

# About Surgery

We use our experience and long-term commitment to put the latest surgical advances to work for our patients.

Nearly all surgical procedures in our practice are accomplished laparoscopically. This means that the surgeon makes several small incisions (about 1/2 inch for each incision) and uses a TV camera plus a number of small instruments to create the planned changes in the patient's anatomy. Laparoscopic surgery minimizes the trauma created by the surgery, and we believe that the excellent visualization allows us to do the procedures more precisely for better outcomes. Laparoscopic surgery causes less pain than traditional large incisions, and in addition we use new technology to deaden pain nerves so that pain often cannot even get started.

Every one of these techniques is applied with the main goal of making surgery safer, and they have the nice additional effect of making recovery easier. Most patients who have a Gastric Band placed by our surgeons can go home on the same day of the procedure (outpatient surgery), and most patients who have a Gastric Bypass or a Sleeve Gastrectomy can be home within 1-3 days. Most patients are back to work in the first 1-3 weeks after surgery.

Currently our practice offers three surgical procedures. We have an excellent level of confidence in each of these procedures, and we find that most of the time it works best for the **patient to choose** which surgical procedure he/she should have done.

## Roux-en-Y Gastric Bypass

The Gastric Bypass procedure is done by using a surgical stapler to cut across the upper stomach, leaving a tiny stomach pouch that empties food into a section of small intestine that the surgeon connects to it. This operation has been around for a long time and continues to be the most commonly performed Bariatric procedure in the United States. It helps patients achieve a lot of weight loss and it is reliable, but it is complex and sometimes surgically challenging.

## Adjustable Gastric Banding

During a Gastric Band procedure, the surgeon encircles the upper section of the stomach with a flexible plastic Band or "Belt." The inside surface of the Band is a balloon; in the weeks and months after surgery the surgical team can inject saline fluid into the balloon to create a calibrated restriction on the stomach. The Band causes the least physical impact on the day of surgery, but it requires very extensive follow-up to help it work the best for each individual patient.

## **Vertical Sleeve Gastrectomy**

The Gastric Sleeve is done by using a surgical stapler to remove the large reservoir component of the stomach, leaving behind a long narrow tube of stomach. This operation appears to help patients achieve a very helpful level of weight loss, while being simpler than the Gastric Bypass and easier to maintain than the Gastric Band. However, the Gastric Sleeve has only been in use since about 2004 and surgeons are not yet certain that the weight loss is sustained over many years.

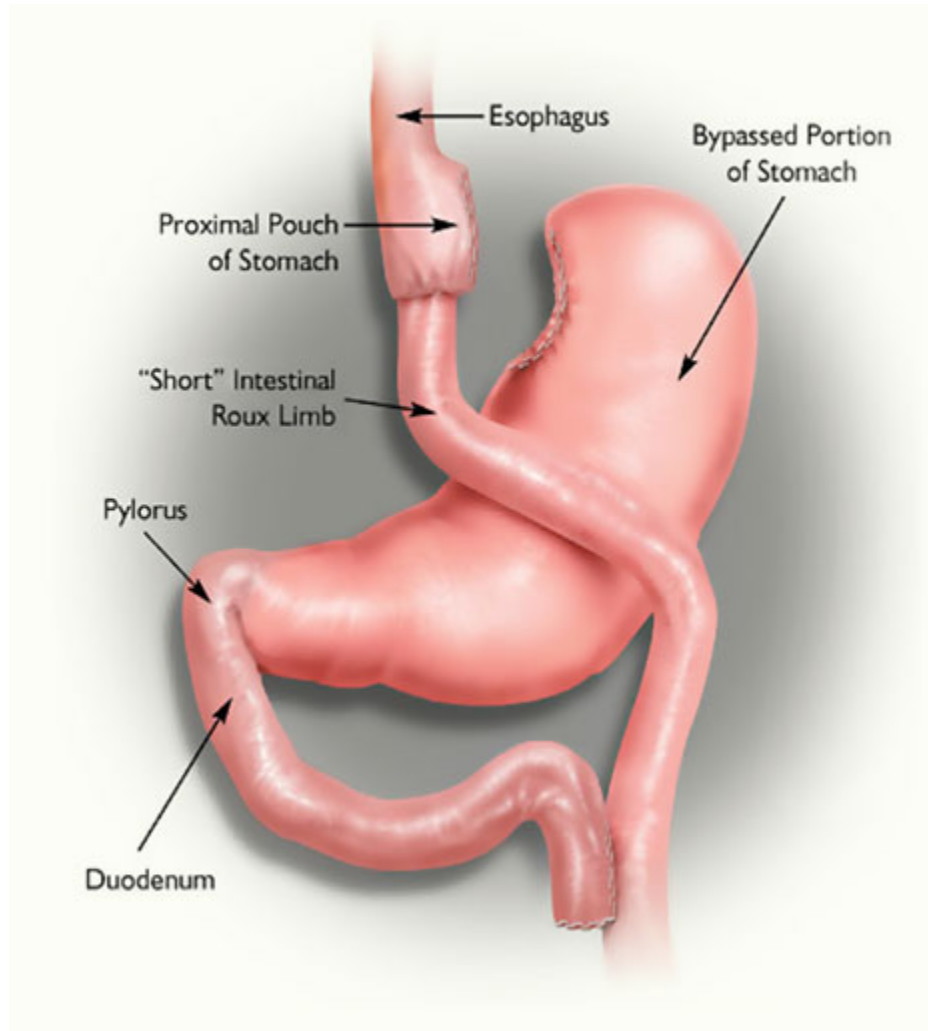
## **Roux-en-Y Gastric Bypass**

The Gastric Bypass was one of the first Bariatric surgical procedures devised in the 1970's, and it has stood the test of time as a procedure which helps patients achieve substantial and sustained weight loss. The weight loss achieved after Gastric Bypass helps improve or resolve many medical problems, and the Gastric Bypass is especially effective in the treatment of Diabetes and GERD.

The Gastric Bypass is currently the most commonly performed Weight Loss Surgical procedure in the U.S. Dr. Nazarian has been performing the Gastric Bypass since 1980, and he has been performing the Gastric Bypass laparoscopically since early 2000. We've had excellent results with newer procedures, but the Gastric Bypass continues to be the most commonly performed procedure because it is reliable and proven.

The Gastric Bypass is done laparoscopically by Dr. Nazarian more than 95% of the time.

## **About the Surgery**



The surgery involves the application of a surgical stapling device that divides the upper stomach to create a tiny stomach pouch at the upper end. This pouch is shaped to be about the size of a thumb, and will hold 15 ml or less – this is smaller than the yolk of an egg. The pouch can only hold two or three tiny bites of food, so that patients become full very easily. This restriction on the amount of food is the most important factor in helping Gastric Bypass patients lose weight.

The Gastric Bypass also involves attachment of the newly-created stomach pouch to a segment of small intestine (the Roux limb) which is brought up from the mid-abdomen. A key feature of this portion of small intestine (technically called "jejunum") is that it cannot handle concentrated calories; therefore, if a patient consumes foods which contain sugar or starches, then this segment of intestine reacts by creating a temporary illness called dumping syndrome. Since Dumping Syndrome makes a patient feel physically ill as a result of sugar intake, most patients after Gastric Bypass find it easy to stick with healthy foods such as proteins and vegetables.

## **Dumping Syndrome**

The syndrome may be induced by the intake of simple carbohydrates, such as sugar and some starches. Dumping syndrome is characterized by palpitations (fast heart rate), a clammy feeling, queasiness and nausea, and sometimes vomiting or diarrhea. Usually the patient feels weak, and must lie down for an hour or so. The syndrome is not dangerous, but it feels awful. All Bariatric surgical patients are strongly advised to avoid sugary junk food, sugar and other carbohydrates. Experiencing the horrible effects of dumping syndrome can serve as a useful deterrent to keep patients away from these types of foods.

Some patients who undergo Gastric Bypass may require other procedures at the time of operation..

## **Adjustable Gastric Banding**

The Gastric Band (often called a "Lap-Band" procedure) is the least invasive (least traumatic) of the surgical techniques for weight loss. This procedure can be done very safely, so it is medically reasonable to consider for a wide variety of people who suffer from excess weight. Since the Band is placed with minimal surgical trauma, patients are usually back at home on the same day as surgery, and fully "back on their feet" in a week or two. Just as with any weight loss therapy, it is necessary for patients to commit to lifelong changes in diet and exercise patterns to achieve complete success with the Band.

The Gastric Banding procedure is a well accepted surgical technique for patients with a BMI of 35 or more. Because it is a safe procedure, it is also medically reasonable to do Band surgery for many who suffer from excess weight at a BMI from 30-35.

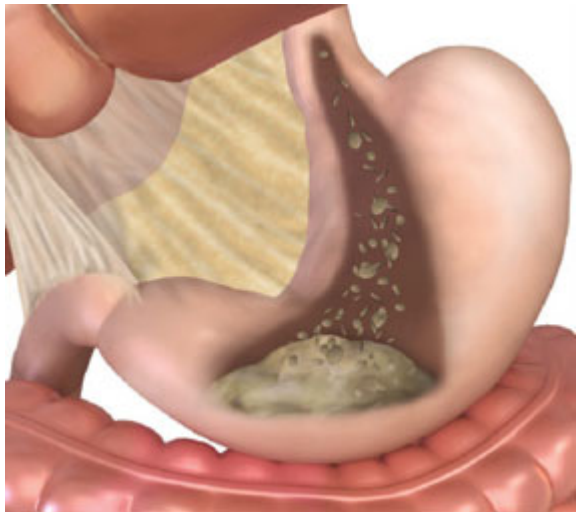
Adjustable Gastric Banding became popular in Europe and Australia in the late 1990's. One of the available Banding devices called the Lap-Band® became available in the U.S. in 2001, and our surgeons began placing the Lap Band® in 2002. Recently a new version called the REALIZE Band became available in the U.S., and we anticipate that the broadened choice will indirectly improve patient access to surgery as well as ongoing patient support after surgery.

## **About Gastric Banding Surgery**

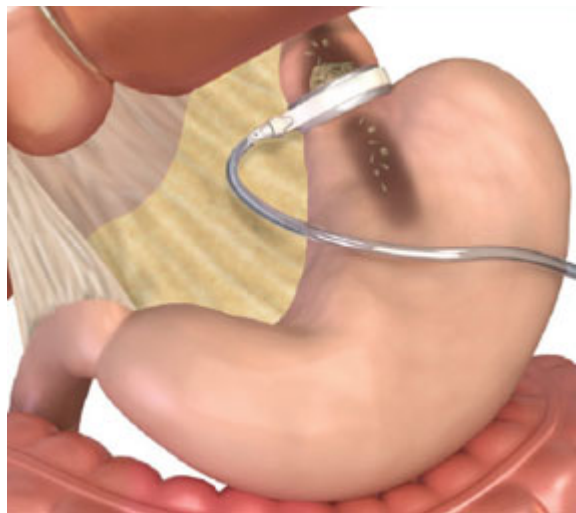
Placement of an Adjustable Gastric Band is a fairly straightforward procedure that is accomplished by placing the Band, which is a belt-like section of plastic, around the

upper stomach to create a tiny stomach pouch. The Band creates a calibrated narrowing at the bottom of this tiny new stomach, so that the pouch is easily filled up with small amounts of food. This good sensation of fullness with the Band is called “satiety.” The tiny stomach pouch gradually empties through the restricted outlet, somewhat like the flow of sand out of the top section of an hourglass.

The Band’s distinguishing feature is that it’s adjustable. Adjustment is by filling (tightening) or emptying (loosening) the balloon that lines the inside of the Band.



*Normal Stomach*



*Stomach with Realize Band*

On the day of surgery, when the Band is placed, the balloon is empty and this provides only a slight restriction to eating. For most patients, the minor trauma of Band placement on the stomach causes suppression of hunger for several weeks. Over the weeks and months following surgery, the balloon within the Band is gradually filled - thus the outlet is tightened, to provide progressively increasing restriction that is matched or tuned individually to each patient. The balloon adjustment is accomplished using an access

port, buried under the skin, to increase or decrease the amount of saline fluid contained in the balloon.

The Band is pictured in its normal position on the upper stomach, in the lower image on the right.

The Gastric Band presents several key features that make the technique attractive.

- No division or anastomosis of stomach or bowel - low impact operation
- Removable
- Adjustable

The fact that there is no cutting or repositioning of any intestine brings the risk of leak or obstruction to very low levels, but a leak is still possible. The fact that the procedure is almost always done laparoscopically may offer decreased stress on the vital organs, like the lungs and heart, and may allow quicker recovery in comparison to open procedures.

Our surgeons like to be cautious in discussing the "removable" feature of the Gastric Band. It is correct that the Band can be removed from the patient with little residual impact on the stomach. However, if the Band is removed then the patient will ALWAYS regain substantial weight. We hope that patients will choose to undergo Band placement when they are committed to lifetime changes of habit and lifestyle to work with the Band.

## **Other Features of the Gastric Band**

### **More gradual weight loss**

The Gastric Band tends to create slower and steadier weight loss than the results seen after most other surgical procedures. Most weight loss operations create very rapid weight loss in the first few months, which then slows and stabilizes at 10 to 18 months after surgery. On the other hand, Gastric Band patients begin with a relatively loose Band that allows ongoing intake of nutrition, and the Band is gradually tightened according to the patient's weight progress and satiety symptoms. The approach achieves a weight loss of one to two pounds per week that continues up to or beyond 30 months after surgery. Gastric Band advocates promote this difference as gentler, safer or more physiologic, but truthfully, Dr. Nazarina has seen very few nutritional problems in our many Gastric Bypass (GBP) patients related to rapid weight loss.

There does seem to be some variability in the weight loss after Gastric Banding. About 20% of patients lose all the weight that we would hope, about 50% lose substantial weight and have substantial medical benefit, and about 30% lose less than 40 pounds.

## **Nutrient Absorption**

Gastric Banding does not cause any absorption abnormality, in comparison to more complex operations that involve re-routing the intestines. Nevertheless, Band patients can become deficient in a variety of nutrients due to decreased intake. For the time being, Dr. Nazarian recommends exactly the same supplements after any of its Weight Loss Surgical procedures.

## **Risks Specific to Gastric Banding**

### **Band erosion**

The Band can erode through the wall of the stomach. This results in loss of restriction to eating, or Band infection caused by leakage of stomach juices onto the Band. Such erosion rarely results in a sudden life-threatening situation for the patient. Erosion of the Band requires removal of the Band, with plans for a later conversion to a different weight loss procedure. All surgeons who perform the Gastric Band have found erosion of the Band into the patient's stomach in a small percentage of cases. It appears that this event (which requires removal of the Band) occurs most frequently in the first year or so after surgery, but can occur at any time after Band placement. At the time of this writing, after a group experience of more than 500 Band procedures, Dr. Nazarian has not had any Band erosions in our patient population.

### **Band slippage or shifting**

The Band must remain in the correct position on the upper stomach in order to function properly. If it slips out of place or twists, it is likely to cause obstruction of the stomach, requiring fairly urgent re-operation to reposition the Band.

### **Swallowing problems**

As mentioned above, the function of the Band as a partial blockage against outflow from the stomach pouch may cause the esophagus to become fatigued or damaged, and fail to conduct its normal swallowing function of pushing food down in a coordinated way. The rate of occurrence of this problem varies widely among published reports.

### **Hardware breakage**

The Band, the port and the connection tubing are designed to last for life. In fact, the Band itself is almost never reported to break or leak. However, the tubing and the port definitely can become twisted, kinked or broken. Such events require usually minor re-operations for repair or repositioning of the problem spot.

### **Injury to stomach or other nearby organs during surgery**

Even in capable hands, the maneuvers involved in placing the Band may sometimes create injury to the stomach, esophagus, spleen, or liver, or to the tissues involved in placement of the trochars. Sometimes such injuries can be addressed at the time of surgery and the Band can still be placed, but sometimes the nature of the injury means it is most reasonable to abandon the operation.

## **Other Issues**

The Adjustable Gastric Band has only been in use since the early to mid 1990s, so there is no data on really long-term outcomes.

### **Esophageal function**

Some patients have experienced failure of normal esophageal peristalsis (swallowing function) after Gastric Banding. If this occurs, it causes painful swallowing, reflux or regurgitation. Band deflation or removal is required. More recent studies suggest that the occurrence of esophageal failure arises from tightening the Band too aggressively, and that this complication can be almost completely avoided.

We also work to minimize the chance of this problem by checking on the swallowing function of every Band candidate during the testing phase prior to surgery.

### **Silastic reaction**

It is possible that the material of the Band could create some type of body immune reaction that stimulates a separate disease process such as arthritis or Systemic Lupus Erythematosus (SLE). However the Band is made of a silicone elastomer which is completely non-reactive to the body tissues, as far as it has been possible to determine. The same type of material has been in use in a number of implanted medical devices over time, and no problems with tissue reaction have been demonstrated. Here again, the early data is reassuring but no true long-term information exists.

## **Sleeve Gastrectomy**

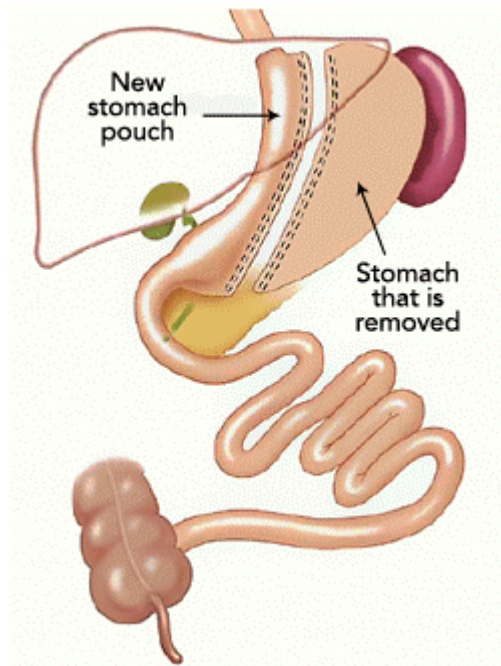
The Gastric Sleeve operation (technically called the "Vertical Sleeve Gastrectomy") is an appealing new procedure that seems to combine the reliable weight loss and low maintenance of the gastric bypass with the simplicity of gastric banding.

The Gastric Sleeve was originally derived from a more complex procedure called the Biliopancreatic Diversion with Duodenal Switch (BPD-DS). Surgeons who planned to perform a BPD-DS on some of their very high-risk patients chose to perform the part of the operation consisting of stomach removal as a first stage, and they planned to return 1-

2 years later to complete the operation. Those surgeons observed that many patients who had the large reservoir capacity of the stomach removed had excellent sustained weight loss, and the idea of the gastric sleeve as a "standalone" procedure came into being.

The Sleeve does appear to create reliable weight loss, though a bit less than a gastric bypass. Thus, the Sleeve is also gaining acceptance as an operation for patients on the lighter end of the weight scale, even down to a BMI of 30. The Sleeve is commonly utilized as a conversion procedure in cases where the gastric band is not working.

## About the Gastric Sleeve Operation



In the Gastric Sleeve procedure, the surgeon uses a surgical stapling device to remove the large reservoir section of the stomach called the greater curve. When completed, the operation leaves a narrow tubular section of stomach to carry food into the intestine, which is not disturbed.

The long tubular stomach fills easily with small amounts of food, so that patients find it is easy to eat small amounts and lose weight. Weight loss appears to be almost as brisk as the Gastric Bypass, but not as much weight loss on average.

The Gastric Sleeve is appealing because the surgery does not involve moving intestines from one place to another like the Gastric Bypass. The Sleeve surgery does not create any changes in nutrient absorption, though Dr. Nazarian recommends supplements and lab follow up because of the dramatically lower food intake.

The Sleeve is also appealing in comparison to the Gastric Band, because there is no plastic belt in the body and because there is not any requirement for frequent follow up and Band adjustment.

## Risks of the Gastric Sleeve

During the surgery, the surgeon creates a long tubular stomach pouch. The entire side of that pouch is a staple line or "seam" which can potentially leak or bleed. It is also possible for the narrow pouch to kink or fold, or become blocked in some other way because it is quite narrow.

It remains possible that, over the years, the narrow tubular stomach pouch may expand and the patient's food capacity may return. Initial research results are encouraging, but the fact is that the real long term outcome of the Gastric Sleeve weight loss will not be known until 2015 or later.

## Comparison of Gastric Bypass vs. Adjustable Gastric Band

Most of our patients are candidates for either the Gastric Bypass or the Adjustable Gastric Band. In such cases, the question naturally comes from the patient: "Should I have the Gastric Bypass or Gastric Band?"

After careful discussion and consideration, the Bariatric surgical community has realized that we just don't know which procedure is best for every patient. In fact, we are not aware of any surgeons who know of a way to determine which procedure fits best with which patient. The bottom line is that the patient must be the one to decide the type of surgery they will undergo.

## Comparison of Gastric Bypass and Adjustable Gastric Band

<b>Roux-en-y Gastric Bypass</b>	<b>Gastric Band</b>
→ Gold standard, time tested since early 1980's.	→ Well studied since late 1990's. Lifetime impact seems positive but awaits 20 year results.
→ Complex operation, multiple areas of abdomen involved	→ Simpler operation, gives lower risk around surgery (less chance of death or prolonged hospitalization)
→ Rapid weight loss over three to six months, settling at final weight about 10 to 16 months after surgery	→ Slow and steady weight loss, settling at final weight around two years after surgery
→ Deficiency in mineral absorption,	→ Possible deficiencies due to decreased

requiring long-term supplements	intake, long-term supplements also recommended
→ Dumping syndrome (intolerance to sugars and some carbohydrates)	→ No Dumping syndrome
→ Not reversible	→ Sort of reversible
→ No significant hardware in body	→ Long term (non-reactive) plastic material in body
→ Reliable and sustained weight loss	→ The Band must be adjusted for best success

There are a few medical situations where a patient usually should **not** undergo Gastric Band surgery:

- Severe GERD or problems with esophagus function
- Prior surgery on the stomach itself (surgery on other parts of the abdomen is okay)
- Home located more than three hours drive from the surgeon - the Band needs close follow-up and surgeon access

On the other hand, there are a couple of situations where the Band is a bit more appealing than the gastric bypass:

- For the elderly - since the Band is a lower impact procedure it may get frail patients through surgery with less risk
- For patients who do not require massive weight loss

## Revision Gastric Bypass

### **Repeat surgery on the stomach is significantly more difficult than the primary operation**

This is because the healing process of the previously manipulated stomach tissues scarring that sticks the stomach to everything else that is nearby. Some of the nearby organs that are often stuck to the stomach after previous surgery are the spleen, liver and pancreas. Generally this scar tissue must be dissected free in order to accomplish the revision operation, and sometimes this dissection to separate the stomach from nearby organs actually creates injury to these organs.

In the case of the spleen, such injury causes bleeding that may only be stopped by removing the spleen. In the case of the liver, dissection of the scar tissue or adhesions can cause substantial bleeding or perhaps leakage of bile, but rarely requires removal of liver

tissue. Damage to the pancreas can result in inflammation of the pancreas (called pancreatitis, which can be very dangerous) or leakage of pancreatic digestive juices.

The presence of the scar tissue is also likely to impair the quality of the stapling or sewing revisions done on the stomach or small intestine. All surgical techniques involving intestinal surgery depend on the patient's intestine to heal appropriately in place after the procedure is accomplished, and the presence of scar tissue in the area of the procedure may interfere with appropriate healing of the revision or repair that is created. This means that there is a **higher chance of a leak** (possibly life threatening) or poor function of the new stomach after revision surgery. If a leak occurs, multiple additional procedures may be required and the healing process is usually several months long.

Unfortunately, even if a patient makes it through a revision Gastric Bypass, the weight loss after the second procedure is rarely as dramatic as we see following a Gastric Bypass the first time around. It seems that the body is "surprised" by the sudden calorie deprivation after the first procedure, and there is a long "honeymoon period" of easy rapid weight loss. The second time around the body is smarter, and adapts quickly by burning fewer calories, so that weight loss after a revision procedure is usually modest.

In summary, the patient who requires repeat surgery after prior weight loss surgery must know that there is substantially increased difficulty with the actual conduct of the operation, in comparison to the first weight loss procedure. This increased difficulty does not simply mean that the surgery will take longer or the surgeon will work harder – it also means that the risk to life is greater, and the chance of a desirable long-term outcome is not as good. Many patients who require additional stomach surgery have lost a great deal of weight since their first operation, and such weight loss does reduce systemic risk somewhat; however, improved systemic risk (if present) does not usually outweigh the increased difficulty in the area of the stomach itself.

Because of these difficulties, we are reticent to take on revision surgery when the first operation was done by other surgeons. For patients who have problems after a weight loss procedure, the first avenue to work on the problem should always be with the original surgeon. In circumstances that make it unreasonable for the primary surgeon to carry the care to a desirable conclusion (surgeon retired, patient moved, or significant surgeon/patient conflict) we are willing to take on the care of patients who may need revision surgery. We must have the following information before an appointment is made:

- Copy of prior operative note and discharge summary. We are also interested in other medical data from the time around surgery.
- Upper GI x-ray - we need to see if the anatomy is surgically correctable.
- Established contact of the patient with a primary physician - because of the increased complexity of a revision procedure a patient should have a professional medical advocate.

## **Conversion of a Vertical Banded Gastroplasty (VBG) or "stomach stapling," or Gastric Banding to a Roux-en-Y Gastric Bypass**

This is the most common type of revision required in our experience. Other than the technical risks outlined above, the main point of education is about diet changes after Gastric Bypass. Many patients who have undergone prior weight loss surgery believe that they "understand" the diet. Please pay close attention to the dietary instruction you receive, because the diet after GBP really is different. In gastric restrictive procedures, many patients develop a habit of eating until they feel full, and if necessary they throw up to relieve the pressure. After a GBP, a more conscious effort is required. A patient must stop eating before feeling full. The different anatomy after GBP may not induce vomiting, but it may cause nausea or an otherwise ill feeling. A patient who regularly eats to fullness after GBP is also likely to stretch out the pouch or outlet, resulting in less-than-ideal weight loss. Last, a reminder that enriched liquids, especially those that contain sugar, are absolutely contraindicated after GBP.

### **Re-division of staple line**

If a patient has an identified connection between the stomach pouch and the lower stomach where one is not supposed to exist, then an operation to re-accomplish separation of the stomach by dividing it at the site of the staple line may be appropriate. All of the precautions about potential damage to nearby organs and increased chance of leak from poor healing that are described above are true for this procedure.

## **Accessory Procedures**

Sometimes a patient who is undergoing Bariatric surgery has another surgical issue that should be handled at the same time. We refer to additional operations as "accessory procedures." Normally, accessory procedures will be planned and discussed just like the main operation. On rare occasions, the surgeon finds a problem that no one knew about before surgery - we will use our best judgment and take care of the problem in such cases.

### **Removal of the Gallbladder**

We sometimes find gallstones or severe inflammation of the gallbladder in patients who undergo Gastric Bypass surgery, probably due to the many preceding cycles of weight loss/gain. Experience has shown that gallstones can cause significant problems if left alone, so we ask for the patient's permission to remove the gallbladder at the time of surgery if these findings are present.

On the other hand, if the gallbladder is normal at the time of surgery we believe that removing it would add a small but unnecessary risk to the operation and we leave it alone. When we leave the gallbladder in place, we recommend that patients take Actigall (a bile thinning medicine) for six months following the surgery to reduce the chance of gallstone formation during the most dramatic phase of weight loss.

We find it is best to avoid handling the gallbladder during Band placement, because the gallbladder sometimes contains bacteria that we worry might cause Band infection. Management of Band patients who have gallstones is individualized according to symptoms.

If removal of the gallbladder (cholecystectomy) is appropriate, then it can almost always be done by scope (laparoscopically).

## **Hernia Repair (abdominal wall)**

Many patients with morbid obesity have a **hernia** that results from a prior surgical procedure. Most of the time, a temporary repair of the hernia will be accomplished during the weight loss procedure and a permanent repair will be planned for a later time when the patient has lost substantial weight. Decreased weight allows less abdominal pressure and better long-term success for the repair.

## **Hiatal Hernia Repair**

A **Hiatal hernia** is potentially important because it is a loosening of the muscle that supports the esophagus and stomach in their proper position. If we know of a Hiatal Hernia (or find one during surgery) we will most likely do a repair (muscle reinforcement) during the surgery.

## **Liposuction or Tummy tuck**

Patients commonly ask if a lot of the excess fat can be removed at the same time as the weight loss operation. There are a few surgeons who do add fat reduction procedures on top of the main operation, but we feel this is a bad idea for the following reasons:

- Every additional procedure adds risk, in terms of possible bleeding, possible infection and definite increased surgical stress (trauma) on the body.
- There is the possibility of creating major infection of the skin and fatty tissues, spread from bacteria normally present inside the abdomen.
- The main goal of the surgical procedure is improved health, which is not (on balance) supported by the additional fat reduction procedure.
- The patient's shape will change tremendously with weight loss, so any fat reduction done on the day of surgery will sag and be misshapen as weight loss progresses.

## **Financial aspects of accessory procedures**

Note that if a procedure is done in addition to the main weight loss procedure, such as those listed above, the surgeon and hospital will usually bill for the additional procedure on top of the weight loss procedure. Almost all accessory procedures are clearly medically indicated and there is rarely a problem with having insurance cover the bulk of the cost of the accessory procedure. In some special circumstances such as cash-pay for the weight loss procedure, the insurance payment for the accessory procedure may slightly mitigate the out-of-pocket expense of the weight loss operation.

## **What Happens Around Surgery**

### **Preparation for surgery**

At the same time our staff works with you to schedule a date for surgery, they will arrange for your pre-operative testing and pre-operative surgeon visit. This usually takes place about one week before surgery.

In the morning you have tests done at the hospital where your surgery will take place. Usually the tests include a blood draw, a urine sample, and an ekg.

Later (usually on the same day) you will meet with your surgeon. Soon after arrival, the staff should check your weight to see if you have met your weight target to be ready for surgery. Staff will collect any money that may be part of your estimated responsibility (expense) for the surgery.

Your surgeon will visit with you to find out if any major medical events have occurred since he or she met you. Your surgeon will go over your labs and discuss any problem areas. Your surgeon will get an update on your medications and discuss any changes needed for your medications around surgery. Please make a summary list, or bring your medications with you to help make this medication list accurate.

Last, your surgeon will go over the location and timing of events for the day of surgery.

### **On the day of surgery**

You will need to arrive at the surgical facility about 3 hours prior to your estimated surgical "start" time. You should not have anything to eat or drink after midnight on the night prior to your surgery, though it IS OK to take medication and sips of water as outlined by your surgeon.

Your surgeon will meet with you and your family in the surgical holding area, prior to surgery.

Your surgeon will talk to your family members just after your surgery is complete.

## **After surgery**

Patients who undergo Adjustable Gastric Band usually go home on the day of surgery and sleep in their own bed at night.

Most Gastric Bypass and Gastric Sleeve patients are in the hospital for 2-3 nights after surgery, with the occasional patient going home after one night. The emphasis in the hospital is on walking a lot, and on drinking plenty of liquids.

## **Things to bring to the hospital**

Think of your hospital stay as being sort of like a short stay in a hotel, except that you won't do any fun touring. Pack light, but do bring things that will keep you occupied and keep you comfortable. Here's a partial list:

- PJ's - the hospital will supply a patient gown, but a lot of patients feel more comfortable in their own bed clothes. If you do bring something, be sure it is easy to get into and out of. Don't bring anything that is very nice, since there is a very good chance of blood stains from some incision leaking
- Footwear, such as sandals
- Toiletries
- Lotion
- Something to keep you occupied: book, cards, laptop, etc.

## **Results of Surgery**

### **Lower Weight**

Almost every patient achieves a substantially lower weight for life after Bariatric surgery. Surgical weight loss is dramatically greater than any medication or non-surgical program. If all types of Bariatric surgery are lumped together in the long run, then about 2/3 of patients will keep off more than half of their excess weight, meaning that they will be 70-150 pounds lighter than they started.

### **Better Health**

Lower weight leads to **resolution or improvement of many medical problems**. On average, patients experience dramatically better health after surgery than they had before - this is the core outcome of Bariatric surgery.

Many medical problems improve as the medical stress caused by weight is reduced. A few of the most important medical improvements that are seen after Bariatric surgery are:

- Diabetes - 85% resolved after Gastric Bypass
- GERD - 95% resolved after Gastric Bypass
- High Blood pressure - 60% resolved
- Cancer (all types together) - risk reduced by about 50%

Bariatric surgery also **saves lives**. It has now been statistically demonstrated in several research papers that, for a person who is morbidly obese, the chance of being alive 5 years from now is at least 40% better with Bariatric surgery than without.

## Improved Lifestyle

Most people who suffer from obesity know that the weight is causing lots of problems beyond the one's that a doctor might handle. Here is a partial list of lifestyle factors that can reasonably be expected to improve as weight comes down:

- Improved breathing
- Ability to do normal personal hygiene
- Increased energy level
- Regularly get a good night's sleep
- Greater confidence
- Improved job or career prospects
- Greater variety in choice of clothes
- Ability to cross legs
- Better ability to travel (mobility, airline seats)

You may also be interested in patient stories about Bariatric surgery has affected the lives of some of Dr. Nazarian own patients.

## Weight Loss after Bariatric Surgery

Our goal is to help each patient lose a **lot** of weight, and to maintain the lower weight with better health for the rest of their life. That's pretty obvious, right? Some of you are asking, "OK, but what's the number? How many pounds should I lose? What BMI should I get to?" Let's take a moment to discuss **appropriate weight goals following Bariatric surgery**.

The first point is that the “Ideal Body Weight” is NOT a proper goal for a person who is currently considering Bariatric surgery. This is because the body of a morbidly obese person takes on a lot of extra structure to carry/support the excess weight (bone, heart muscle, skin, etc.) and the body is not able to shed all that structure in healthy way. In other words, patients who go from a BMI = 48 to a BMI = 24 are medically too skinny; they have low energy, feel weak, look ill, and are probably not at the optimal weight for health. Most patients are at their “best” weight (best health and sense of well-being) at a BMI of 26-29. Are all of our patients going to get to that low weight level?

Unfortunately not – only about 35% of our patients will get to this “best” weight. (Check out the factors affecting weight loss below). Does that mean that patients have failed if they end up at a BMI of 37 or so? Heck no, most patients have still lost substantial weight and they are healthier as a result.

This brings us to the second point: the key goal of Bariatric surgery is to make a patient healthier. Sometimes surgery is worthwhile to bring diabetes under control, or to allow better heart function or better lung function, even if a patient only loses 30 pounds.

The fact is that there is a lot of variation in weight loss results after Bariatric surgery, so it is necessary to talk about some factors causing greater and lesser weight loss after Bariatric surgery:

- Which procedure is done (see more about this factor below)
- Starting weight – heavier patients tend to lose more pounds, but they are not as likely to get below a BMI of 30
- Age of the patient – younger patients tend to lose more
- Diabetes – diabetics tend to lose less
- Overall health and ability to exercise – more active patients lose more
- Compliance with diet and exercise plans following surgery
- Family support and other support systems

## **Gastric Bypass weight loss**

The Gastric Bypass helps patients achieve rapid and reliable weight loss.

In the first few months after surgery, the surgical trauma that is naturally created on the stomach “stuns” the nerves of hunger, so that patients tend to experience a profound freedom from hunger over a sustained time period. During the first 3 months after surgery, most patients lose weight rapidly. Depending on the starting point, patients can lose anywhere from 40 up to 100 pounds in the first 3 months. As healing of the stomach pouch progresses, hunger and calorie intake naturally return so that weight loss slows. Weight loss is usually steady during months 3-6, and then in the 6-8 month time period a patient begins to experience “plateaus” where the weight is stable for a week or so before continuing to drop.

For most Gastric Bypass patients, the lowest weight level is reached 10-16 months after surgery. There is a strong tendency to regain 10-15 pounds during the second year after

surgery, and the weight that a patient has at the two year point after Gastric Bypass is usually one they will maintain (with an appropriate level of effort and intention) for the rest of their life.

The total weight loss depends on the other factors listed above, and it varies from a minimum of about 70 pounds lost, up to 250 pounds or more lost.

### **Adjustable Gastric Band weight loss**

The Band helps create weight loss that is slower and more prolonged, sometimes continuing for three years after surgery.

In the first few weeks after Band surgery, most patients experience a freedom from hunger caused by the minor trauma to the nerves of the stomach. Since the trauma to the tissues is less than with the Gastric Bypass, and since the Band is placed with no fluid (wide open) on the day of surgery, hunger usually returns within the first few weeks.

During the first month, a Band patient may lose from 5-30 pounds. Weight loss will slow as hunger and intake return, but if the patient is working with the surgical team to adjust the Band (usually filling it to make it progressively tighter until it is properly “tuned”) then the hunger will be controlled.

When a patient’s Band is working well and the patient is following the team’s diet and exercise recommendations, patients usually lose 1-2 pounds per week. It is usually possible to sustain some steady/slow weight loss for at least a year.

The total weight loss after Band surgery may bring the patient all the way down to their “best” weight in some cases. In our experience, about 30% of Band patients will lose less than 40 pounds but will have achieved better health with that modest weight loss.

### **Sleeve Gastrectomy weight loss**

The Gastric Sleeve causes profound suppression of hunger in a way that appears similar to the Gastric Bypass. It seems that the long tubular stomach recovers a bit more quickly than after Gastric Bypass, so that average weight loss is not as dramatic as for Gastric Bypass patients.

Available literature suggests that total weight loss will be somewhat less than for Gastric Bypass, but in the same range. There is not yet any data on the weight maintenance at 5 years or more after Gastric Sleeve.

## **Weight regain**

Most people know someone who had a Bariatric surgical procedure years ago, lost a lot of weight, and then “gained it all back.” There is no getting around the fact that some

patients do regain substantial weight after Bariatric surgery. Searching into the causes of weight regain almost always turns up one of these factors behind the problem:

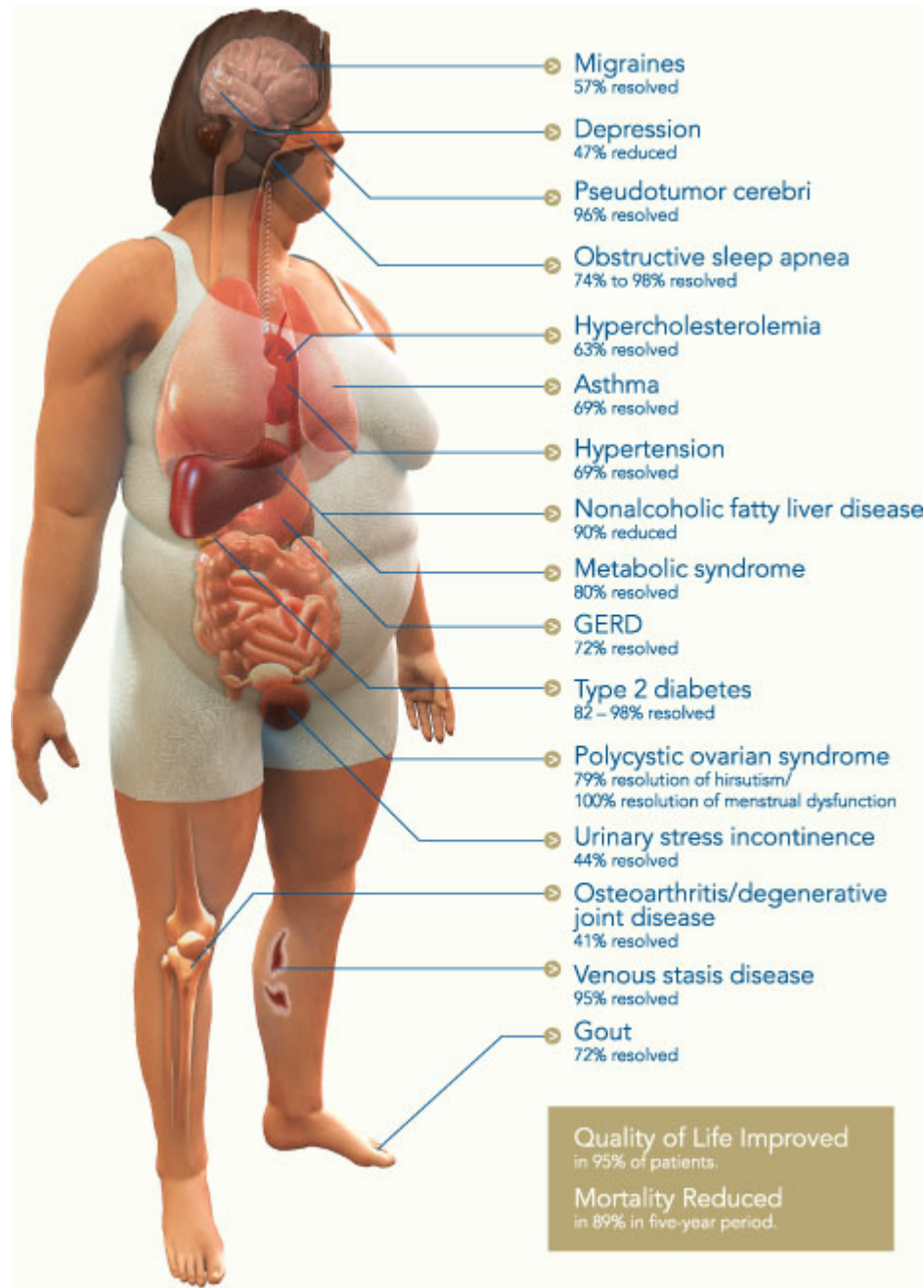
- The person underwent an older surgical procedure that is prone to long term weight regain. The most common example is the Vertical Banded Gastroplasty (VBG), which was done very commonly in the 1980's and early 90's.
- The person has stopped visiting the surgical program in follow-up. There needs to be an understanding that obesity is a lifetime disease that requires lifetime management and support. Normal people need reminders of the proper diet and activity patterns, as well as support in sticking with the life changes that keep these patterns in place.

Of the Bariatric procedures that are currently most commonly performed, adjustable gastric banding appears most likely to be associated with long term weight regain.

## **Health Improvements**

Bariatric surgery results in substantial and sustained weight loss. This weight loss leads to resolution or improvement of many of the medical conditions that were caused by the obesity.

Patients routinely experience resolution of diabetes, breathing problems such as sleep apnea and asthma, high blood pressure, and reflux disease. Patients often have much less body pain and substantially greater energy. Patients can usually eliminate 2/3 or more of their prescription medications. Patients have a lower risk of cancer after weight loss, and their life expectancy (chance of living to "average" old age) improves to near normal.



Excess weight puts intolerable strain on nearly every organ system of the body, and this strain results in major medical problems that go on to shorten life and reduce health. The good news is that many of the weight related medical problems will improve or resolve completely if a person is able to lose weight and keep it off.

## Risks of surgery

### Patients & Risk

If you are a patient with Dr. Nazarian, he will not recommend that you undergo a Bariatric surgical procedure unless he or she believes that the risk/benefit ratio weighs in favor of surgery **in your particular case**. Here are some additional things to be aware of:

- The data tells us that risks for patients in our practice are equal to or better than nationally published standards.
- Dr. Nazarian has been doing Bariatric surgery since the early 80s. If you experience a complication, then the odds are good that we have seen it before and we know how to respond.
- Even though your surgeon cannot promise that you will not have any complications, we commit to sticking with you until you are doing well.

### **Gastric Bypass Risks**

The Roux-en-Y Gastric Bypass is a major surgical procedure in the true sense of the word. It is done under general anesthesia, and it involves manipulation and repositioning of the stomach and intestine in ways that are both anatomically and physiologically significant. If one thinks of a heart bypass operation as a "10" on a scale of 1 to 10, then a Roux-en-Y GBP has a magnitude of about a 5-6 on that scale.

The GBP rises to this magnitude because of the complexity of the bowel manipulation and because the procedure has intentional long-term effects on the function of the GI tract. The key risks for Gastric Bypass surgery are:

- Leak from stomach pouch or intestine
- Bleeding
- Bowel obstruction or blockage

### **Adjustable Gastric Band Risks**

Implantation of an Adjustable Gastric Band is also a very serious procedure. If things go according to plan, then the physiologic impact on the day of surgery is less than the Gastric Bypass, and is comparable to the laparoscopic removal of the gallbladder (Lap Chole). However, the gastric band does not start and end with the implantation procedure. The Band is intended to create a calibrated lifetime change in the function of the previously normal stomach. This is a physiologically important effect. It is also important to remember that the gastric band is a piece of synthetic material that will be present internally for life. The key risks for Gastric Band surgery are:

- Band slip
- Band erosion
- Weakening or failure of esophagus function
- Poor weight loss, or weight regain

### **Vertical Sleeve Gastrectomy**

We believe that the risk of the Gastric Sleeve operation is intermediate between the Gastric Bypass and the Gastric Band. The key risks for the Gastric Sleeve are:

- Bleeding
- Leak from stomach staple line
- Obstruction (blockage of the stomach)
- Weight regain in the long run

## **General Risk Discussion**

Another important thing to remember is that the Bariatric surgical procedure - whichever is chosen, is being done in a patient who is heavy enough to suffer illness from their weight. That means the body comes into surgery already under stress, and may be less able to tolerate even the planned impact of the surgical procedure.

Many complications can occur as a result of Bariatric surgery. It is useful to divide the complications into problems that are physically related to the surgical procedure, and those that arise from the stress on the system of major surgery.

One point that deserves to be made up front is that **patients do sometimes die as a result of Weight Loss Surgery**. Nationwide, the risk of death after Bariatric surgery for all types of patients undergoing all types of procedures by all surgeons is about 1 out of 500 or 0.2 percent.

In our practice the risk of death for all patients of all weight and all disease states is about 1 out of 800 or 0.13 percent. For patients who do not have any of the particular risk factors in the list below, the risk of death from Bariatric surgery in our practice is less than 1 in 1,000 or less than 0.1 percent. Thus the risk is not "huge" but it is very real. All patients should have their affairs in order before undergoing this elective procedure!

Factors that we find result in some degree of increased risk include the following:

- BMI of greater than 60
- Weakness or failure of one or more organs
- Prior stomach surgery
- Large incisional hernia
- Limited mobility (uses walker or scooter)
- History of smoking - note all patient must be tobacco free prior to surgery but smoking cessation does not completely return someone to "best risk" status
- Use of oral steroid medication
- History of blood clot in legs, or blood clot going to lungs (DVT or PE)
- male gender

We strongly advise you to involve your loved ones in the decision and education process about Bariatric surgery. In the end, the decision for surgery falls to the patient alone, but the process is definitely better for everyone if family support is strong.

## **Abdominal Structures**

### **Possible injury to nearby structures**

The spleen and the liver are large solid organs that share space with the upper stomach where the Gastric Bypass or Gastric Band placement is done. It is necessary to retract these organs out of the way, with occasional tears in the substance of the liver or spleen. On rare occasions, it is necessary to remove the spleen because of bleeding. The spleen is more "at risk" for patients who have had prior surgery in the upper abdomen. The spleen is less likely to be injured when we are able to do the surgery laparoscopically.

We will also be working around the upper stomach and the esophagus, attempting to use our surgical instruments to properly handle these delicate structures. Some maneuvers during Bariatric surgery must be accomplished by "feel." All of these issues put the esophagus, stomach and the rest of the intestine at some risk.

If it is necessary to remove the gallbladder, injury to the common bile duct (to which the gallbladder is attached) also must be carefully avoided. On rare occasions, the duct stump may leak, or gallstones may be trapped in the main bile duct. If these problems occur they are usually identified and addressed during the primary procedure.

### **Anastomotic leak or pouch leak**

One of the most serious surgical complications that can occur is a leak from the connection between the new stomach pouch and the small intestine, or from the stomach pouch itself. A leak can be caused either by surgical factors (tension on the anastomosis, or inadequate blood supply) or by poor patient healing. We routinely test for leaks at the end of the GBP procedure to try to absolutely minimize the rate of leak. The occurrence of a leak is quite rare (much less than one percent in our practice), but we test for it fairly frequently after surgery because it can be so devastating if diagnosed after too much delay. If a leak occurs it will show itself during the hospitalization following surgery, and it will be repaired by return to the operating room or handled by draining the leak fluid to the outside.

### **Bleeding**

A number of blood vessels must be divided and secured in the natural course of the GBP. The spleen or liver can also bleed if injured. Nevertheless it is quite uncommon in our practice for patients to require blood transfusion. If bleeding occurs after surgery it will do so within the first 24 hours, and sometimes requires return to the operating room. Bleeding is rare after implantation of the gastric band, but always possible.

## **Bowel obstruction**

The "rerouting" of the intestine and the scar left in the abdomen by the operation may cause the intestine to become blocked at some point after the operation. This can occur from weeks to more commonly months or years after the surgery and frequently requires re-operation. Bowel obstruction is rare but always possible after Adjustable Gastric Band because the intestines are not handled.

## **Chronic gastrointestinal dysfunction**

A few patients have long term nausea or intolerance to food, in the absence of a physically identifiable problem. This is a rare but very difficult problem, and is one of the few reasons that "reversal" of the weight loss procedure might be recommended.

## **Ventral Hernia**

If the surgery is done using a traditional open incision, then approximately 20 percent of patients will develop an incisional hernia. This is usually manifested three months or more after the surgery, with patient complaints of midline abdominal pain and a bulge under the incision. Repair of these hernias is necessary, but if possible, repair should be delayed until the patient's weight and nutritional status have stabilized. The patient needs to be directly evaluated to establish that there is no incarceration (entrapment) of the bowel, or other complication that would indicate that early/urgent repair should be done. Surgical mesh is frequently used in the process of repair. Ventral hernia is very rare (less than one percent) after laparoscopic WLS. If a ventral hernia is present before the weight loss operation, then the chance of need for future repair is quite common because it is difficult or impossible to perform a definitive repair at the same time as the weight loss operation.

## **Wound infection**

Bacteria sometimes colonize the fat tissue just under the skin during the operation, and subsequently grow to create an infection. This is very uncommon, but when it occurs it shows up as a tender red bulge in the incision, usually between four and seven days after surgery. The therapy is release of the contained pus by opening the wound, most commonly done on the ward or in the office. An infection can also occur within the abdomen after surgery, but this is uncommon.

We almost never see wound infection or wound seroma (see below) after surgery done laparoscopically, and the smaller laparoscopic incisions heal much better.

## **Wound seroma**

In all patients, some of the fat tissue under the skin liquefies. In most cases, the body reabsorbs this fluid over a period of weeks and the patient never becomes aware of it. In a few patients this fluid finds its way to the outside through a weak spot in the incision,

usually a week or two after the skin staples are removed. The drainage can be a large (scary) amount of yellow/orange fluid. Usually nothing needs to be done other than to cover the open spot to protect the clothes, but your surgeon should still be contacted because similar fluid can come out of the wound in the setting of a rare but more serious wound complication.

## **Systemic (Total Body) Risks**

Obesity increases stress on the body systems, so the chance of systemic complications after Bariatric surgery is much greater than systemic risks of major surgery in a thin person. This effect is seen because the patient comes into the surgical procedure with the body's many organ systems "working overtime" to support the extra weight. Furthermore, some organs may have pre-existing damage related to the excess weight. Thus the body of the obese patient has less ability to withstand and compensate for the stress of the surgical "injury." Some specific risks are divided below by organ system.

### **Pulmonary (lung) problems**

Low ventilation, pneumonia and fluid on the lungs (pulmonary edema) are some complications that can focus specifically on the lungs. These complications show up within the first 72 hours after surgery or (in the case of pneumonia) within the first week. Usually they can be managed by medications and getting the patient walking. Sometimes the patient must keep the breathing tube for a while or have it re-placed. Our best defense against this set of complications is for the patient to be up and walking as soon as possible after surgery.

### **Deep Venous Thrombosis (DVT) and Pulmonary Embolus (PE)**

Low mobility around the time of surgery can allow blood clots to form in the large leg veins called a Deep Venous Thrombosis (DVT), which can float up into the blood vessels of the lungs - then called a Pulmonary Embolus (PE). This is a serious and even life threatening event, usually but not always manifested by sudden shortness of breath, rapid heartbeat, and a feeling of weakness. It is by far most likely to occur during hospitalization, but the risk of PE persists at steadily-decreasing levels until four to six weeks after surgery. It is our practice to use both of the established means for reducing the incidence of DVT/PE (leg compression stockings, and Heparin shots) and to help the patient be up and walking as soon as possible following the surgery. Over the last several years our rate of DVT and PE has been substantially lower than nationally published reports.

### **Cardiac**

The heart is required to do extra work around the time of any surgery or stress, and because Bariatric surgery is a major stress it is no surprise that it will impose significant extra demands on the heart. This can be a problem if the patient's heart is already

working at maximum capacity due to the excess weight and the patient is in or near congestive heart failure. In addition, patients who are very overweight are more likely than average to have narrowing or blockages in the arteries of the heart called coronary artery disease. These conditions may predispose the Bariatric surgery patient to worsened heart failure or a heart attack in the recovery time after surgery. The good news is that these problems either occur or don't within about 72 hours following the surgery, so that close monitoring can be done in patients who are more at risk.

## **Kidney problems**

Kidney function normally weakens over time, and diabetes damages the kidneys, so that many of our patients come into Bariatric surgery with a decent chance of having kidney weakness or damage. We see transient kidney problems in a patient of ours every two to three months, but we have not had any patient with permanent kidney failure in the last several years.

## **Non-medical Risks**

### **Failure to lose enough weight**

About 85% of our patients reach the medically accepted standard of successful weight loss after Gastric Bypass. This means that they lose and keep off more than 50% of the excess weight. Obviously then, 15% or so of our patients fail to lose sufficient weight. The more complex truth is that some patients who succeed by medical criteria are unhappy with the amount of weight they lose and some who fail still achieve substantial medical benefit and are very happy. The available data suggests that gastric band patients don't lose as much weight on average, but they seem to have comparable rates of improvement in medical problems.

Almost all patients achieve weight loss measured in the tens of pounds. There are two categories of problems for those who stop losing after only 30 to 50 pounds of weight loss. Sometimes there is a failure of the surgical procedure, where the pouch is too large or connects to the lower (large capacity) stomach. This kind of problem can be corrected surgically, though revision surgery in this area is a very significant undertaking. Unfortunately most patients with inadequate weight loss are experiencing a behavioral problem, where they "eat around" the surgical procedure. These patients usually cannot benefit from further surgery, and need to go back to "square one" on control of food intake.

### **Psychological/social risks**

The relationships and life of a morbidly obese person are inextricably linked to the fact of their obesity. One's relationships with a spouse, parents, other loved ones, co-workers and with casual acquaintances all carry the obesity as an underlying assumption. Thus, in the six to 12 months after surgery, the rapid weight loss will cause a "sea change" in

every relationship experienced by the patient. Many of these are positive changes, but their sheer magnitude makes the changes stressful. Some are adverse changes: spouses may become jealous of the patient's newfound mobility and attractiveness, or a sister may be resentful and angry not to have a "fat buddy" in the family.

### **Advice for interpersonal relationships following WLS:**

- **First:** Think about how all this may apply to you and talk to your loved ones ahead of time.
- **Second:** Don't come into the Bariatric surgery in the middle of social distress (divorce, death of a child, etc.)
- **Third:** Consider arranging psychological/emotional support before the surgery. Psychiatric evaluation is not a general mandatory requirement prior to surgery in our practice, but it is rarely a bad idea to enlist the support of a minister, social worker, or psychologist ahead of time.

## **Reducing Risk of Complications**

Rest assured that the surgeon and hospital staff do everything we can from our end to reduce the occurrence of complications. We have unfortunately seen most of the possible complications in our own patients and we stay abreast of the medical literature to be certain we are up-to-speed on the best preventive measures available. We use prophylactic (preventative) measures such as antibiotics or anticoagulation therapy where they benefit the patient, and remain vigilant for the remainder of potential complications. Patients also frequently ask what they can do to reduce their risk, and there actually are a few important answers:

### **No smoking**

Smoking has a truly significant influence on your outcome, including the chance of dying around the time of surgery. Everyone knows that smoking creates lung problems, but the unavoidable reality is that a history of smoking also leads to a five to 10 fold increase in the following risks:

- Leak from intestine
- Infection
- Heart attack
- DVT and PE

Obviously it is best if the patient has never smoked; however if a patient does smoke we insist that they abstain from all tobacco products for at least one month prior to surgery. We feel so strongly about this that we will not set up the individual surgeon consultation until the patient has stopped smoking. Following surgery it is best if the patient never resumes smoking, but that is not a primary issue between the surgeon and the patient.

## **Get out of bed**

After tobacco freedom, the most important influence a patient has on outcome is to get moving around the ward as soon as and as much as possible following the surgery. The surgeons will do their best to control the surgical pain, the nursing staff will assist, and we aim for the patient to be walking out in the hallway on the afternoon of surgery. The main important benefit of this plan is to restore normal circulation in the veins of the legs, but it also helps lung function, maybe gut function, probably improves pain control going forward, and definitely boosts overall attitude.

## **Weight loss before surgery**

It appears that the body suffers the most from obesity or an obese person is sickest when they are at their maximum weight. Surprisingly significant risk benefit comes from the loss of even 10 or 20 pounds, and more loss is better. We also find that excess weight tends to come out of the abdomen first, so just a few pounds can make it much easier for your surgeon to do their work. There is no such thing as losing too much weight in preparation for the surgery.

## **Exercise before surgery**

Get your heart and lungs in the best possible shape by doing whatever physical exercise you can tolerate. Starting an exercise program before surgery is also the best bet on keeping a regular exercise program following surgery.

## **Mental preparation**

Try to approach the surgery as the beginning of a whole new phase in life. The Bariatric surgical procedure is a watershed event, and if the patient approaches it with thorough education and determination to make the best of the opportunity, then the chances of success are high. If the patient slides into the operation and aims for it to have minimal impact on his or her life, then the prospects are not as good. One thing a prospective patient can do along these lines is practice the surgical diet prior to surgery. This gives the patient a practical idea of what he or she is committing to, with the benefit of some weight loss. Another practical suggestion for mental prep is to attend our monthly "Staple Mates" gastric bypass support group. Much can be learned from other patients that the surgeons and staff cannot teach.

## **Risk of No Surgery**

### **Comparison of Surgical Risks to No Surgery**

Taken as a group, patients who undergo Bariatric surgery do better than equally heavy people who work hard on non-surgical means of weight loss. Because surgical weight loss tends to be successful and non-surgical weight loss tends not to be, the risks of the

Bariatric surgery are outweighed by the benefits obtained in terms of improvement/resolution of the many medical problems (considered as a group) affecting patients. This has been statistically demonstrated to be true.

Four recent medical research articles reported that Bariatric surgery patients achieve a reduction in risk of death each year, in comparison to overweight patients who do not undergo surgery. One study showed that Bariatric had one fourth the annual risk of death, and another study showed that Bariatric surgery patients were one ninth as likely to die each year as were similarly obese patients. The remaining two studies showed about a 40% reduction in the risk of death for patients who underwent surgery. All the studies included the complications and the small but real mortality rate from Bariatric surgery. All studies also showed profound overall improvement in health, including the changes associated with surgery. These articles support our direct experience, and these. Facts are the reason that we have and will continue to offer this surgery.

Some who object to Bariatric surgery are concerned that it is too risky. There's no doubt that surgery carries risk, but the other side of the equation is that morbidly obese people are subject to the ongoing life-threatening risk of weight-induced stress and damage to their body every day. For most people with a BMI of greater than 40, the risk of the weight is greater than the risk of surgery. As surgery becomes safer, many people would say the same is true for most people with a BMI of greater than 35.

For more information on the risks of Bariatric surgery, see the Medical summary on Bariatric surgery on the website of the American Society for Metabolic and Bariatric Surgery.