve). The nerves to the stomach and the valve leading from the stomach to the small intestine remain intact, so the stomach works as usual. The small intestine is left alone. This procedure is restrictive only.

Because a large piece of the stomach is removed, you will not be able to eat as much.

An ideal candidate for this surgery:

- Has a Body Mass Index (BMI) of 35–45
- Does not have GERD or Barrett's esophagus
- Exercises regularly
- Higher risk profile/extremes of age
- Adhesions/hernias
- A transplant candidate
- Stage procedure for risk reduction for Body Mass Index (BMI) > 50

BENEFITS

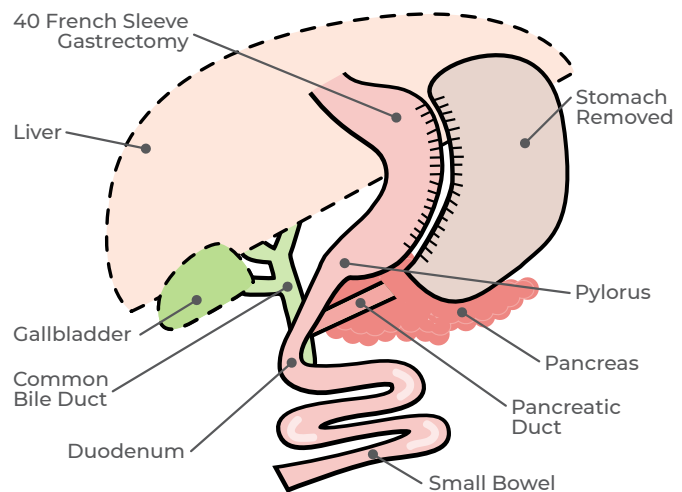
There are many benefits to having a sleeve gastrectomy. It is an easier surgery to perform, and usually takes only about 40 minutes. It also can be effective for people who had lap-band surgery and regained weight.

Other benefits are:

- Good weight loss (After five years, most people have had 20–25 percent total weight loss / 10–12 points BMI reduction.)
- No implanted devices or connection site (anastomosis)
- Intestines remain intact and there is no bypass
- No marginal ulcers or internal hernias
- Causes favorable changes in gut hormones affecting long-term hunger and satiety (ghrelin)
- Low risk of dumping or diarrhea
- Option for patients with BMI > 50 as a staged procedure
- This procedure can be easily revised to another procedure, such as gastric bypass or duodenal switch.

RISKS

The risks of the sleeve gastrectomy are a leak and bleeding due to long staple line. This procedure is irreversible and cannot be undone. There is possibility for chronic heartburn symptoms.



Laparoscopic Roux-En-Y Gastric Bypass

The Roux-en-Y bypass separates the stomach into two sections using parallel rows of staples. The small upper segment of the stomach (connected to your esophagus) will receive food just as it always has. The lower portion no longer receives any food.

Then, a piece of the small intestine is disconnected. The surgeon reroutes food directly from the newly created small stomach pouch directly into the remaining intestine.

An ideal candidate for this surgery:

- Has a BMI of 35–50
- Has type 2 diabetes (less than 10 years, and is not on insulin)
- Suffers from severe GERD
- Has Barrett's esophagus
- Is 18–65 years old
- Has not had previous stomach and lower GI/hernia surgery

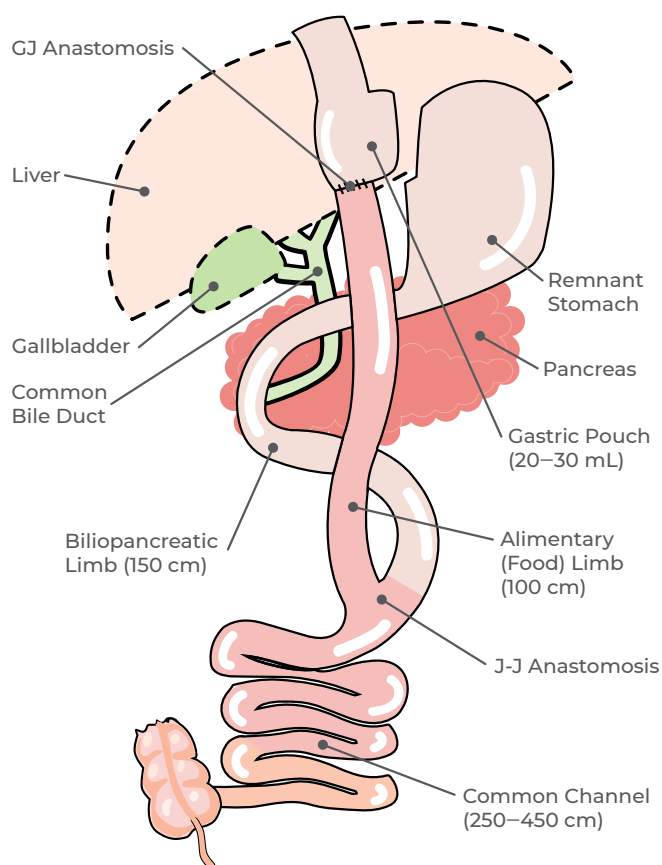
BENEFITS

Roux-en-Y gastric bypass is the current “Gold Standard.” Gastric bypass is an excellent option for treatment of heartburn. There are excellent weight-loss benefits (25–35 percent total weight loss / 12–15 points BMI reduction at 5 years). More than 70 percent of patients experience an improvement with diabetes or it goes away completely.

Roux-en-Y is durable long-term (over 50 years). The procedure is restrictive and malabsorptive.

RISKS

- Leaks, obstructions, bleeding
- Nutritional deficiencies
- More difficult to reverse
- Dumping syndrome (with increased intake of sweets)
- Long-term complications, such as marginal ulcers/structures/internal hernias
- Recidivism (weight regain) 15–20 percent, with a higher rate for BMI greater than 50
- Changes anatomy



Laparoscopic Duodenal Switch

The duodenal switch rearranges the intestines so that you absorb fewer calories from food. It also makes your stomach smaller so you cannot eat as much. This procedure is restrictive and malabsorptive. This procedure can be done in one or two stages. During stage 1, the surgeon will first perform a vertical sleeve gastrectomy procedure.

During stage 2, typically 12–18 months after stage 1 procedure, the remaining part of the stomach is connected to the lower portion of the small intestine.

An ideal candidate for this surgery:

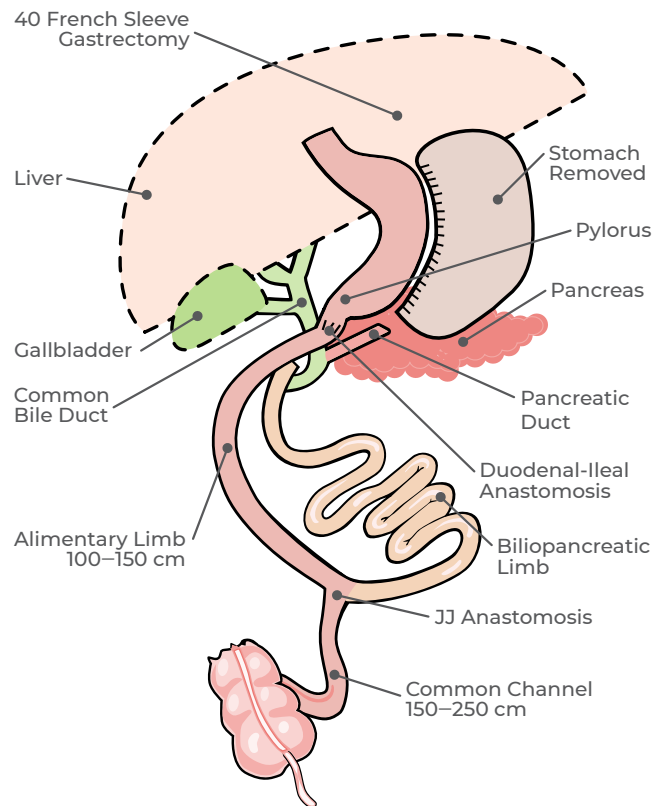
- Is 18–65 years old
- Has BMI above 50
- Has poorly controlled type 2 diabetes
- Has high triglycerides
- Has metabolic syndrome

BENEFITS

- Greatest reduction in weight (40–50 percent total weight loss / 21–24 points BMI reduction at 5 years)
- Lowest weight-gain recidivism (6 percent at 5 years)
- Can be staged procedure or revisional procedure for patients who had a band, sleeve or bypass that did not work
- Most effective in diabetes improvements (97 percent remission for patients)
- On insulin 5–10 years = 88 percent remission
- On insulin > 10 years = 66 percent remission
- Causes favorable changes in gut hormones affecting long-term hunger and satiety (ghrelin)
- Higher calorie consumption with greater weight loss

RISKS

- Highest surgical risk
- Longer surgery time (2.5 hours)
- Highest risk for diarrhea with poor compliance
- Risk of excessive weight loss with poor compliance
- Protein/calorie malnutrition with poor compliance
- Nutritional complications < 5 percent
- Greater malabsorption of vitamins/minerals
- Risk of osteoporosis, risk to bone health



DJB-S and SADI-S

The Duodenal-Jejunal Bypass with Sleeve Gastrectomy (DJB-S) and Single Anastomosis Duodenal-Ileal Bypass with Sleeve Gastrectomy (SADI-S) rearrange the intestines so that you absorb fewer calories from food with less malabsorption compared to the traditional duodenal switch. It also makes the stomach smaller so you cannot eat as much. This procedure is restrictive and malabsorptive. It should provide greater weight loss than the gastric bypass and sleeve gastrectomy while minimizing GI side effects of the traditional duodenal switch.

An ideal candidate for this surgery:

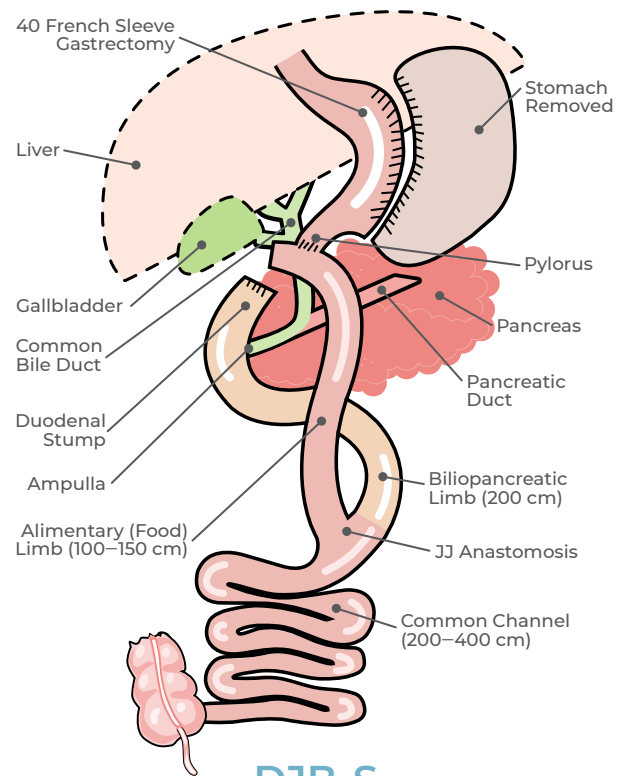
- BMI 45–55
- Age 18–65 years
- Metabolic syndrome (DMII, hypertension, hyperlipidemia)
- No history of Crohn's disease
- No previous resection of ileocecal valve or intestinal surgery
- Not a good option for transplant patients
- Willing to participate in lifelong follow-up

BENEFITS

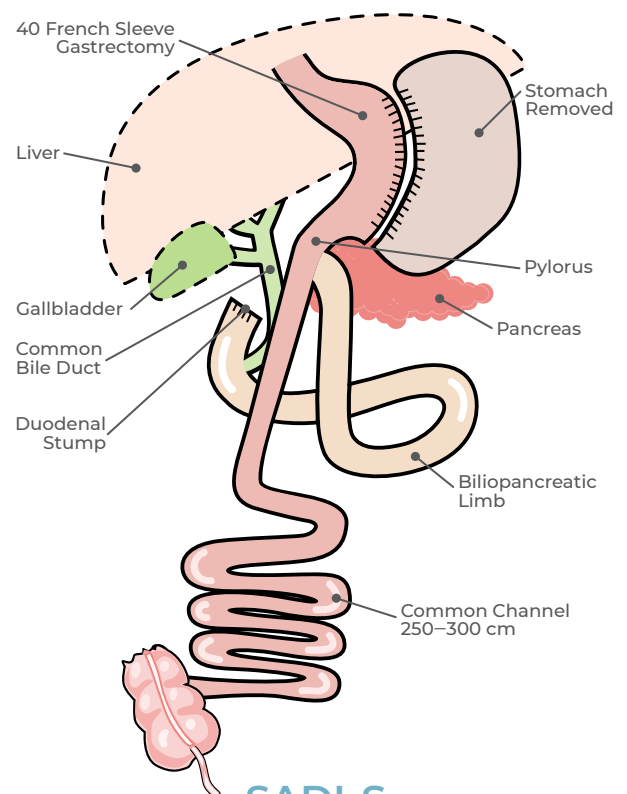
- Estimated weight-loss benefit better than gastric bypass and sleeve (due to more malabsorption), but less than traditional duodenal switch
- Helps to promote fullness (early satiety) due to removal of fundus and ghrelin secreting area of stomach (restrictive component)
- Pylorus function is maintained
- Less likelihood of dumping syndrome
- Helps maintain normal blood sugar levels
- Prevents bile reflux into stomach
- Lower risk of marginal ulcers and strictures compared to gastric bypass (similar to duodenal switch)
- Improved type 2 diabetes resolution over gastric bypass or sleeve gastrectomy
- Fewer possible GI side effects compared to the duodenal switch
- Lower risk of nutritional and vitamin deficiencies compared to the duodenal switch
- Total weight loss of 35–45 percent/BMI reduction of 15–21 points

RISKS

- Longer operative time (1½–3 hours)
- Does not eliminate risk of internal hernias (same risk as gastric bypass)
- Greater malabsorption of vitamins and minerals
- Unknown short-term and long-term weight-loss and metabolic results



DJB-S



SADI-S

Laparoscopic Adjustable Gastric Band

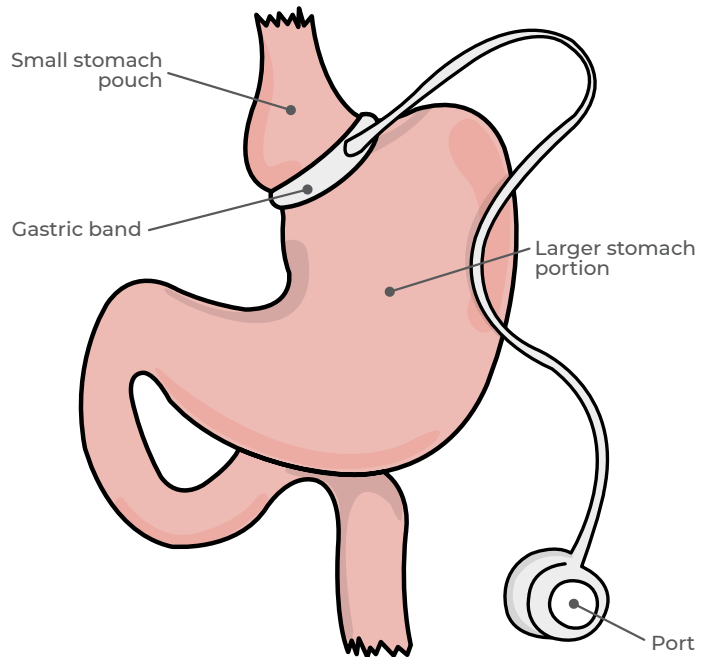
Lap-band is often performed laparoscopically (with a very small incision) as an outpatient procedure. You may have a shorter hospital stay and faster recovery time compared to a traditional surgical incision.

The surgeon puts a silicone elastic ring around the upper part of your stomach. The ring is then filled with saline (saltwater) solution.

A tube attached to the ring is connected to a port under the skin of the abdomen. The saline is then injected or drawn out until the ring is tight enough around the opening from the upper stomach to the lower stomach.

Tightening the band decreases hunger. You will eat less and still feel full.

For the first year after surgery, the device has to be checked every month by a trained healthcare provider to see if adjustments need to be made.



An ideal candidate for this surgery:

- Is 18–60 years old
- Has BMI between 30–40
- Is active
- Is willing to follow instructions
- Is able to visit a provider for monthly checkups

BENEFITS

- No change to anatomy
- Restrictive procedure no malabsorption
- Reversible and removable
- Outpatient

RISKS

- Slower weight loss (three years), and lower overall weight loss (five years 25–50 percent EWL)
- Cheatable
- Problems with the device (port leakage, slipping, erosion)
- Nausea/vomiting/abdominal pain/GERD
- Esophagus and pouch expands
- 75 percent of patients require second operation
- Long-term tolerance is unsure
- Removal rate higher than 50 percent at 5 years; 75 percent at 15 years
- Multiple adjustments may be needed

Endoscopic Bariatric Therapies

Intragastric Balloon

The intragastric balloon is temporarily placed endoscopically in the stomach for six months. It helps your body adapt to smaller portion sizes.

The balloon is inserted through the mouth into your stomach. The balloon is then inflated with saline and is about the size of a grapefruit. After six months, the balloon is removed endoscopically.

This therapy is used with diet, exercise and possibly medicines before, during and after the balloon.

Ideal candidate:

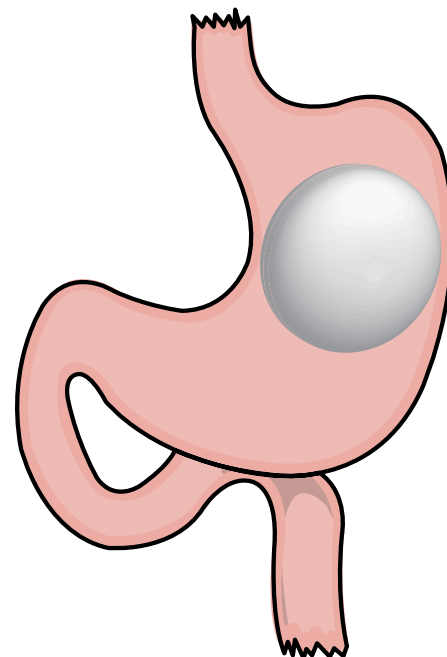
- Age 18–65
- BMI 30–40 with or without comorbidities
- No previous stomach or GI surgery
- Team approach

BENEFITS

- Outpatient procedure with sedation
- No incision or scar
- Easy to perform
- Faster recovery
- Safe
- Excess weight loss of 25 percent at 6 months post removal.

RISKS

This device may cause nausea/vomiting/abdominal pain/GERD. Although it is rare, there is a risk of: obstruction, perforation, aspiration pneumonia and death. The device intolerance is five percent, and the long-term durability is unknown.



Post-Bariatric Surgery Outcomes Data

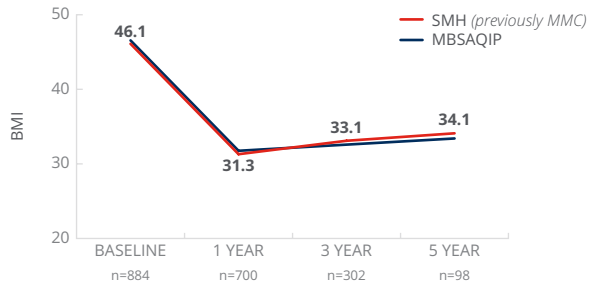
Postoperative Outcomes

30 Day (2022) and 5 Year Bariatric Surgery

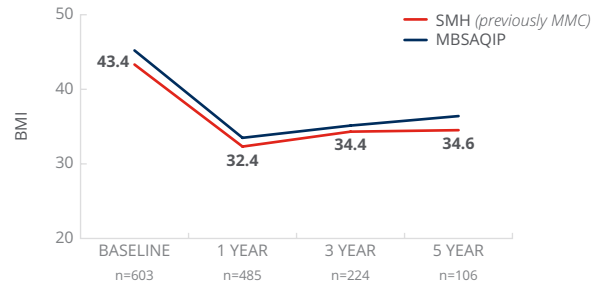
	LVSG		RYGB		DJBS		DS	
	2022	5 YEAR	2022	5 YEAR	2022	4 YEAR	2022	5 YEAR
Number of cases	131	512	103	530	59	201	9	28
ED visit	7.6%	5.8%	10.6%	8.4%	13.5%	8.9%	22.2%	7.1%
Readmission	3%	1.9%	1.9%	4.9%	13.5%	7.9%	11.1%	7.1%
Reoperation	0%	0.5%	0.9%	1.6%	1.6%	7.9%	0%	0%
Intervention	0%	0%	0%	0%	0%	0.4%	0%	0%
Surgical Site Infection	0%	0.1%	2.9%	1.1%	10.1%	4.4%	11.1%	3.5%
Sepsis	0%	0.1%	0%	0%	0%	0%	0%	0%
Pneumonia	0%	0%	0%	0.3%	0%	0%	0%	0%
DVT/PE	0%	0.1%	0%	0.1%	1.6%	0.4%	0%	0%
Bleeding/transfusion	0%	0.9%	0.9%	0.5%	0%	0%	0%	3.5%
Leak	0%	0.1%	0%	0%	0%	0%	0%	0%
Obstruction	0%	0%	0%	0.3%	0%	0%	0%	3.5%
c. diff	0%	0.1%	0%	0.5%	0%	0%	0%	0%

BMI Reduction after Bariatric Surgery

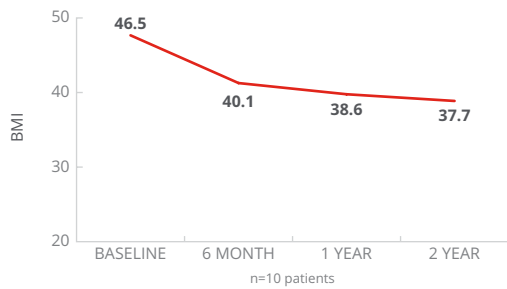
Gastric Bypass



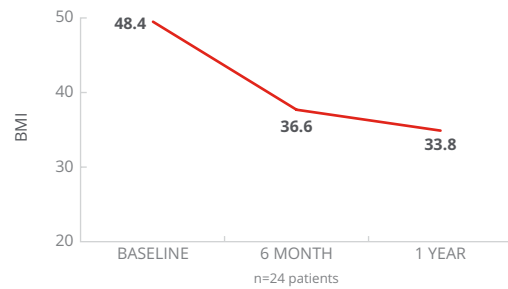
Sleeve Gastrectomy



Duodenal Switch

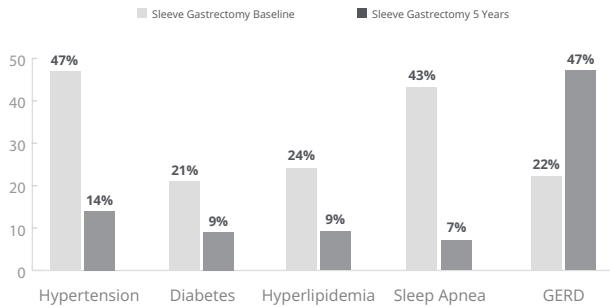


Duodenal-jejunal Bypass



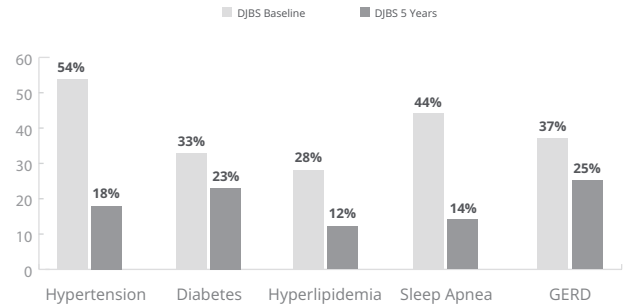
Comorbidity Prevalance

Outcomes after Sleeve Gastrectomy

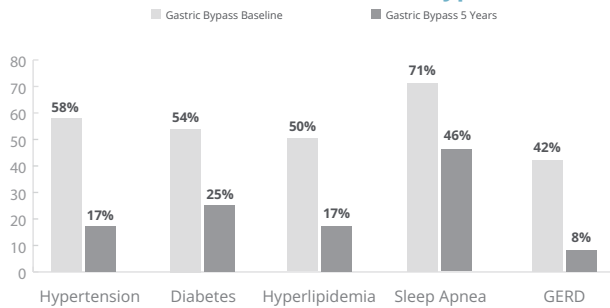


78% of Sleeve Gastrectomy patients experienced a remission of 1 or more comorbidities at 5 years

Outcomes after Duodenal-jejunal Bypass



Outcomes after Gastric Bypass



89% of Gastric Bypass patients experienced a remission of 1 or more comorbidities at 5 years



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