

Laparoscopic Weight Loss Surgery (Bariatric Surgery)

A simple guide to help answer your
questions



Weight problems are growing in the US

- More than **100 million** Americans are overweight

Half of these people are more than 50 lbs overweight

15%-20% of these people are more than 100 lbs overweight

- Each year, this number is growing



WHY ARE WE SO OVERWEIGHT??

- **Consumption of foods high in calories (excessive sugar and fat)**
- **Consumption of too much food (large portions)**
- **Not enough exercise/sedentary lifestyle**
- **Inheriting “fat genes” from our parents/relatives**





Fast Food has become a daily routine for most Americans

Obesity has become one of the most widespread health problems in the world. Obesity is responsible for causing many diseases such as diabetes and high blood pressure. It also leads to premature death in individuals who are severely overweight.



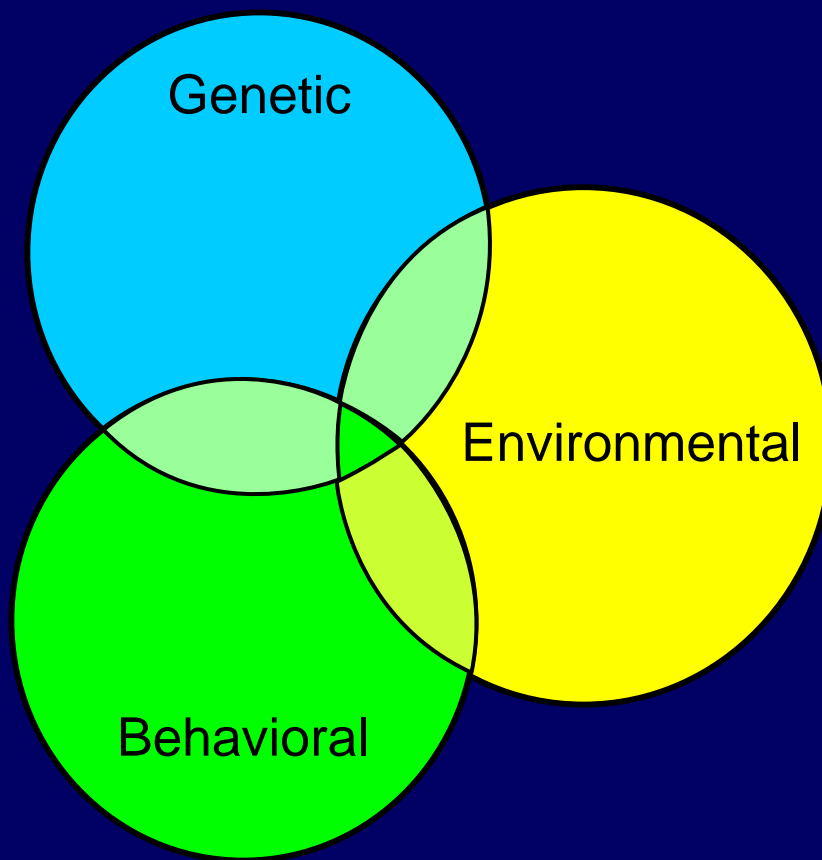
Obesity - The Size of the Problem

Prevalence of Overweight Adults

- **United States** **65%**
- **Australia** **59%**
- **Russia** **54%**
- **United Kingdom** **51%**
- **Brazil** **36%**
- **China** **15%**



Complex Disease



Obesity is a complicated disease. Many things contribute to being overweight including eating and exercise habits, whether your parents were overweight, and the overall environment that you live in. Any solution to weight problems must address each of these issues.



What is obesity? Who is considered overweight?

In the 1950's, the Metropolitan Life Insurance Company developed height and weight tables which listed "normal" weight ranges for height and body type. These weights were mathematically determined and were based on how long people lived and how many medical problems that they developed. People who fell within the "normal ranges" statistically had longer lives and fewer problems with their health.



What is obesity? Who is considered overweight?

Today, rather than using tables and “body types” to determine who is overweight, we use a simple calculation called **Body Mass Index** or **BMI**. BMI relates a person’s weight to their height.



How to calculate your BMI

$$\text{Body Mass Index (BMI)} = \frac{\text{Weight}}{\text{Height}^2}$$

Weight is in Kilograms (Kg) and height is measured in meters squared(m²)

There are 2.2 pounds in each kilogram and 2.54 centimeters in 1 inch.



There are also charts to help you determine your BMI. The chart is read by locating your height at the top of the table and your weight on the left side. The point on the table where the two meet is your BMI.





BMI Chart

Height (ft'in")	5'0"	5'2"	5'4"	5'6"	5'8"	5'10"	6'0"	6'2"	6'4"	6'6"
Height (in)	60	62	64	66	68	70	72	74	76	78

BMI (kg/m2)

Weight (lbs)	BMI (kg/m2)											
	150	160	170	180	190	200	210	220	230	240	250	
150	29.4	27.5	25.8	24.3	22.9	21.6	20.4	19.3	18.3	17.4		
160	31.3	29.3	27.5	25.9	24.4	23.0	21.7	20.6	19.5	18.5		
170	33.3	31.2	29.2	27.5	25.9	24.4	23.1	21.9	20.7	19.7		
180	35.2	33.0	31.0	29.1	27.4	25.9	24.5	23.2	22.0	20.8		
190	37.2	34.8	32.7	30.7	28.9	27.3	25.8	24.4	23.2	22.0		
200	39.1	36.7	34.4	32.3	30.5	28.8	27.2	25.7	24.4	23.2		
210	41.1	38.5	36.1	34.0	32.0	30.2	28.5	27.0	25.6	24.3		
220	43.1	40.3	37.8	35.6	33.5	31.6	29.9	28.3	26.8	25.5		
230	45.0	42.2	39.6	37.2	35.0	33.1	31.3	29.6	28.1	26.6		
240	47.0	44.0	41.3	38.8	36.6	34.5	32.6	30.9	29.3	27.8		
250	48.9	45.8	43.0	40.4	38.1	35.9	34.0	32.2	30.5	29.0		
260	50.9	47.7	44.7	42.1	39.6	37.4	35.3	33.5	31.7	30.1		
270	52.8	49.5	46.4	43.7	41.1	38.8	36.7	34.7	32.9	31.3		
280	54.8	51.3	48.2	45.3	42.7	40.3	38.1	36.0	34.2	32.4		
290	56.8	53.2	49.9	46.9	44.2	41.7	39.4	37.3	35.4	33.6		
300	58.7	55.0	51.6	48.5	45.7	43.1	40.8	38.6	36.6	34.7		
310	60.7	56.8	53.3	50.1	47.2	44.6	42.1	39.9	37.8	35.9		
320	62.6	58.7	55.0	51.8	48.8	46.0	43.5	41.2	39.0	37.1		
330	64.6	60.5	56.8	53.4	50.3	47.4	44.8	42.5	40.3	38.2		
340	66.5	62.3	58.5	55.0	51.8	48.9	46.2	43.7	41.5	39.4		
350	68.5	64.1	60.2	56.6	53.3	50.3	47.6	45.0	42.7	40.5		
360	70.5	66.0	61.9	58.2	54.9	51.8	48.9	46.3	43.9	41.7		
370	72.4	67.8	63.6	59.8	56.4	53.2	50.3	47.6	45.1	42.8		
380	74.4	69.6	65.4	61.5	57.9	54.6	51.6	48.9	46.4	44.0		
390	76.3	71.5	67.1	63.1	59.4	56.1	53.0	50.2	47.6	45.2		
400	78.3	73.3	68.8	64.7	60.9	57.5	54.4	51.5	48.8	46.3		
410	80.2	75.1	70.5	66.3	62.5	59.0	55.7	52.8	50.0	47.5		

Overweight

Obese

Morbidly Obese



Weight guidelines

Overweight	BMI more than 25 kg/m ²
Obese	BMI 30 to 34.9 kg/m ²
Severely Obese	BMI 35 to 39.9 kg/m ²
Morbidly Obese	BMI more than 40 kg/m ² or BMI 35 to 39.9 kg/m ² with associated medical problems (diabetes, high blood pressure, etc)

Morbid Obesity

When obesity is so severe that it threatens one's health and affects the lifespan of the individual



Why should I lose weight??

400,000 Americans die prematurely each year due to obesity-related diseases. This number is increasing rapidly and soon obesity will replace tobacco and smoking as the number one preventable health problem in the United States.



Obesity increases the chance that you will develop one of the following diseases:

- **High blood pressure**
- **Diabetes mellitus**
- **Elevated Cholesterol**
- **Arthritis**
- **Sleep Apnea**
- **Gallstones**
- **Stroke or Heart Attack**
- **Cancer**
 - **Uterus, cervix, prostate, colon/rectal, gallbladder, breast**

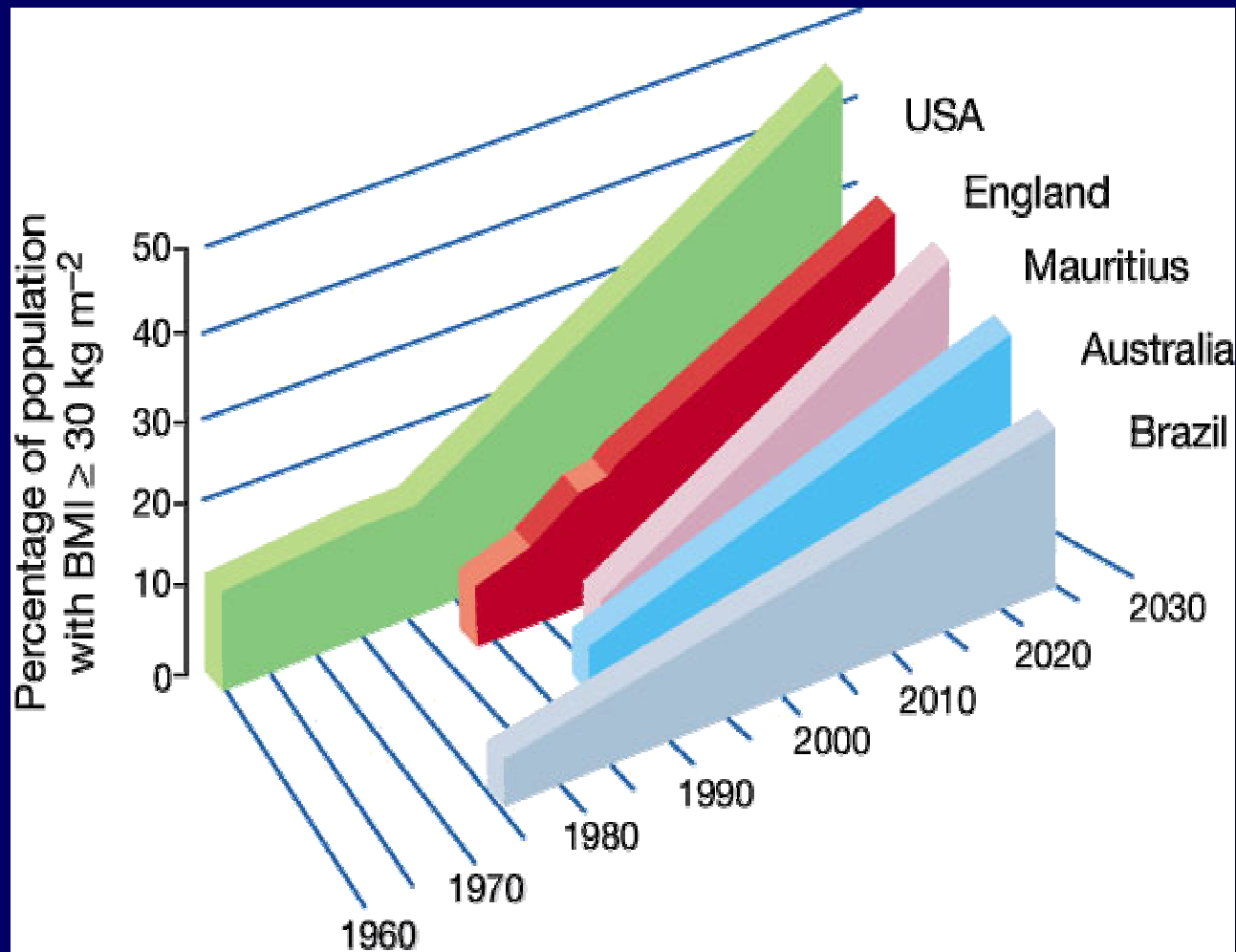


Other problems related to obesity

Death rates increase at least 200% for men and women who are significantly overweight (more than 50 pounds)



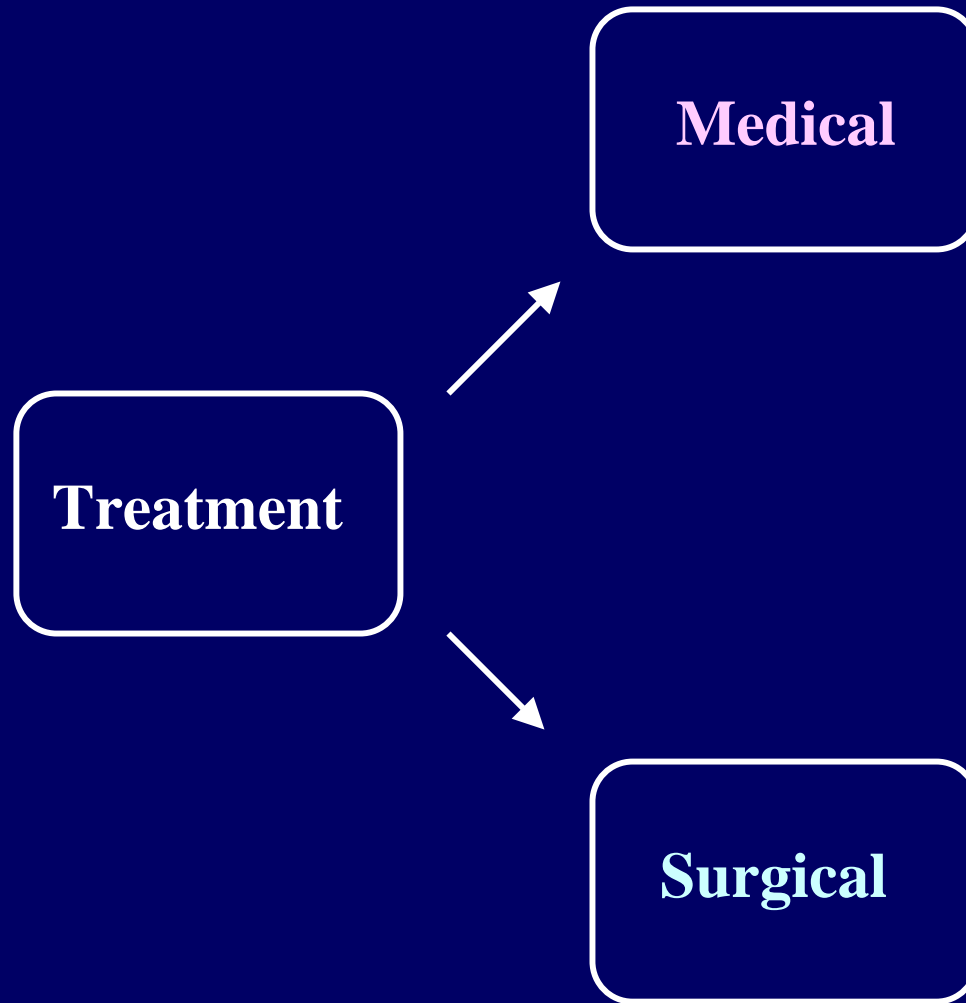
It is predicted that obesity over the course of the next 20 years will be the ***number one health problem*** throughout the world



How can I lose weight and
keep it off ??



There are two accepted methods to treat obesity:



Medical Treatment of Obesity

- **Diet** – low in calories, fat and carbohydrates
- **Exercise** – 40 minutes 5 times per week
- **Behavior Modification** – eat 3 sensible meals per day, avoid snacking
- **Drugs/Prescription medications**
 - Stimulants/appetite suppressants
 - Antidepressants (Meridia[®])
 - Reduce fat absorption (Xenical[®])



Disadvantages of medical treatment:

- **Most patients (95-97%) regain most or all of the weight that was lost within 2-5 years following diet or drug treatment**
- **The average amount of weight loss is relatively small -- 10-40 pounds**
- **Drug therapy may be associated with severe complications (Fen-Phen and heart disease).**



Disadvantages of medical treatment:

- Most insurance companies do not cover costs associated with these programs
- Very difficult for most people to maintain these programs in the long term
- “Yo-Yo” effect of many different programs leads to significant weight fluctuations



Surgical Treatment of Obesity

Surgeons who specialize in treating obesity are known as Bariatric Surgeons. Bariatric surgery encompasses all of the various operations which have been designed to cause a significant and long-lasting weight-loss in severely obese patients.



The term “Bariatric Surgery”

Comes from the Greek words

baros – meaning weight

and

iatreia – meaning medical
treatment



Surgical Treatment of Obesity

Surgery for the treatment of obesity is only appropriate for those individuals who are considered Morbidly Obese. Because of the possible risks and complications of surgery, it is not appropriate for individuals who do not meet this criteria to undergo weight-loss surgery.



Who Qualifies for Consideration for Surgery?

- Patients with a BMI of 40 or greater (roughly 100 pounds overweight)
- Patients with BMI of 35 (roughly 80 pounds overweight) or greater who also suffer from a severe medical condition related to obesity (sleep apnea, diabetes, heart failure, high blood pressure)
- A patient who is prepared and willing to commit to the lifestyle changes that will be necessary following surgery



Who Qualifies for Consideration for Surgery?

- They should have no known endocrine (glandular) or metabolic causes for their severe obesity.
- They should be of sound mind to understand the risks of the operation and the commitment which is necessary to be successful.
- They should be able to commit to regular follow-up visits with their doctor, as well as a sound diet and exercise program after surgery.
- Candidates need to have attempted medical weight loss treatments without success.



Who is not eligible for surgery?

The following individuals are not eligible to have weight-loss surgery:

- History of substance abuse, eating disorder, or major psychiatric problem which is untreated and/or unresolved
- Patients who are too ill or too high a risk for surgery
- Women who may become pregnant soon



Surgical Treatment of Obesity

Bariatric surgery has been actively practiced by surgeons in the U.S. since the 1960's.

Recently, techniques in Laparoscopic and Minimally Invasive surgery have caused a dramatic increase in the number of weight loss surgeries being performed in the United States.



Surgical Treatment of Obesity

According to the National Institute of Health (NIH), patients who have been unsuccessful at losing weight using medical treatments such as Diet, Exercise and medications, surgery is the treatment of choice and the only treatment that has been proven to be successful in the long term (more than 10 years).



Why would anyone have surgery to lose weight?

- Most people are not successful losing weight with diets (up to 97% are unsuccessful)
- As someone becomes more overweight, the risk of developing other serious diseases dramatically increases
- Surgery has proven to be the MOST effective method to treat severe obesity



Types of Surgery

- **Purely Restrictive**

Restricts the amount of food that you can consume and therefore decreases the number of calories eaten. This type of procedure does not alter the digestive or absorptive function of the intestine



Types of Surgery

- **Mostly Restrictive**

The majority of the weight loss is caused by the restriction of food and calorie intake, however a small component of the procedure is directed at limiting calorie absorption from the intestine



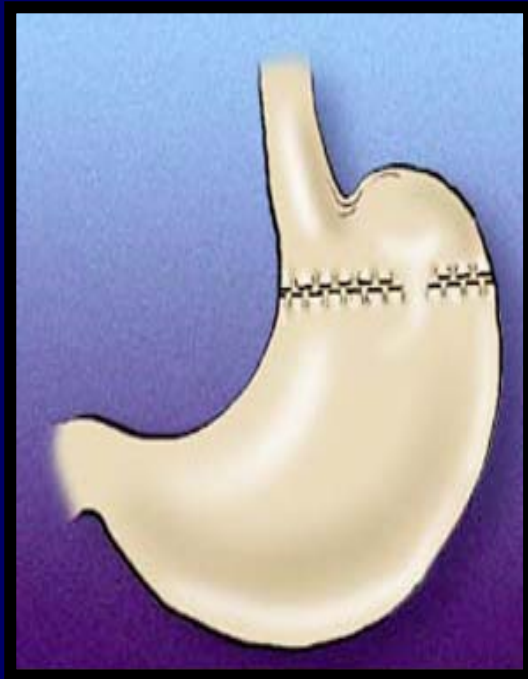
Types of Surgery

- **Mostly Malabsorptive**

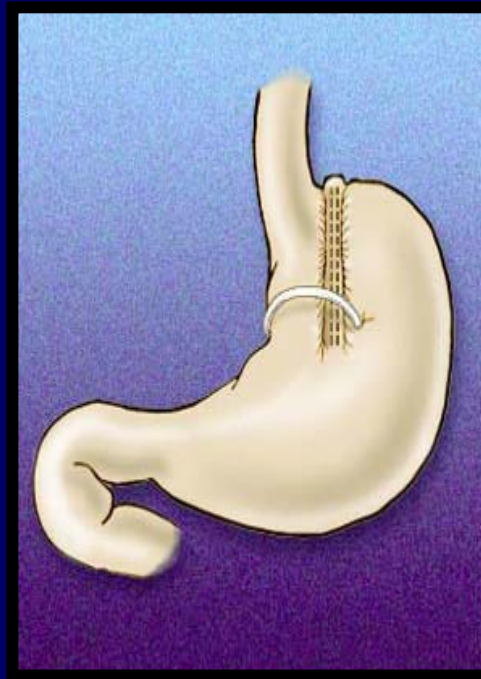
A large percentage of the small intestine is “bypassed” leading to poor absorption of the food which is eaten, especially fats. Food passes through the body without being digested.



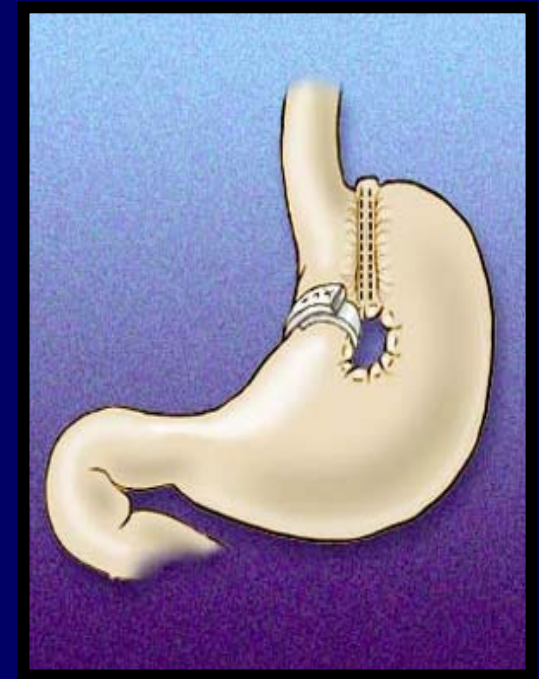
Restrictive Operations



Horizontal
Gastroplasty



Silastic Ring
Gastroplasty



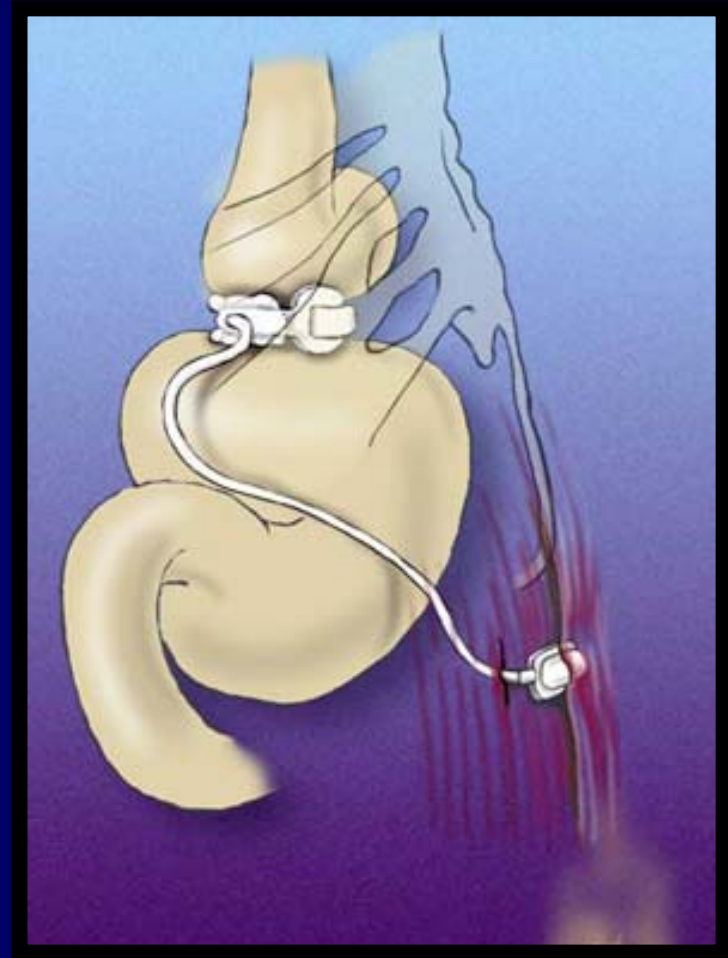
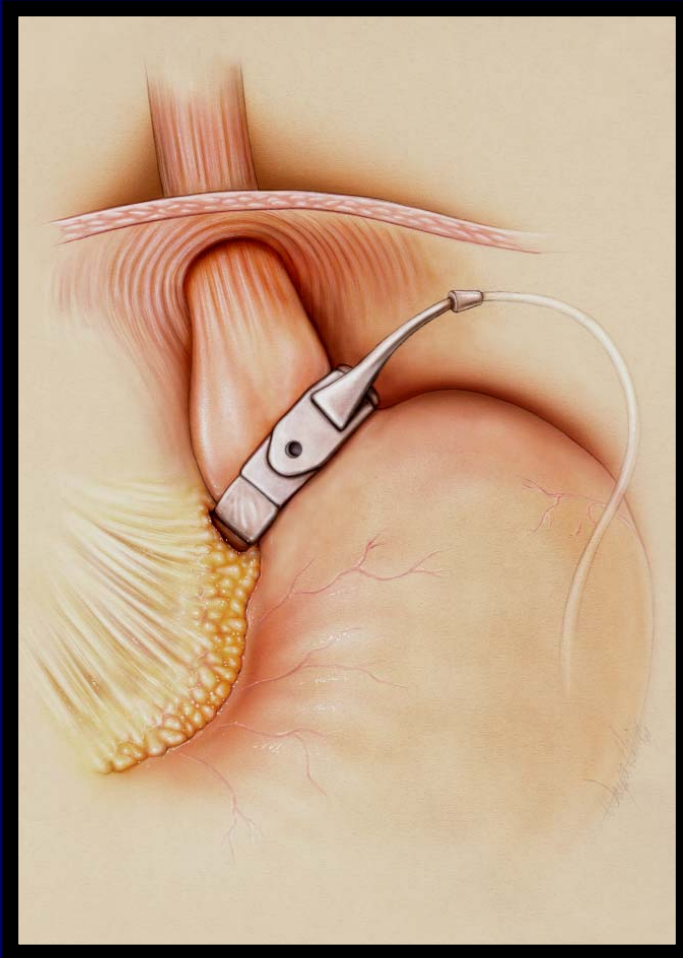
Vertical Banded
Gastroplasty



The three operations pictured
on the previous slide are
performed much less
frequently today than in the
past because of disappointing
long-term weight loss and
complications in some
patients



Restrictive Operations



Laparoscopic Adjustable Gastric Band

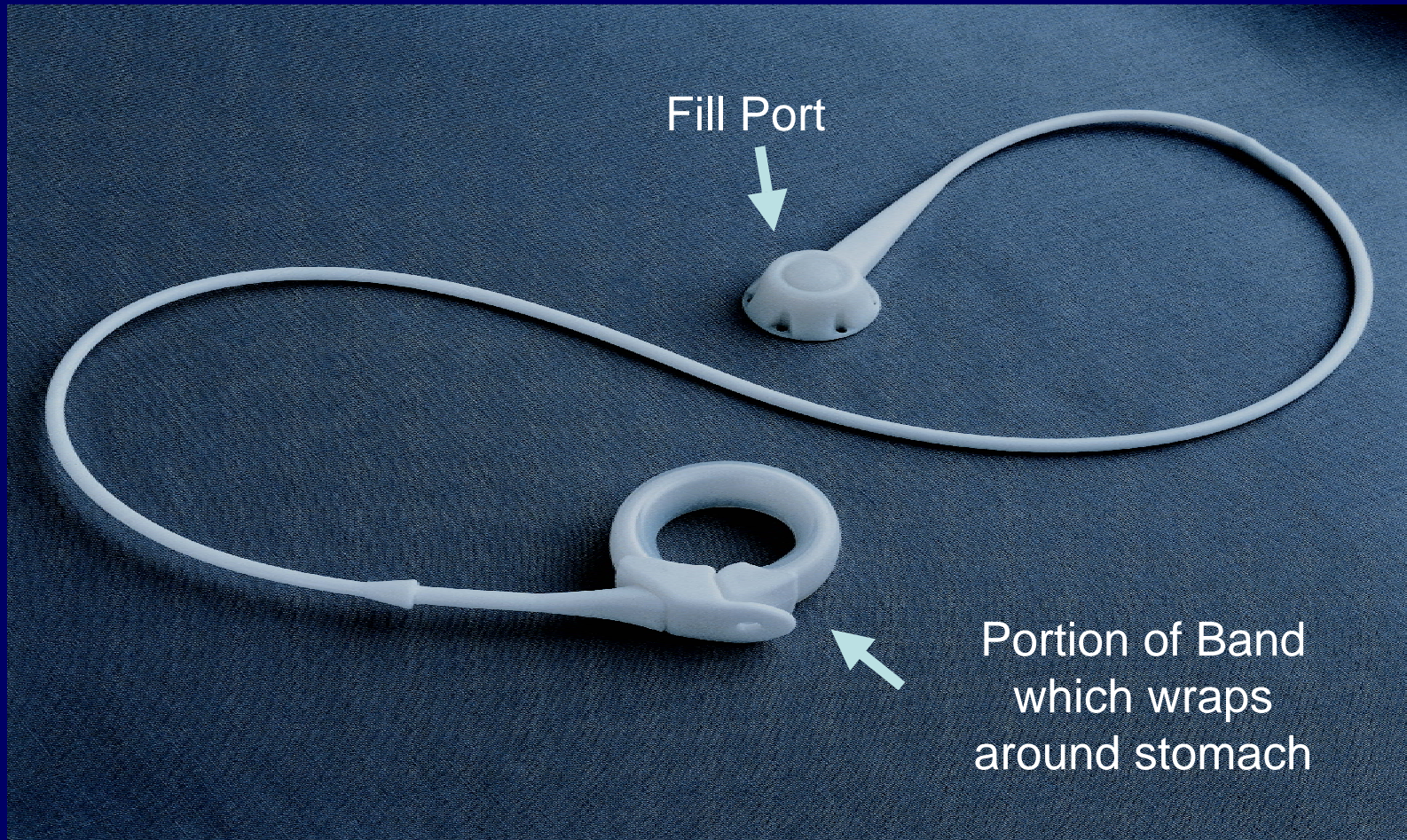


Adjustable Gastric Band

The Lap-Band® Adjustable Gastric Band device was approved by the FDA for use in the United States in June of 2001. It has proven to be a simple, yet effective weight loss tool.



Lap-Band[®] Adjustable Gastric Band



The Lap-Band[®] is made from silicone (plastic)

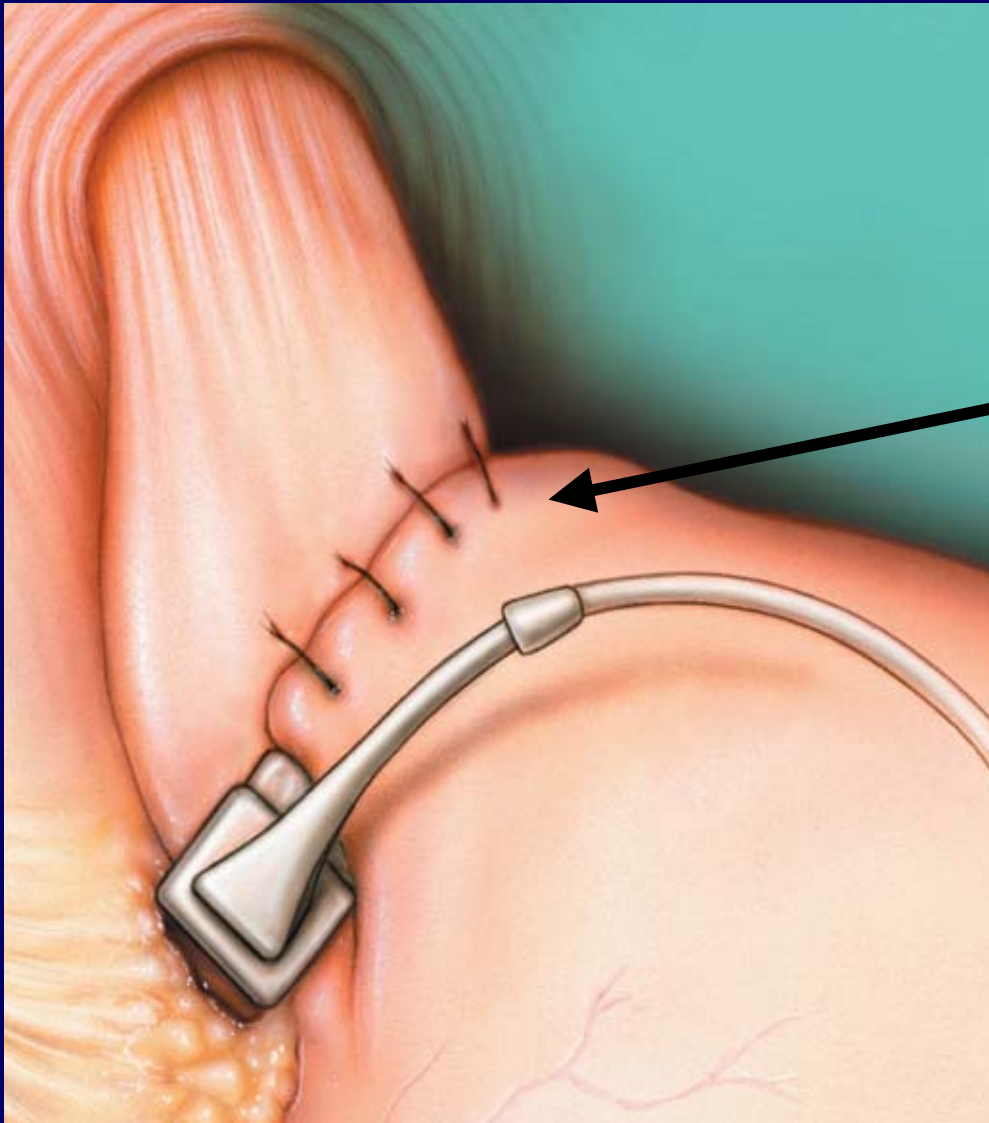


Adjustable Gastric Band

The Band is placed around the top of the stomach and induces weight-loss in 3 ways:

- Creates a small “stomach pouch” that fills with just a little amount of food (causing a sensation of “fullness”)
- “Squeezes” the stomach like an hour glass keeping food in the stomach pouch (prolonging the sensation of “fullness”)
- Suppresses or takes away the appetite

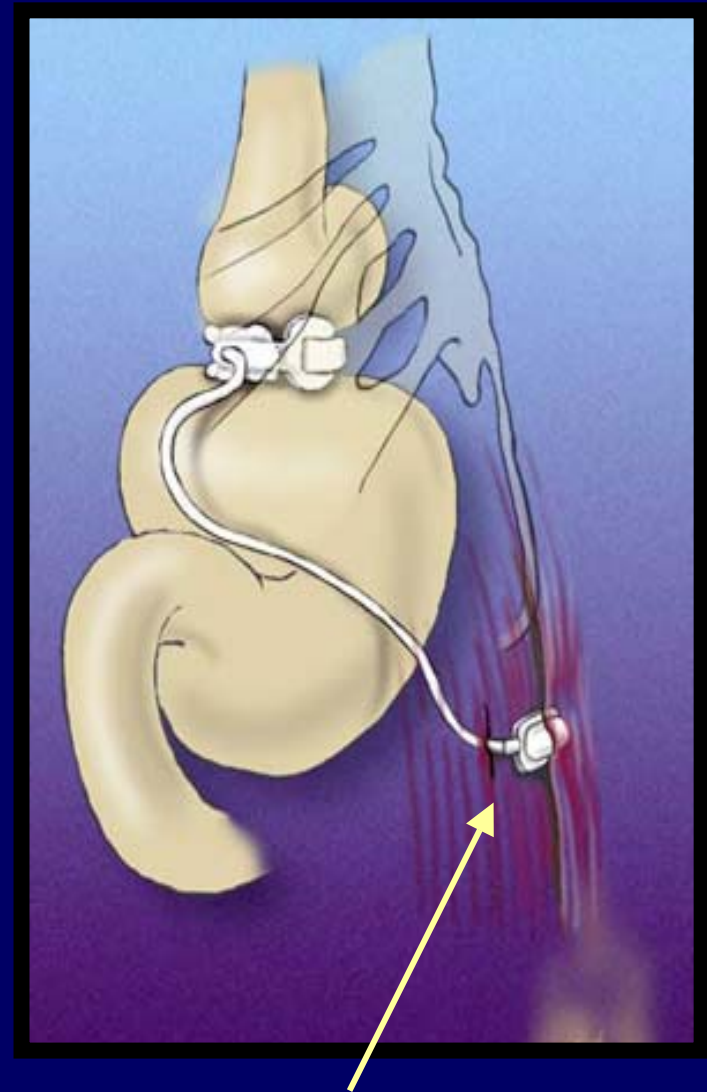




Once the Band is positioned in the correct place on the stomach, the wall of the stomach is sewn over the top of the Band to help keep it in the right location



The fill port of the Band is placed under the skin and fatty tissue on the abdominal wall (the muscle layer of the belly). It is usually placed above and to the left of the umbilicus (belly button), however other locations may be used by your surgeon depending on your situation.

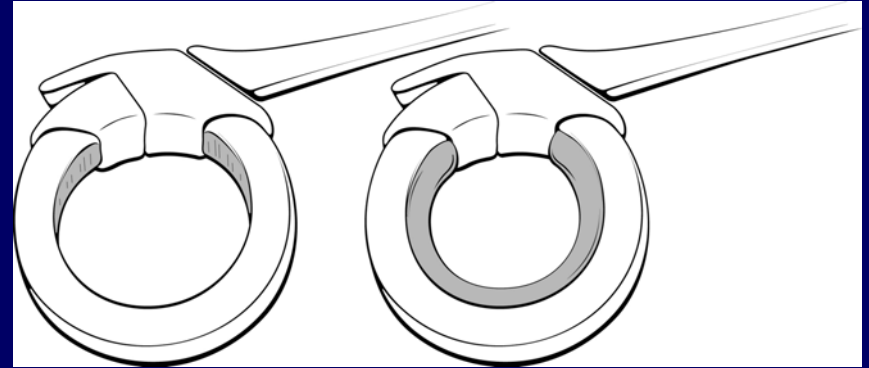


Port located under skin on belly



Adjustable Gastric Band

Saline (salt water) can be placed into the fill port which sits under the skin of the abdomen to make the band tighter or looser. This allows the surgeon to regulate the weight loss process.



When saline is placed into the fill port, it causes the balloon on the inside of the band to inflate making it tighter on the stomach



Adjustable Band Facts

- Has been used in Europe and Australia for approximately 10 years with very good success. Medical studies in these countries have demonstrated that motivated and well selected patients are able to lose and keep off approximately 60% of their excess weight in the long-term.
- The most easily reversible surgical weight loss method. Also the only one that is adjustable.
- Is an option in patients who do not wish to permanently rearrange their intestinal tract or staple their stomach



Potential Complications of Adjustable Gastric Lap-Band®

- Perforation of Stomach
- Malpositioning
- Abdominal Pain
- Heartburn
- Vomiting
- Inability to Adjust the Band
- Failure to Lose Weight
- Slippage
- Gastric Erosion
- Dilated esophagus
- Infection of System
- Fatigue or malfunction
- Death



Mostly Restrictive Procedures

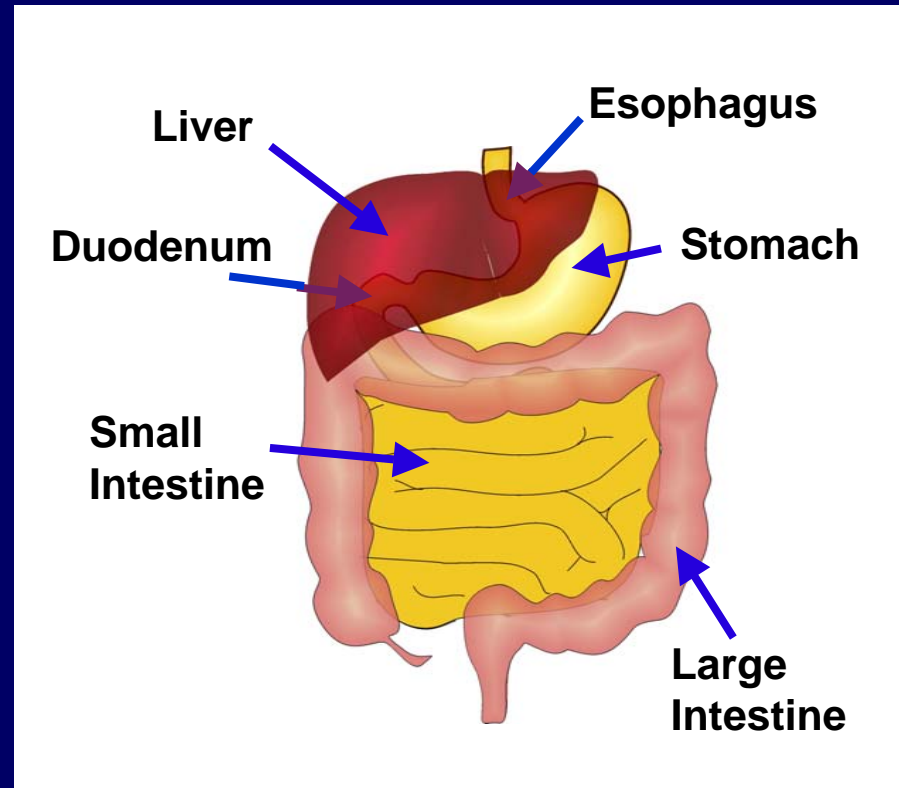
The Roux-en-Y gastric bypass (known simply as the Gastric Bypass) is the most commonly performed weight loss surgery in the United States. It primarily causes weight loss by restricting the food intake, however there is a small amount of malabsorption that occurs with this operation.



The Roux-en-Y Procedure

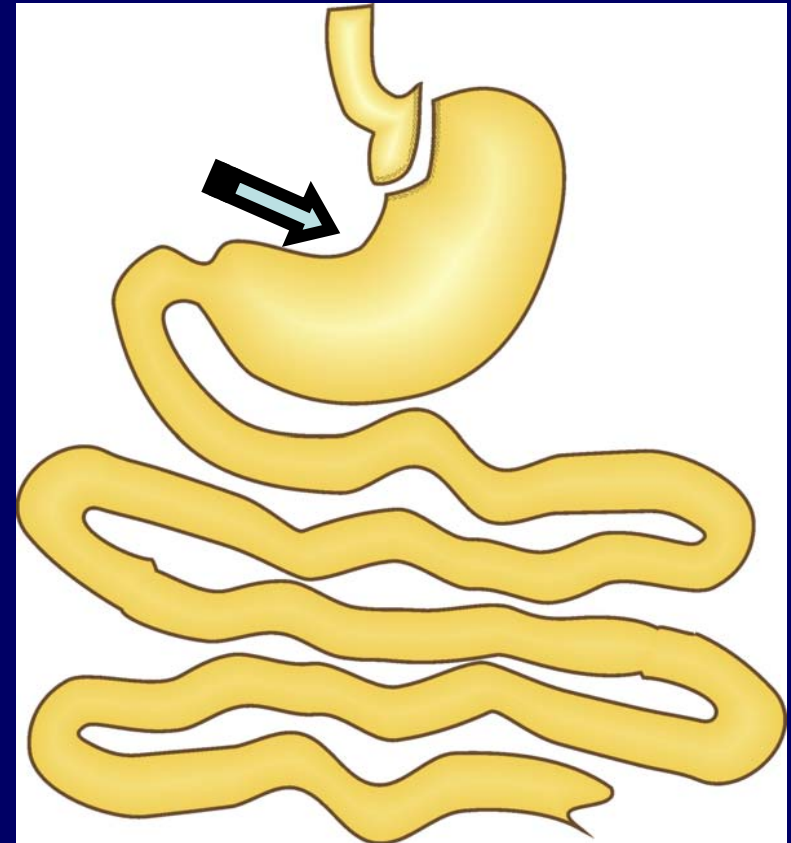
Normally, food enters the stomach through the esophagus and leaves through the duodenum.
(Under the liver in this illustration.)

Food is digested in the small intestine and then enters the large intestine before leaving the body.



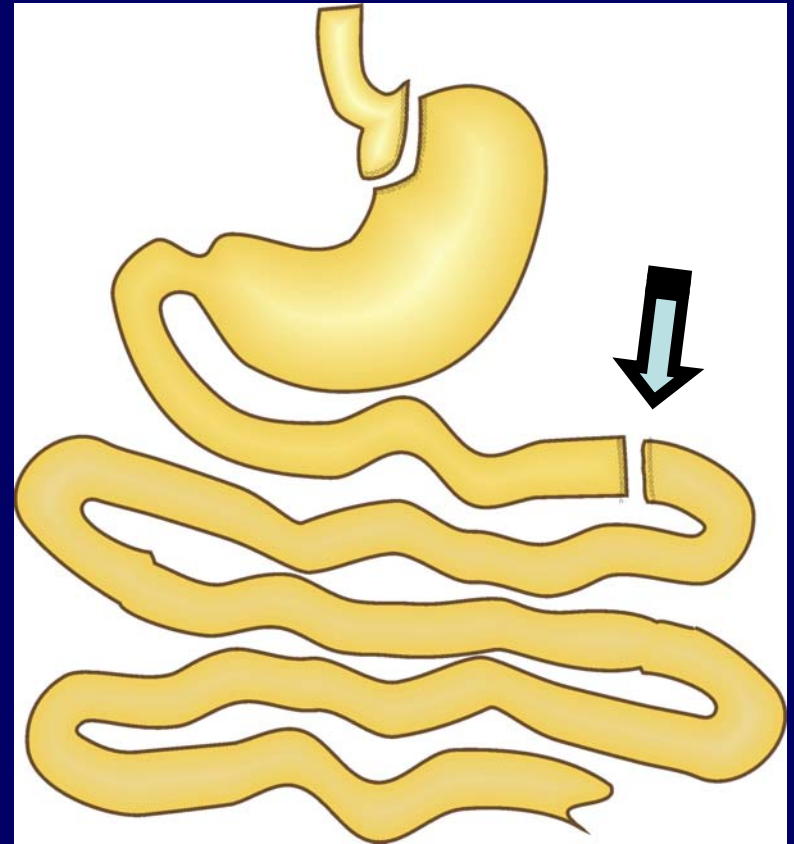
The Roux-en-Y Procedure

- The stomach is stapled into 2 pieces, one small and one large. The small piece becomes the “new” stomach pouch
- The pouch is 5% of the size of the old stomach, therefore holds much less food
- The larger portion of the stomach stays in place, however will lie dormant for the remainder of the patient’s life.



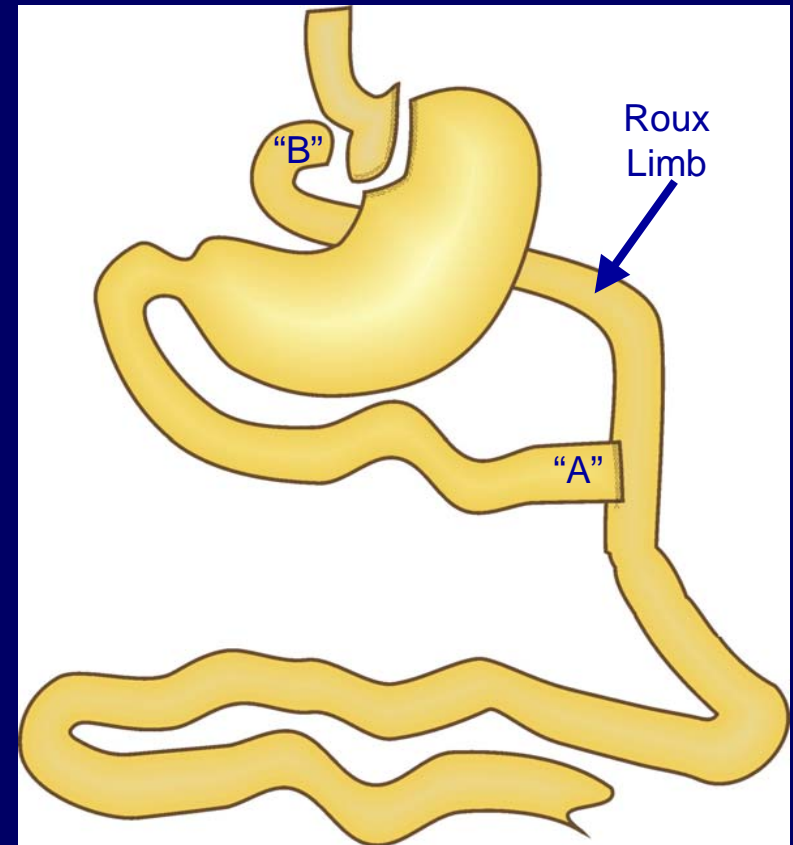
The Roux-en-Y Procedure

- The beginning section of the small intestine (the jejunum) is divided using a surgical stapler approximately 3 feet from the end of the stomach.



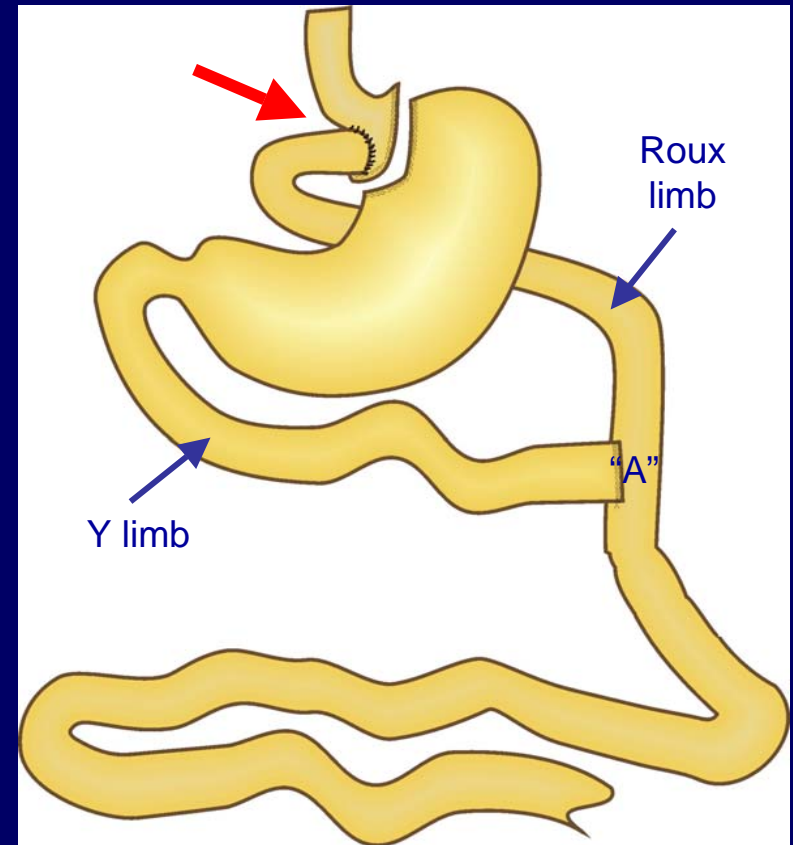
The Roux-en-Y Procedure

- The section coming from the stomach is reattached to the small intestine (“A” on the diagram) approximately 100 to 150 centimeters (3 to 5 feet) from the recently stapled end of the small intestine.
- This forms the Roux limb.
- The Roux limb is then brought next to the pouch



The Roux-en-Y Procedure

- The end of the Roux limb is then attached to the newly formed pouch (red arrow)
- The Roux limb carries food to the intestines
- The Y limb carries digestive juices from the pancreas, gall bladder, liver and duodenum to the intestines
- The food and the digestive juices mix where the Roux limb and Y limb meet ("A")



Roux-en-Y Facts

- Very effective in obtaining and maintaining long-term weight loss. At 10 years, the average patient will have lost about 70% of their excess weight and kept it off.
- Seems to be more effective in patients whose BMI is 50 or less. In heavier patients, late weight regain may be a problem



Potential Complications of Gastric Bypass Procedure

- Leak at one of the staple lines or bowel connections
- Abdominal infection or abscess
- Blood clot in the leg veins
- Pulmonary embolus (blood clot in the artery of the lungs)
- Bowel Obstruction or blockage
- Wound problems -- Infection, Hernia, Scar
- Narrowing of one of the intestinal connections
- Nausea and vomiting

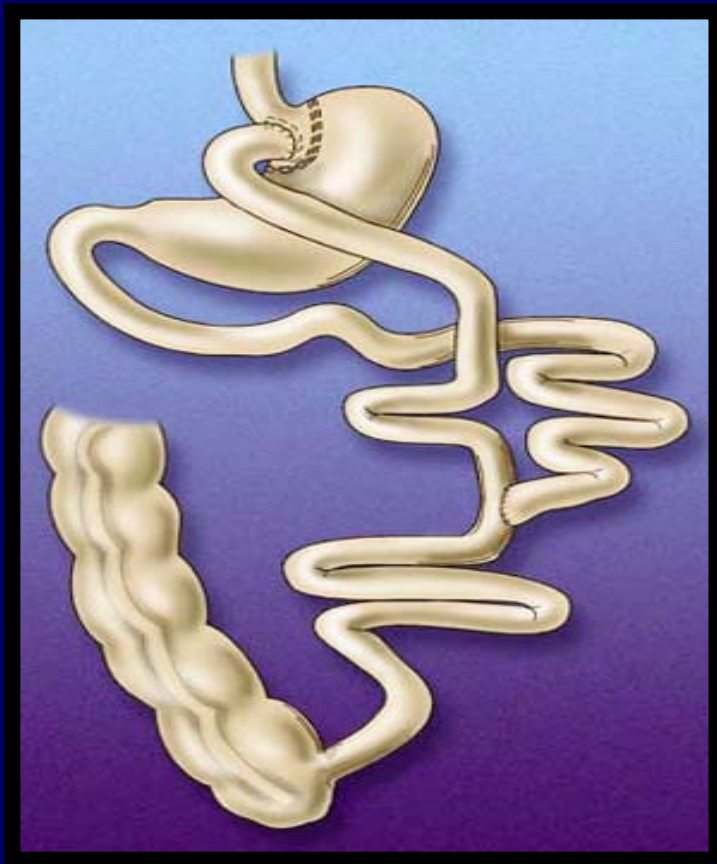


Potential Complications of Gastric Bypass Procedure

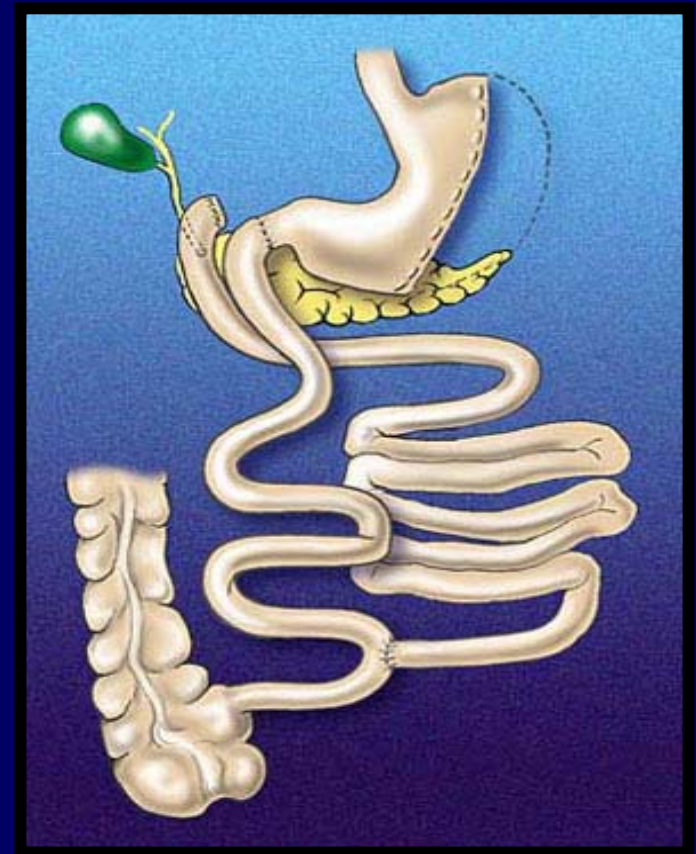
- Anemia / Malnutrition
- Injury to the spleen, stomach, or esophagus
- Pneumonia
- Depression
- Flatulence/gas
- Diarrhea
- Failure to Lose Weight
- Vitamin Deficiencies
- Ulcers
- Death



Mostly Malabsorptive Procedures



Long-limb Roux-en-Y
Gastric Bypass



Biliopancreatic
Diversion with
Duodenal Switch



Malabsorptive Procedures

- Performed by only select surgeons due to the complexity of the surgery and the long-term follow-up requirements
- Causes weight loss by limiting absorption by the small intestine of the food which is eaten (primarily fatty foods)
- Usually reserved for the most severe cases of Obesity



Biliopancreatic Diversion with Duodenal Switch

- A new small tubular stomach pouch is created by removing about 65-85% of the original stomach. This leaves most patients with a 4-8 oz “stomach pouch”
- About 80-90% of the small intestine is “bypassed” so that much of what is eaten is not absorbed or digested



Malabsorptive Procedure Facts

- The largest weight loss is usually seen with this procedure. At 10 years, the average excess weight loss is about 80%.
- Heavier patients (those with a BMI of more than 50) appear to have better results with this operation in the long term than other weight-loss procedures
- Complications can be more severe and frequent with this surgery than with others



Complications of Malabsorptive Procedures

- Leak at one of the staple lines or bowel connections
- Abdominal infection or abscess
- Blood clot in the leg veins
- Pulmonary embolus (blood clot in the artery of the lungs)
- Bowel Obstruction or blockage
- Wound problems -- Infection, Hernia, Scar
- Narrowing of one of the intestinal connections
- Nausea and vomiting
- Severe Heartburn/reflux
- Death



Complications of Malabsorptive Procedures

- Anemia / Severe Malnutrition
- Injury to the spleen, stomach, or esophagus
- Pneumonia
- Depression
- Flatulence/gas
- Diarrhea and loose bowel movements
- Foul smelling bowel movements
- Loss of too much weight
- Severe Vitamin Deficiencies
- Lactose intolerance
- Gallstones or Kidney Stones



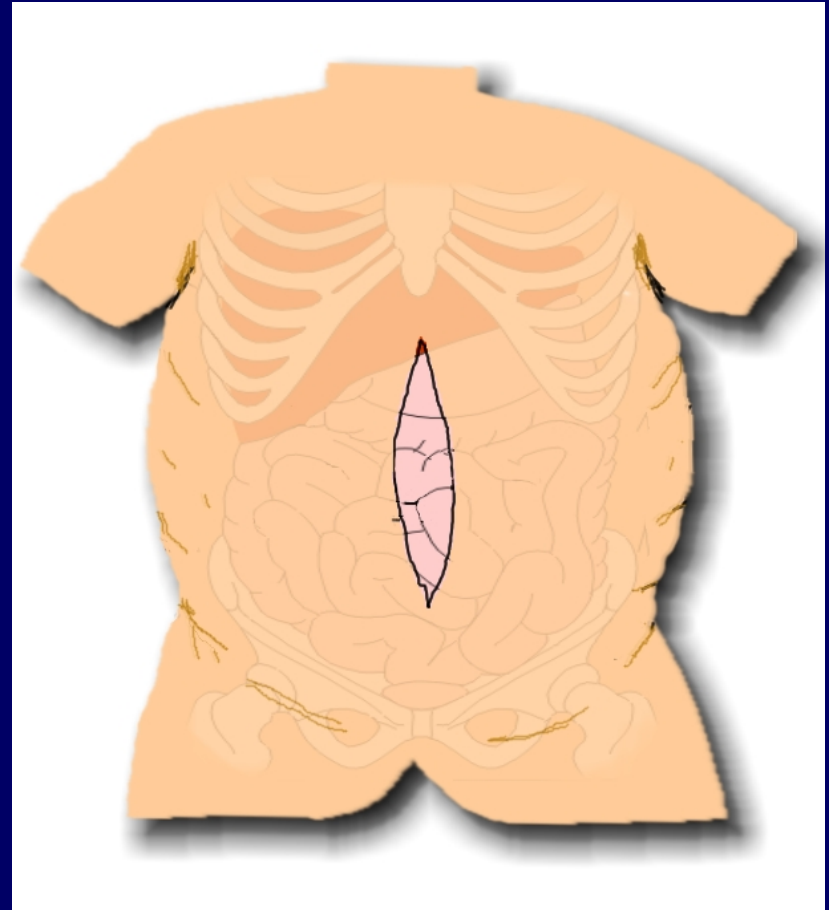
Weight loss surgery

All of these procedures can be performed either laparoscopically (several small incisions) or Open (one large incision). Make sure that your surgeon has expertise with weight loss surgery and has been specially trained to perform these operations, as these doctors seem to get the best results and have the fewest complications.



Open or Traditional Surgery

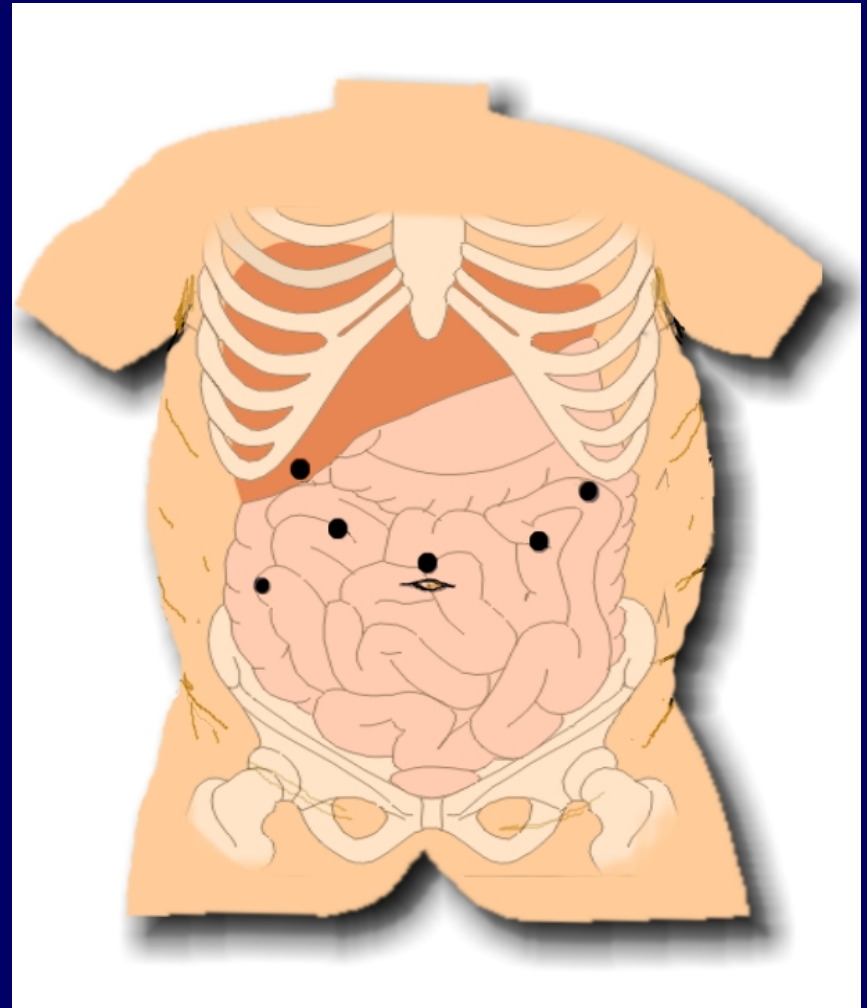
A 10- to 15-inch incision is made so that the surgeon can place his hands and instruments into the abdomen to complete the surgery.



Laparoscopic Procedure

5 to 6 $\frac{1}{4}$ - $\frac{1}{2}$ inch incisions are made to allow the surgeon to place a camera and instruments into the abdomen to complete the surgical procedure. The benefits of using these small incisions rather than 1 large one are:

- Less Pain
- Quicker recovery and return to normal activity
- Fewer complications
- Less noticeable scar
- Shorter hospital stay



Benefits of Weight loss Surgery

- Prevention of debilitating diseases such as arthritis, diabetes, and sleep apnea
- More energy and stamina
- Improved sense of wellbeing and self-esteem
- Extended life-span
- Actually cures most existing related medical problems such as diabetes, sleep apnea, high blood pressure, etc





Resolution of Medical Problems after Surgery

N= 104 1 year post-op	Number Prior to Surgery	% Worse	% No - change	% Improved	% Resolved
Osteoarthritis	64	2	10	47	41
Hypercholesterimia	62	0	4	33	63
GERD	58	0	4	24	72
Hypertension	57	0	12	18	70
Sleep Apnea	44	2	5	19	74
Hypertriglyceridemia	43	0	14	29	57
Peripheral Edema	31	0	4	55	41
Stress Incontinence	18	6	11	39	44
Asthma	18	6	12	69	13
Diabetes	18	0	0	18	82
Average		1.6%	7.6%	35.1%	55.7%
				90.8% Improved or Resolved	

If you would like more information regarding weight loss surgery, please ask your primary care physician for a referral to a surgeon who specializes in this treatment.

You can locate a laparoscopic surgeon in your area by going to the SAGES website at www.SAGES.org

