

Benefits of Bariatric Surgery- FAQ

Severe Obesity: Why the Need for Surgical Intervention?

Severe obesity is one of the most serious stages of obesity. You may often find yourself struggling with your weight and essentially feeling as if you're trapped in a weight gain cycle. In addition, you most likely have attempted numerous diets – only in the end, to see your weight continue to increase.

More than a decade ago, The National Institutes of Health, better known as NIH, reported that individuals affected by severe obesity are resistant to maintaining weight loss achieved by conventional therapies, such as consuming fewer calories, increasing exercise, commercial weight-loss programs, etc.). The NIH recognized bariatric (weight-loss) surgery as the only effective treatment to combat severe obesity and maintain weight loss in the long term.

How Can Bariatric Surgery Help Me?

When combined with a comprehensive treatment plan, bariatric surgery may often act as an effective tool to provide you with long term weight-loss and help you increase your quality of health. Bariatric surgery has been shown to help improve or resolve many obesity-related conditions, such as type 2 diabetes, high blood pressure, heart disease, and more. Frequently, individuals who improve their weight find themselves taking less and less medications to treat their obesity-related conditions.

Significant weight loss through bariatric surgery may also pave the way for many other exciting opportunities for you, your family, and most importantly – your health.

How Does Bariatric Surgery Work?

Bariatric surgery, such as gastric bypass, gastric sleeve, and laparoscopic adjustable gastric banding, work by changing the anatomy of your gastrointestinal tract (stomach and digestive system) or by causing different physiologic changes in your body that change your energy balance and fat metabolism. Regardless of which bariatric surgery procedure you and your surgeon decide is best for you, it is important to remember that bariatric surgery is a “tool.” Weight loss success also depends on many other important factors, such as nutrition, exercise, behavior modification, and more.

By changing your gastrointestinal anatomy, certain bariatric procedures affect the production of intestinal hormones in a way that reduces hunger and appetite and increases feelings of fullness (satiety). The end result is reduction in the desire to eat and in the frequency of eating. Interestingly, these surgically-induced changes in hormones are opposite to those produced by dietary weight loss. Let’s take a closer look at the differences in hormonal changes between surgery and dietary weight loss:

- **Bariatric Surgery and Hormonal Changes**

Hormonal changes following bariatric surgery improve weight loss by maintaining or enhancing energy expenditure (calories burned). In fact, some surgeries even increase energy expenditure relative to changes in body size. Thus, unlike dietary weight loss, surgical weight loss has a higher chance of lasting because an appropriate energy balance is created.

- **Dieting and Hormonal Changes**

In dietary weight loss, energy expenditure is reduced to levels lower than would be predicted by weight loss and changes in body composition. This unbalanced change in energy can often lead to weight regain.

Significant weight loss is also associated with a number of other changes in your body that help to reduce defects in fat metabolism. With increased weight

loss, you will find yourself engaging in more physical activity. Individuals who find themselves on a weight-loss trend often engage in physical activity, such as walking, biking, swimming, and more. Additionally, increased physical activity combined with weight loss may often improve your body's ability to burn fat, lead to a positive personal attitude, and decrease stress levels. Massive weight loss, as a result of bariatric surgery, also reduces hormones such as insulin (used to regulate sugar levels) and cortisol (stress hormone) and improves the production of a number of other factors that reduce the uptake and storage of fat into fat storage depots. Physical activity is also a very important component of combating obesity.

Bariatric surgery may improve a number of conditions and biological actions (hormonal changes) to reverse the progression of obesity. Studies find that more than 90 percent of bariatric patients are able to maintain a long-term weight loss of 50 percent excess body weight or more.

Bariatric surgery can be a useful tool to help you break the vicious weight gain cycle and help you achieve long term weight loss and improve your overall quality of health and life.

Long Term Weight Loss Success

Bariatric surgeries result in long-term weight-loss success. Most studies demonstrate that more than 90 percent of individuals previously affected by severe obesity are successful in maintaining 50 percent or more of their excess weight loss following bariatric surgery. Among those affected by super severe obesity, more than 80 percent are able to maintain more than 50 percent excess body weight loss.

Improved Longevity

Several large population studies find that individuals affected by severe obesity who have had bariatric surgery have a lower risk of death than individuals

affected by obesity who do not have surgery. One of these studies found up to an 89 percent greater reduction in mortality throughout a 5-year observation period for individuals who had bariatric surgery when compared to those who did not. Another large population study comparing mortality rates of bariatric and non-bariatric patients found a greater than 90 percent reduction in death associated with diabetes and a greater than 50 percent reduction in death from heart disease.

The mortality rate for bariatric surgery (3 out of 1000) is similar to that of a gallbladder removal and considerably less than that of a hip replacement. The exceptionally low mortality rate with bariatric surgery is quite remarkable considering that most patients affected by severe obesity are in poor health and have one or more life-threatening diseases at the time of their surgery. Therefore, as regards mortality, the benefits of surgery far exceed the risks.

Improvement/Resolution of Coexisting Diseases

The exceptionally high reduction in mortality rates with bariatric surgery are due to the highly significant improvement in those diseases that are caused or worsened by obesity.

Bariatric surgery is associated with massive weight-loss and improves, or even resolves (cures), obesity-related co-morbidities for the majority of patients. These co-morbidities include high blood pressure, sleep apnea, asthma and other obesity-related breathing disorders, arthritis, lipid (cholesterol) abnormalities, gastroesophageal reflux disease, fatty liver disease, venous stasis, urinary stress incontinence, pseudotumor cerebri, and more.

Bariatric surgeries also lead to improvement and remission of Type II diabetes mellitus (T2DM). In the past, diabetes was considered to be a progressive and incurable disease. Treatments include weight loss and lifestyle changes for those who are overweight or obese and antidiabetic medication, including insulin. These treatments help to control T2DM but rarely cause remission of the disease.

However, there is now a large body of scientific evidence showing remission of T2DM following bariatric surgery. A large review of 621 studies involving 135,247 patients found that bariatric surgery causes improvement of diabetes in more than 85 percent of the diabetic population and remission of the disease in 78 percent. Remission of T2DM was highest for the bilio-pancreatic diversion with duodenal switch (BPD/DS) with a remission rate of 95 percent, followed by the Roux-en-Y gastric bypass (RYGB) with remission in 80 percent of patients, and the adjustable gastric band (AGB) with a remission rate of 60 percent. Other studies comparing remission of diabetes between surgeries found comparable rates between the laparoscopic sleeve gastrectomy (LSG) and RYGB, i.e. 80 percent.

Causes of improvement or remission of diabetes have not been completely identified. Improvement of T2DM with AGB is related to weight loss. However, with other surgeries, such as the LSG or RYGB, diabetes remission or improvement occurs early after surgery – well before there is significant weight reduction. In fact, some bariatric patients with T2DM leave the hospital with normal blood sugar and without the need for antidiabetic medication.

Changes in Quality of Life and Psychological Status with Surgery

In addition to improvements in health and longevity, surgical weight-loss improves overall quality of life. Measures of quality of life that are positively affected by bariatric surgery include physical functions such as mobility, self-esteem, work, social interactions, and sexual function. Singlehood is significantly reduced, as is unemployment and disability. Furthermore, depression and anxiety are significantly reduced following bariatric surgery.

Bariatric Surgery Procedures

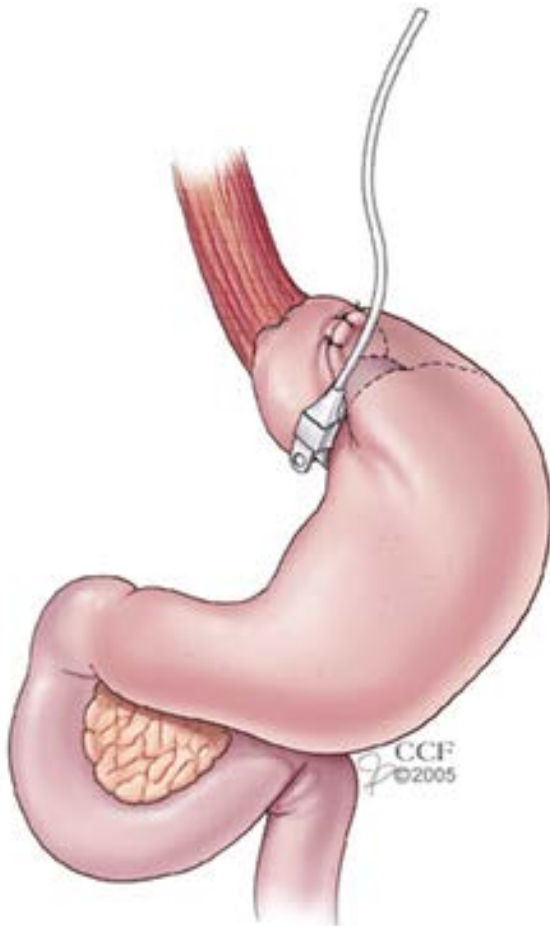
Bariatric surgical procedures include those that cause weight loss by restricting the amount of food the stomach can hold, those that cause weight loss primarily as a result of malabsorption of nutrients, and those that cause weight loss both by gastric restriction and malabsorption. Bariatric procedures also often cause hormonal changes. Most bariatric procedures today are performed using minimally invasive techniques (laparoscopic surgery). Below is a description of ASMBS-approved surgeries that are performed most commonly in the U.S., along with the advantages and disadvantages of each procedure.

- Adjustable Gastric Band
- Sleeve Gastrectomy
- Gastric Bypass
- Biliopancreatic Diversion with Duodenal Switch (BPD/DS)

Adjustable Gastric Band

The Adjustable Gastric Band – often called *the band* – involves an inflatable band that is placed around the upper portion of the stomach, creating a small stomach pouch above the band, and the rest of the stomach below the band.

The Procedure



The common explanation of how this device works is that with the smaller stomach pouch, eating just a small amount of food will satisfy hunger and promote the feeling of fullness. The feeling of fullness depends upon the size of the opening

between the pouch and the remainder of the stomach created by the gastric band. The size of the stomach opening can be adjusted by filling the band with sterile saline, which is injected through a port placed under the skin. Reducing the size of the opening is done gradually over time with repeated adjustments or “fills.”

The notion that the band is a restrictive procedure (works by restricting how much food can be consumed per meal and by restricting the emptying of the food through the band) has been challenged by studies that show the food passes rather quickly through the band, and that absence of hunger or feeling of being satisfied was not related to food remaining in the pouch above the band. What is known is that there is no malabsorption; the food is digested and absorbed as it would be normally. The clinical impact of the band seems to be that it reduces hunger, which helps the patients to decrease the amount of calories that are consumed.

Advantages

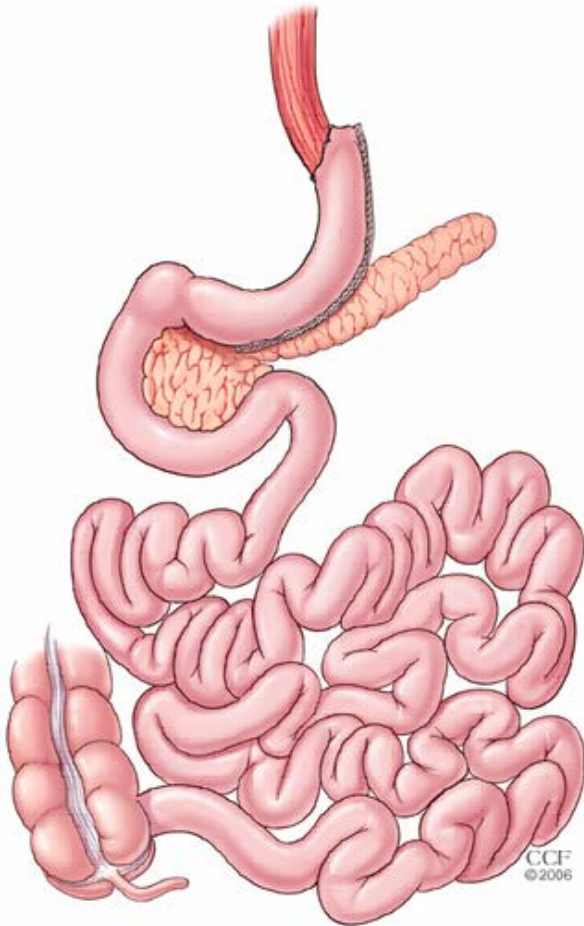
1. Reduces the amount of food the stomach can hold
2. Induces excess weight loss of approximately 40 – 50 percent
3. Involves no cutting of the stomach or rerouting of the intestines
4. Requires a shorter hospital stay, usually less than 24 hours, with some centers discharging the patient the same day as surgery
5. Is reversible and adjustable
6. Has the lowest rate of early postoperative complications and mortality among the approved bariatric procedures
7. Has the lowest risk for vitamin/mineral deficiencies

Disadvantages

1. Slower and less early weight loss than other surgical procedures
2. Greater percentage of patients failing to lose at least 50 percent of excess body weight compared to the other surgeries commonly performed

3. Requires a foreign device to remain in the body
4. Can result in possible band slippage or band erosion into the stomach in a small percentage of patients
5. Can have mechanical problems with the band, tube or port in a small percentage of patients
6. Can result in dilation of the esophagus if the patient overeats
7. Requires strict adherence to the postoperative diet and to postoperative follow-up visits
8. Highest rate of re-operation

Sleeve Gastrectomy



The Laparoscopic Sleeve Gastrectomy – often called the sleeve – is performed by removing approximately 80 percent of the stomach. The remaining stomach is a tubular pouch that resembles a banana.

The Procedure

This procedure works by several mechanisms. First, the new stomach pouch holds a considerably smaller volume than the normal stomach and helps to significantly reduce the amount of food (and thus calories) that can be consumed.

The greater impact, however, seems to be the effect the surgery has on gut hormones that impact a number of factors including hunger, satiety, and blood sugar control. Short term studies show that the sleeve is as effective as the roux-en-Y gastric bypass in terms of weight loss and improvement or remission of diabetes. There is also evidence that suggest the sleeve, similar to the gastric bypass, is effective in improving type 2 diabetes independent of the weight loss. The complication rates of the sleeve fall between those of the adjustable gastric band and the roux-en-y gastric bypass.

Advantages

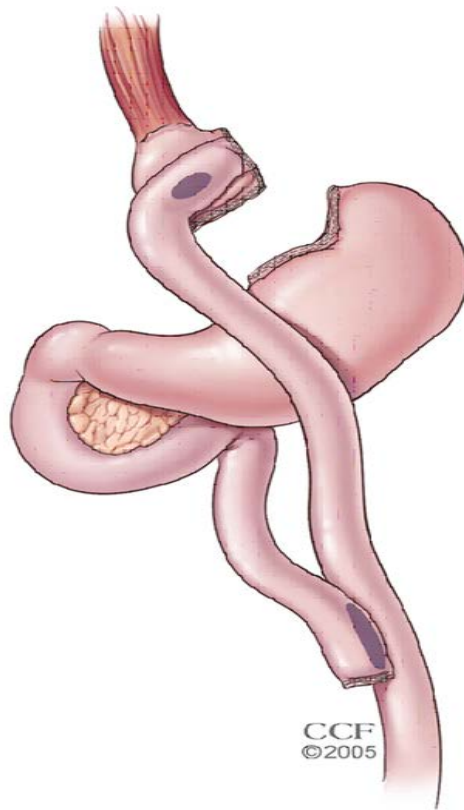
1. Restricts the amount of food the stomach can hold
2. Induces rapid and significant weight loss that comparative studies find similar to that of the Roux-en-Y gastric bypass. Weight loss of >50% for 3-5+ year data, and weight loss comparable to that of the bypass with maintenance of >50%
3. Requires no foreign objects (AGB), and no bypass or re-routing of the food stream (RYGB)
4. Involves a relatively short hospital stay of approximately 2 days
5. Causes favorable changes in gut hormones that suppress hunger, reduce appetite and improve satiety

Disadvantages

1. Is a non-reversible procedure
2. Has the potential for long-term vitamin deficiencies
3. Has a higher early complication rate than the AGB

Gastric Bypass

The Roux-en-Y Gastric Bypass – often called gastric bypass – is considered the ‘gold standard’ of weight loss surgery and is the most commonly performed bariatric procedure worldwide.



The Procedure

There are two components to the procedure. First, a small stomach pouch, approximately one ounce or 30 milliliters in volume, is created by dividing the top of the stomach from the rest of the stomach. Next, the first portion of the small intestine is divided, and the bottom end of the divided small intestine is brought up and connected to the newly created small stomach pouch. The procedure is completed by connecting the top portion of the divided small intestine to the small intestine further down so that the stomach acids and digestive enzymes from the

bypassed stomach and first portion of small intestine will eventually mix with the food.

The gastric bypass works by several mechanisms. First, similar to most bariatric procedures, the newly created stomach pouch is considerably smaller and facilitates significantly smaller meals, which translates into less calories consumed. Additionally, because there is less digestion of food by the smaller stomach pouch, and there is a segment of small intestine that would normally absorb calories as well as nutrients that no longer has food going through it, there is probably to some degree less absorption of calories and nutrients. Most importantly, the rerouting of the food stream produces changes in gut hormones that promote satiety, suppress hunger, and reverse one of the primary mechanisms by which obesity induces type 2 diabetes.

Advantages

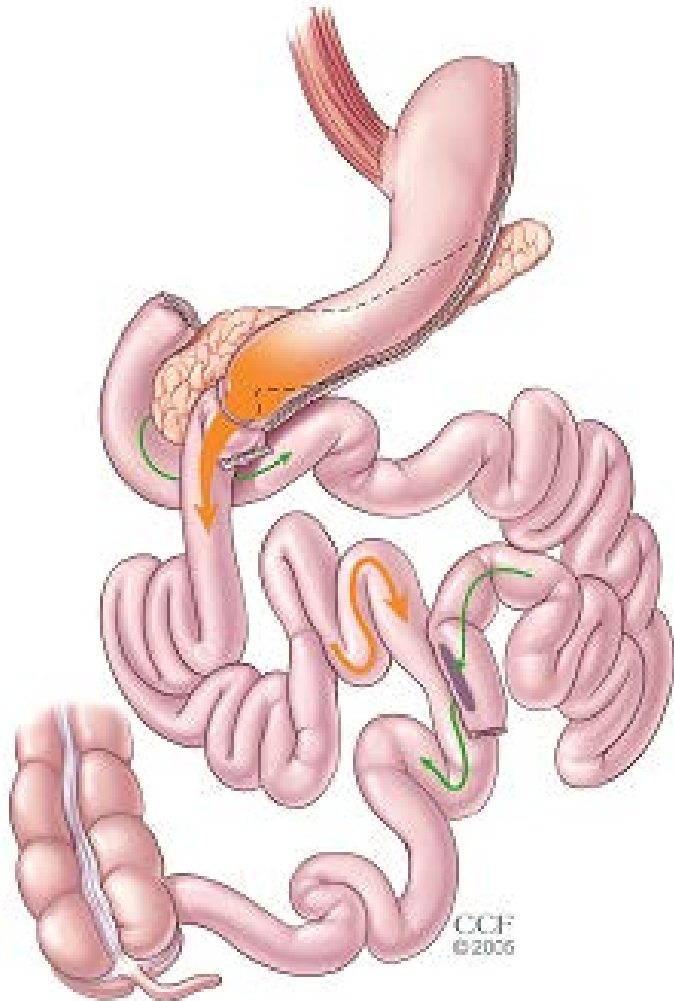
1. Produces significant long-term weight loss (60 to 80 percent excess weight loss)
2. Restricts the amount of food that can be consumed
3. May lead to conditions that increase energy expenditure
4. Produces favorable changes in gut hormones that reduce appetite and enhance satiety
5. Typical maintenance of >50% excess weight loss

Disadvantages

1. Is technically a more complex operation than the AGB or LSG and potentially could result in greater complication rates
2. Can lead to long-term vitamin/mineral deficiencies particularly deficits in vitamin B12, iron, calcium, and folate
3. Generally has a longer hospital stay than the AGB

4. Requires adherence to dietary recommendations, life-long vitamin/mineral supplementation, and follow-up compliance

Biliopancreatic Diversion with Duodenal Switch (BPD/DS)



The Biliopancreatic Diversion with Duodenal Switch – abbreviated as BPD/DS – is a procedure with two components. First, a smaller, tubular stomach pouch is created by removing a portion of the stomach, very similar to the sleeve gastrectomy. Next, a large portion of the small intestine is bypassed.

The Procedure

The duodenum, or the first portion of the small intestine, is divided just past the outlet of the stomach. A segment of the distal (last portion) small intestine is then brought up and connected to the outlet of the newly created stomach, so that when the patient eats, the food goes through a newly created tubular stomach pouch and empties directly into the last segment of the small intestine. Roughly three-fourths of the small intestine is bypassed by the food stream. The bypassed small intestine, which carries the bile and pancreatic enzymes that are necessary for the breakdown and absorption of protein and fat, is reconnected to the last portion of the small intestine so that they can eventually mix with the food stream.

Similar to the other surgeries described above, the BPD/DS initially helps to reduce the amount of food that is consumed; however, over time this effect lessens and patients are able to eventually consume near “normal” amounts of food. Unlike the other procedures, there is a significant amount of small bowel that is bypassed by the food stream. Additionally, the food does not mix with the bile and pancreatic enzymes until very far down the small intestine. This results in a significant decrease in the absorption of calories and nutrients (particularly protein and fat) as well as nutrients and vitamins dependent on fat for absorption (fat soluble vitamins and nutrients). Lastly, the BPD/DS, similar to the gastric bypass and sleeve gastrectomy, affects gut hormones in a manner that impacts hunger and satiety as well as blood sugar control. The BPD/DS is considered to be the most effective surgery for the treatment of diabetes among those that are described here.

Advantages

1. Results in greater weight loss than RYGB, LSG, or AGB, i.e. 60 – 70% percent excess weight loss or greater, at 5 year follow up
2. Allows patients to eventually eat near “normal” meals
3. Reduces the absorption of fat by 70 percent or more
4. Causes favorable changes in gut hormones to reduce appetite and improve satiety

5. Is the most effective against diabetes compared to RYGB, LSG, and AGB

Disadvantages

1. Has higher complication rates and risk for mortality than the AGB, LSG, and RYGB
2. Requires a longer hospital stay than the AGB or LSG
3. Has a greater potential to cause protein deficiencies and long-term deficiencies in a number of vitamin and minerals, i.e. iron, calcium, zinc, fat-soluble vitamins such as vitamin D
4. Compliance with follow-up visits and care and strict adherence to dietary and vitamin supplementation guidelines are critical to avoiding serious complications from protein and certain vitamin deficiencies

Bariatric Surgery FAQs

How long after metabolic and bariatric surgery will I have to be out from work?

It depends on the surgery you have and on your pain threshold and other medical co-morbidities. In general, for a laparoscopic adjustable gastric band, most people are able to return to work within a week. For the gastric bypass, sleeve gastrectomy, or duodenal switch, you should consider being off work for two to three weeks. If you have a desk job, you are likely to be able to return to work earlier. If your job is physically demanding and requires heavy lifting or physical activity, a longer period off work may be necessary. If you have any further questions please don't hesitate to call us at 904-731-3131.

When can I start exercising again after surgery?

You will be encouraged to walk early post-surgery and you may increase your physical activity as tolerated. Brisk walking, light jogging, stationary bike, etc. Walking is encouraged early post-surgery and, thereafter, on a regular basis to increase your physical activity level. Aerobic activities such as brisk walking, stationary biking, elliptical machines, etc. may be engaged almost immediately after surgery and are limited generally by the degree of discomfort that these activities cause. You may engage in swimming once your surgeon has determined that the wounds have healed sufficiently. Activities that are more strenuous or that involve lifting weights are generally discouraged for three weeks after surgery. This can vary so consult with your surgeon first.

Can I have metabolic and bariatric surgery if I have had other abdominal surgery procedures in the past?

The general answer to this is yes. Most of the commonly performed abdominal operations such as C-section, gall bladder surgery, appendectomy, tubal ligation, hysterectomy and minor hernia repair of the belly button rarely impact the

ability to have bariatric surgery. However, if you have had prior surgery for hiatal hernia or reflux, intestinal surgery involving removal of a portion of the small intestine or colon, or have had a major hernia repair with a large mesh, it could impact the type of surgery you can have or the ability to do it laparoscopically through small incisions. It is important to recall all prior surgeries and let your surgeon or nurse know about them during the evaluation process. If you have had a major abdominal surgery, it is very helpful if you can obtain the operative reports as well.

Can I have metabolic and bariatric surgery if I have type 2 diabetes?

Yes, bariatric surgery has been shown to improve or cause remission of type 2 diabetes. There is evidence that procedures such as gastric bypass, sleeve gastrectomy and duodenal switch work through pathways such as gut hormones as well as through the weight-loss these procedures produce to cause the improvement or remission of type 2 diabetes. Studies find a greater than 95 percent of patients have improvement of type 2 diabetes with bariatric procedures and up to 85 percent have remission of their diabetes with these surgeries. Some studies have even reported improvement of type 1 diabetes mellitus following bariatric procedures. The adjustable gastric band also results in improvement or remission of diabetes; however, this results solely from the weight-loss that results from the band. Therefore, the improvement or remission of type 2 diabetes seen with the band tends to be slower and occurs in a smaller percentage of patients compared to the other surgeries.

Can I have metabolic and bariatric surgery if I have heart disease?

Yes, surgery leads to significant improvement in conditions associated with or contributing to heart disease, including lipid abnormalities, an enlarged heart, vascular and coronary disease and hypertension. However, if you have heart disease, you will need medical clearance for bariatric surgery from your cardiologist.

When can I get pregnant after metabolic and bariatric surgery? Will the baby be healthy?

Bariatric surgeons generally recommend that patients wait approximately 18 months after surgery to become pregnant due to the possibility of nutrient deficiencies during the weight-loss period. Obesity is a major cause of infertility and with weight-loss your fertility levels may increase. It is important to practice effective contraception other than birth control pills during this period to avoid getting pregnant. With appropriate nutrition and vitamin/mineral supplementation, bariatric surgery does not cause growth or development problems for offspring. In fact, studies find that women who had bariatric surgery have improved pregnancy and offspring outcomes than those who are affected by severe obesity and have not had bariatric surgery. These improvements include a reduced rate of preeclampsia (an increase in blood pressure leading to chronic high blood pressure) and gestational diabetes, a lower incidence of stillbirths, and fewer miscarriages. The offspring of bariatric surgery patients are also less likely to be underweight or overweight at the time of birth.

Will my skin sag after and bariatric surgery? Will I need to have plastic surgery? Will my insurance pay for plastic surgery?

Whether or not your skin will sag after surgery depends upon several things including how much weight you lose, your age, your genetics and whether or not you exercise. Generally loose skin is well hidden by clothing. Some patients will choose to have plastic surgery, which is the only solution for removing the excess skin. Most surgeons recommend waiting at least 18 months before having plastic surgery, but you should consult with your surgeon before doing so. Plastic surgery for removal of excess skin is rarely covered by insurance because it is generally considered cosmetic. In some instances, removal of excess skin is necessary for medical reasons, i.e. skin irritation, ulceration or infection, pain, sexual function problems or hygiene issues; although it is more likely to get insurance to pay for the plastic surgery in these cases, it is still unlikely that insurance will pay. Many

post-operative patients utilize compression garments to help with the appearance of excess skin. Many different types of compression garments can be found online.

Will I lose my hair after bariatric surgery?

Some hair loss is common following surgery and typically occurs between the third and sixth months following surgery. This is a result of several factors including the physiologic stress, the emotional stress of the adjustments and the nutritional stress following surgery. This is temporary, and adequate intake of protein, vitamins and minerals will help to ensure hair re-growth.

Will I have to take vitamin and minerals after surgery and will my insurance pay for these?

Vitamin and mineral supplements are necessary in the weight-loss period and certain vitamin/mineral supplements are needed life-long, depending upon the type of surgery you have. Insurance typically does not pay for vitamin and mineral supplements. However, you can pay for vitamins and minerals out of a flex medical account, which is a pre-tax account from your income that can be used for medical expenses.

Will I have to go on a diet before I have surgery?

Yes. Most bariatric surgeons put their patients on a pre-operative diet, generally for 2-3 weeks prior to surgery, in order to shrink the liver and reduce fat in the abdomen. This greatly helps with the surgery and makes the surgery safer. Additionally, some insurance companies require a physician-monitored diet three to six months prior to surgery as part of their coverage requirement.

Will I have to diet or exercise after the procedure?

Yes. Surgery is just a *tool* that will enable you to lose weight. Although surgery does produce changes in your body that help with the initial weight-loss and maintenance of the weight-loss, it is ultimately up to you to make lifelong changes to be successful. This includes making right food choices, controlling portions, taking vitamin and mineral supplements as directed, getting plenty of fluid, rest and regular exercise. In addition, sufficient sleep and stress control may help to improve long-term weight-loss success and maintenance. Without these lifelong changes weight regain is likely to occur.

How do I get a letter of necessity?

To qualify for insurance coverage, a letter of necessity from your primary care physician is required. The letter will need to include information pertaining to current weight, height, body mass index, the co-morbidities associated with your obesity, your past diet history and why the physician feels it is medically necessary for you to have bariatric surgery. Your bariatric surgeon will often have a sample letter of necessity for you to take to your primary care physician.

Can I go off some of my medications after surgery?

With weight-loss you may be able to go off or reduce the dosage of many of the medications you take for obesity-associated co-morbidities, such as blood pressure, heart disease, arthritis, lipid abnormalities, and type 2 diabetes. If you have a gastric bypass, sleeve gastrectomy or a duodenal switch, you may even be able to discontinue using or to reduce the dosage of your diabetes medications in the early period following surgery.

Can I have bariatric surgery if I smoke?

We will not perform bariatric surgery on a person who smokes and often require a smoke-free period prior to surgery. There are tests that can test the

nicotine level in the blood or urine, and many surgeons employ these tests to ensure that patients have quit smoking prior to surgery. It is not only very important to stop smoking prior to surgery, but it is also critical to remain smoke free after surgery because smoking significantly increases the risks of complications even after surgery such as development of ulcers.