Patient Handbook

Metabolic and Bariatric Surgery

Marshfield Clinic Health System

Metabolic and Bariatric Surgery Patient Information

Locations

Marshfield Medical Center

1000 North Oak Avenue
Marshfield, WI 54449

- **Bariatric Surgery Services: 715-387-9220 or 1-800-782-8581, ext. 7-9220**
- **Nutrition Services: 715-387-5480 or 1-800-782-8581, ext. 7-5480**
- **Behavioral Health: 715-387-5744 or 1-800-782-8581, ext. 7-5744**
- **Comfort and Recovery Suites: 715-221-5000**

Marshfield Medical Center-Eau Claire

2116 Craig Road,
Eau Claire, WI 54701

- **Bariatric Surgery Services: 715-858-4747 or 1-800-924-8515, ext. 7-4747**
- **Nutrition Services: 715-858-4949 or 1-800-924-8515, ext. 7-4949**
- **Behavioral Health: 715-858-4437 or 1-800-924-8515, ext. 7-4437**
- **Comfort and Recovery Suites: 715-836-1200**

Marshfield Clinic Health System Centers

Dietitians are also available at multiple Marshfield Clinic Health System centers.

Chippewa Center

2655 County Highway I
Chippewa Falls, WI 54729
715-726-4200 or 1-800-334-4535

Colby/Abbotsford Center

111 Dehne Drive,
Colby, WI 54421
715-223-2331 or 1-800-522-2331

Ladysmith Center

906 College Avenue West
Ladysmith, WI 54848
715-532-2300 or 1-800-782-8581

Menomonie Center

3603 Schneider Avenue
Menomonie, WI 54751
715-233-6400 or 1-800-550-5514

Merrill Center

1205 O'Day Street
Merrill, WI 54452
715-539-0101

Minocqua Center

9601 Townline Road
Minocqua, WI 54548
715-358-1167 or 1-800-347-0673

Marshfield Medical Offices-Rice Lake

1700 West South Street
Rice Lake, WI 54868
715-236-8220 or 1-800-442-4268

Stevens Point Center

4100 State Highway 66
Stevens Point, WI 54482
715-393-1366 or 1-800-847-0016, ext. 1-1366

Wausau Center
2727 Plaza Drive
Wausau, WI 54401
715-847-3820 or
1-800-847-0016, ext. 7-3820

Weston Center
3501 Cranberry Boulevard
Weston, WI 54476
715-847-3820 or
1-800-847-0016, ext. 7-3820

Wisconsin Rapids Center
220 24th Street South,
Wisconsin Rapids, WI 54494
715-424-8600 or 1-877-438-1710

Behavioral Health services are available at the following Marshfield Clinic Health System centers

Ladysmith Center
906 College Avenue West
Ladysmith, WI 54848
715-532-2300 or 1-800-782-8581

Minocqua Center
9601 Townline Road
Minocqua, WI 54548
715-358-1793 or 1-800-347-0673

Marshfield Medical Offices-Rice Lake
1700 West South Street
Rice Lake, WI 54868
715-236-8220 or 1-800-442-4268

For the convenience of our patients, telehealth/telemedicine appointments may be available in, or closer to, your home town if your insurance allows. Telemedicine lets you receive the same high-quality care using a television-like monitor to hear and see your medical provider without having to travel to Marshfield or Eau Claire. Contact us for more information.

Introduction

Thank you for choosing Marshfield Clinic Health System Metabolic and Bariatric Services Program. This handbook provides important information about metabolic and bariatric surgery and each step of our metabolic and bariatric program process. Bring it with you to all your appointments and use it to take notes. It is designed as a communication tool between you and your health care providers.

When Dr. Marvin Kuehner founded the bariatric surgery program in the late 1970's, he believed what medical research has now proven – metabolic and bariatric surgery is the most effective method for achieving significant, lasting weight loss. It has since been proven that some of the surgical procedures to lose weight also treat type 2 diabetes and other health conditions by changing gut hormones that decrease hunger, improve satiety, and decrease insulin resistance, improving how your body uses energy. More study is needed to identify exactly how these and other metabolic changes improve health conditions and help people lose weight.
Over the years, advances in knowledge, experience, and technology have also significantly improved the metabolic and bariatric procedures while reducing the risks for complications and decreasing the length of time needed in a hospital. However, time has not changed our dedication to improving the health and well-being of our patients.

Our surgeons have the training and experience to do approved metabolic and bariatric procedures including such operations as laparoscopic Roux-en-Y gastric bypass, laparoscopic sleeve gastrectomy, and revisional surgery or procedures. Whether you are working with our metabolic and bariatric team in Marshfield or in Eau Claire, we are confident that our comprehensive approach will meet all of your needs, every step of the way. Before, during, and long after surgery, our multidisciplinary team of professionals work together to provide personalized care, education, and support. The metabolic and bariatric surgery program is streamlined to be more convenient for you.

Metabolic and bariatric surgery is not for everyone and should not be taken lightly. It is not magic and there are no guarantees. But for people who are ready, willing, and able to make a commitment to life-long changes in diet, activity level, and lifestyle, this surgery is a powerful, effective method to help bring diseases such as type 2 diabetes, under control and lose a significant amount of weight, and keep it off with ongoing effort.

Section 1: Preoperative Phase

Section 1: Preoperative Phase

Terms

- Metabolic
  - Greek term, pertaining to metabolism. *Merriam-Webster.com*
  - Chemical changes within cells to sustain life
- Bariatric
  - Greek term, relating to or specializing in the treatment of obesity. *Merriam-Webster.com*
  - Baros = weight
  - iatric = pertaining to physician or medical treatment
- Body Mass Index (BMI)
  - Calculated measure using metric height and weight.
  - BMI = body weight (in kg) ÷ height (in meters) squared
  - Calculator at: www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmicalc.htm
- Obesity
  - Medical diagnosis when body mass index (BMI) 30 kg/m2 or higher
- Morbid obesity
  - Medical diagnosis when body mass index (BMI) 40 kg/m2 or higher

About Obesity and Morbid Obesity

What causes obesity

Our society has many assumptions about why people become obese, but the truth is obesity is not fully understood. It is agreed that obesity is a complex medical disease associated with multiple causes.

Genetics

Obesity tends to run in families related to genes, and affects things like how your body uses food for energy versus storing as fat. How your brain perceives when your stomach is full or hungry may also vary. Family habits and food traditions passed down through generations may also affect weight.

Environmental factors

Our environment influences choices we make every day. The convenience and value of super-sized meals offered at fast food restaurants appeals to all ages. Work places have limited food choices available. Many people feel so rushed, they eat on the go. Advertising promotes pre-packaged and processed foods. Social gatherings and sports venues are associated with food and beverage; deep fried cheese curds, beer, and bratwurst are a few of the favorites in Wisconsin. We live in an environment that puts convenience and taste ahead of good nutritional value.

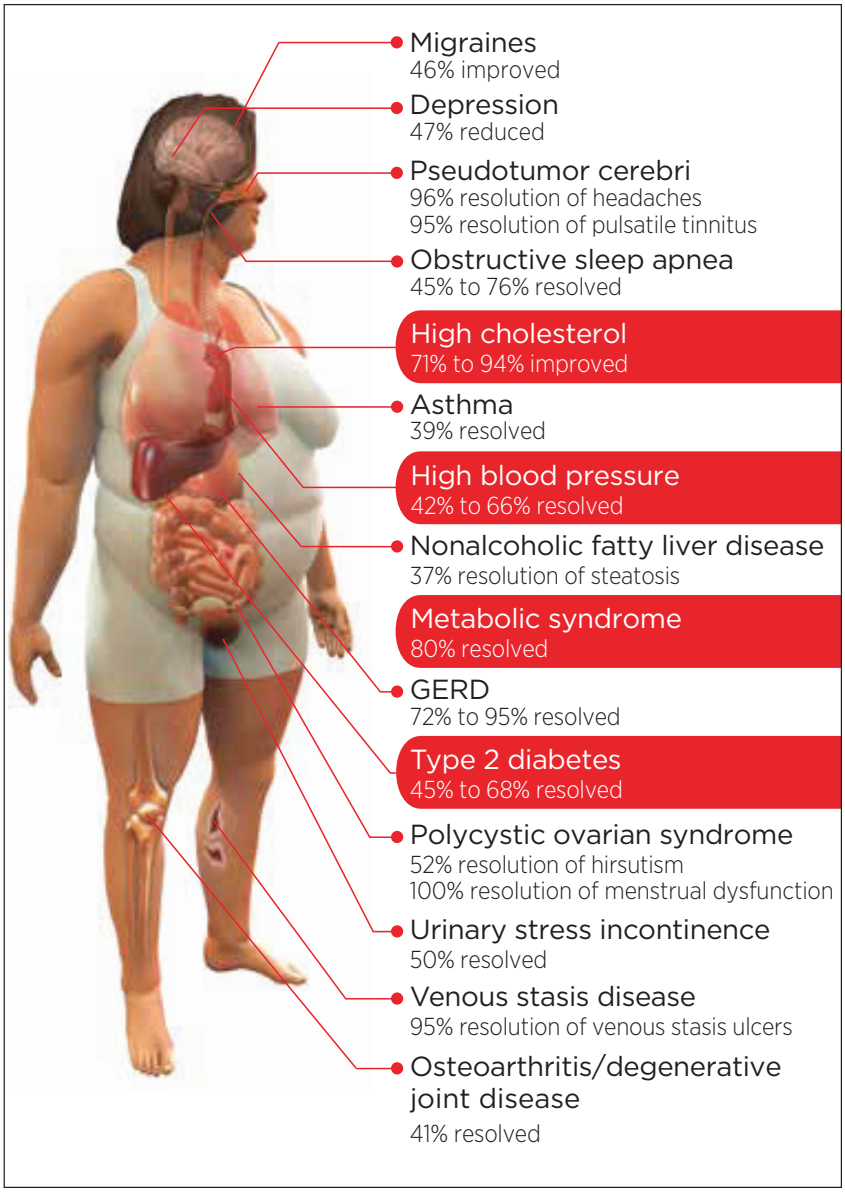
Our environment also discourages physical activity by promoting television, electronic games, and computers. Time spent on these sedentary activities has increased among children and adults. Advances in technology have reduced the need for physical activity in daily life – riding lawn mowers, self-propelled snow throwers, motorized scooters, and the list goes on.

The level of physical activity in our daily life may be limited for various reasons. Many people, including children and adolescents, choose the television, computer applications, or video games over physical activity. Expense can be a limitation to activity, but a membership to the local health club is not necessary! Taking the dog for a walk, taking the stairs instead of the elevator, parking further from the entry, or doing arm exercises from your chair during commercials, or dancing – these are all healthy activities without added cost!

Social pressures to be thin dominate our society. Stick-thin celebrities are idolized by our youth. Infomercials, magazine ads, billboards, and other media tout the latest, greatest diets. Millions of dollars are spent to draw people into weight loss fads. The advertising works, but the diets seldom do!

Psychological influences

Psychological factors can result in eating too much and exercising too little. Many people eat for comfort when they feel negative emotions of stress such as sadness, anxiety, loneliness, or anger. Some people simply overeat out of boredom. Eating disorders or disordered eating may also be a factor. On the other hand, overeating or drinking at times of celebration or social gatherings is also common. Find new ways to celebrate or deal with stress. Having metabolic and bariatric surgery does not make the challenges of life disappear; for that reason, it is important to identify and deal with issues and learn new habits before you have surgery.



Other factors

Certain illnesses such as polycystic ovarian syndrome, seasonal affective disorder, hypogonadism, pseudohypothyroidism, Cushing's syndrome, seizure disorders, conditions requiring treatment with steroids, etc. may add to obesity.

Various medicines are also associated with weight gain including some for diabetes, depression, mood, psychiatric conditions, seizures, migraines, heart conditions, inflammation, and hormonal issues.

Brain signals, hormones, and conditions limiting a person's ability to be physically active may also add to obesity.

Sleep problems may cause weight gain over time and lead to obesity. On the other hand, obesity can cause sleep problems; specifically, sleep apnea where a person briefly stops breathing at multiple times during sleep decreasing oxygen levels. Another problem closely related is obesity-related hypoventilation syndrome, causing increased levels of carbon dioxide. Either of these contribute to decreased overall health.

In addition to the devastating effects on your body, obesity and morbid obesity have been shown to negatively impact quality of life. Mobility and activity limitations, pain and fatigue, personal hygiene concerns, diminished social acceptance, feelings of self-consciousness and shame are examples of issues that interfere with quality of life.

Before starting the bariatric evaluation process, we recommend that you see your doctor to rule-out any reversible cause for obesity. They will document your current health status, any obesity-related illness you are treated for, and your current medicines. Insurance companies review this documentation to determine whether criteria for pre-authorization have been met.

Body Mass Index (BMI) is important

As BMI increases, so does the risk of developing other serious health conditions. The illustration on the previous page shows commonly occurring obesity-related illnesses and the percentage of people who have significant improvement or complete resolution after metabolic and bariatric surgery.

Treatment Options for the Disease of Obesity and/or Type 2 Diabetes

Non-surgical methods

The disease of obesity is a serious health condition that is very difficult to treat using traditional low-calorie or fad diets. It is common for people seeking metabolic and bariatric surgery to have tried multiple diets and/or exercise plans. Many people lose weight while on one diet or another, but only a very small number of people are able to maintain the weight loss, and regain the weight within a couple years or less. Most of the popular, highly publicized diets cannot realistically be continued long-term. Regardless of the weight loss method, long term success depends on a person's ability to make lifelong changes in their lifestyle including healthful diet, regular body movement/exercise, and habits.

There are medicines that may assist with weight loss for short-term treatment of mild obesity. The newest medicines work by reducing appetite or increasing a sense of feeling full or satisfied, although for some, medicines are not completely understood. When weight loss medicines are used in combination with diet and exercise, the average weight loss ranges from 4.5% to 9.3% of total body weight. For example, a person weighing 220 pounds would be expected to lose 10 to 20 pounds over the treatment period of 3 months to a year. After the medicine is stopped, weight may be regained to pre-treatment levels or higher. There are ongoing efforts to develop more effective weight loss medicine with fewer side effects and possible longer term use. More study is needed.

Surgical methods

As obesity increases, so do serious health problems and health care costs. Metabolic and bariatric surgery have proven to be the most effective and long lasting treatment for morbid obesity and many obesity-related health conditions, such as type 2 diabetes. The majority of patients who have had metabolic and bariatric surgery report significant improvement of type 2 diabetes or complete remission. Other health problems also improve or resolve, including high blood pressure, sleep apnea, hyperlipidemia, and other obesity-related diseases. In addition to these significant health benefits, patients who have had the surgery report having a better quality of life, improved self-image, and increased mobility and stamina. While many people may benefit from this surgery, only about 1% seek it. Reasons may include things such as fear of surgery or complications, belief they can lose the weight on their own, financial issues, or others. Metabolic and bariatric procedures done in the United States have significantly increased over time, while complications have decreased. This surgery requires a lot of education and personal commitment. To reach and maintain your weight loss goals, it is essential to adhere to life-long medical management and following the recommendations of your health care providers. You will frequently hear us say, metabolic and bariatric surgery are only tools, and like any other tool, it is effective if you learn to use it correctly.

Step-by-Step Process to Metabolic and Bariatric Surgery

Step 1: Personal Inventory

Determine Body Mass Index (BMI)

The terms "obesity" or "morbid obesity" are **medical diagnoses** used when excess weight has caused, or is likely to cause, other medical problems. In general, an individual is considered to have Class II Obesity if roughly 77 to 100 pounds overweight and Morbid Obesity if weight is roughly more than 100 pounds over ideal body weight (IBW). (See "Ideal Body Weight Chart" located in section 5 of the metabolic and bariatric surgery 3-ring binder given to you at your first general surgery office visit). A commonly used method to measure weight as it relates to health is the Body Mass Index (BMI). The BMI is calculated with a formula using your height and weight: BMI = weight (kg) ÷ height (m2).

A much easier way to determine your BMI is by using a BMI chart. Find your height in the columns on the left and follow that row across to your current weight; your BMI is at the top of that column. Once you know your BMI, use the chart below to determine your BMI classification.

BMI	Classification
Below 18.5	Underweight
18.5 to 24.9	Healthy weight
25 to 29.9	Overweight
30 to 34.9	Class I Obesity
35 to 39.9	Class II Obesity
40 or greater	Morbid Obesity

Body Mass Index																											
BMI		Class I Obesity					Class II Obesity					Morbid Obesity															
		30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	
Height (inches)		Weight (in pounds)																									
58	4'10"	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258	
59	4'11"	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267	
60	5'0"	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276	
61	5'1"	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285	
62	5'2"	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295	
63	5'3"	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304	
64	5'4"	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314	
65	5'5"	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	
66	5'6"	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334	
67	5'7"	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344	
68	5'8"	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354	
69	5'9"	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365	
70	5'10"	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376	
71	5'11"	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386	
72	6'0"	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397	
73	6'1"	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408	
74	6'2"	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420	
75	6'3"	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431	
76	6'4"	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443	

Determine whether you meet the screening criteria determined by the National Institutes of Health.

- [ ] My Body Mass Index (BMI) is 40 or greater

OR

- [ ] My BMI is 35 or more and I am treated for one or more of the following obesity-related health conditions:
  - [ ] Type 2 diabetes
  - [ ] Obstructive sleep apnea
  - [ ] High cholesterol or high lipids
  - [ ] High blood pressure
  - [ ] Coronary artery disease
  - [ ] Heart failure (Cor pulmonale)
  - [ ] Degenerative joint disease in hips, knees, or back
  - [ ] Reflux disease (GERD)
  - [ ] Asthma
  - [ ] Obesity hypoventilation syndrome
  - [ ] Other _____
- [ ] I have made serious attempts at weight loss in the past
- [ ] I am able to understand the risks, potential complications, and benefits of metabolic and bariatric surgery
- [ ] I am motivated to make permanent changes in my diet, level of activity, and lifestyle to lose weight and improve my health and well-being.
- [ ] I agree to and am committed to adhere to life-long medical management and the recommendations of my health care providers

Step 2: Verify insurance coverage

Determine if metabolic and bariatric surgery is a covered benefit of your policy and the preoperative requirements stated on your policy. If you do not know your policy coverage for metabolic and bariatric surgery or your insurance company's requirements, call the customer service number on your member card. If you have trouble getting this information, contact our Patient Assistance Center for assistance at your location:

- Marshfield: 1-800-782-8581, ext. 9-4475 or direct at 715-389-4475
- Eau Claire: 1-800-924-8515, ext. 7-4825 or direct at 715-858-4825

Step 3: Candidate evaluation by metabolic and bariatric surgery team (Over 6 to 12 months)

Our preoperative evaluation follows national guidelines and standards. The purpose is to determine whether metabolic and bariatric surgery is the best option for you to reduce your weight and improve your health. During the evaluation process, we strongly encourage you to learn all you can about the surgery and the permanent lifestyle changes needed after surgery. Ask questions and discuss your concerns. It is important to be involved in your care.

Insurance requirements differ from one plan to the next. Most require a current primary care physical exam to ensure you are an appropriate candidate for surgery, to rule out any problems that can be corrected medically, document obesity-related problems, and treat any medical problems to the best possible level to help ensure you are as healthy as possible before surgery. They may also provide medically supervised weight loss program monitoring and prescribe weight loss or smoking cessation medicines as appropriate. All of these things help prepare you for long term success and decrease your risk of complications related to surgery. Some insurance plans also require documentation of obesity for a minimum of 3 to 5 years before metabolic and bariatric surgery.

Stop smoking

It is required that you stop smoking and using nicotine products for 3 months before surgery, and that you **never** restart smoking or use any products that contain nicotine after surgery to reduce your risk for complications. Many different techniques and aids are available to help you stop smoking. Contact your primary care provider if you need prescription medicine to help you. Your surgeon may order a urine or blood test to verify that you have stopped smoking and may cancel your operation if you have not.

Nutritional counseling

Typically, 3 to 6 monthly registered dietitian (RD) visits or more are required, with intent to lose weight through diet and exercise before surgery and learn how to eat after surgery. The dietitian evaluates your current eating, exercise, and preferences, and teaches you how to change dietary patterns and behaviors to assist with weight loss and eat correctly after surgery. Topics include such things as food choices, portion size, nutrition content, how to count grams of protein, eating frequency, only drinking fluids between meals, eliminating carbonation, caffeine, and nicotine, and increasing body movement. You will also learn what supplements are required. It is important for you to complete assignments and work on your goals between visits.

Psychological evaluation and testing

An evaluation and testing by a properly trained and experienced psychologist or mental health professional is required for every patient. This may include assessments of behavioral patterns, support systems, reasoning, memory, attention, language, and understanding of the risks associated with bariatric and metabolic surgery, and level of commitment to lifelong changes. This is separate from any other mental health services you may be receiving.

It is also required that you are stable from a behavioral or mental health perspective and that the mental health provider or primary care provider is in agreement to proceed with metabolic and bariatric surgery and willing to monitor and manage psychiatric medicines as needed.

Support group meetings

Our groups provide support and are a place to increase knowledge and learn tips and techniques for success! Meeting information is posted on Marshfield Clinic Health System's website, **www.marshfieldclinic.org**, or brochure for groups facilitated by Marshfield Medical Center, or ask to get on the email or U.S. mailing list. You may also call general surgery in Marshfield or Eau Claire or Nutrition Services at Rice Lake or Ladysmith.

Step 4: Candidate clearance by team

It is a critical responsibility of the surgeon and other members of the metabolic and bariatric team to determine if a patient is a good candidate for surgery or not. The team discusses candidates who have completed the surgery evaluation, if there are any questions or concerns, and considers several factors:

- Is the candidate progressing as expected or well-educated in the dietary, lifestyle, and behavioral changes required with metabolic and bariatric surgery and able to implement them?
- Is the candidate able to fully understand the risks and potential complications associated with surgery?
- Has the candidate demonstrated a high level of motivation and commitment through actions to make changes to improve their health?
- Is the candidate willing, able, and likely to adhere to lifelong medical follow up and supplements as prescribed after surgery?

We believe each candidate must fully understand the implications of metabolic and bariatric surgery before making a decision to proceed. Not everyone who is morbidly obese or who could benefit from this surgery will be cleared for surgery. The bariatric team and the candidate must commit to honesty, responsibility, and cooperation in order to determine if bariatric surgery is the best treatment option.

If you **are not** cleared for surgery, you will be notified by a member of the metabolic and bariatric team. You may continue medical weight loss if desired.

Step 5: Insurance pre-authorization

After you have been cleared by the bariatric team, a request for pre-authorization will be submitted to your insurance provider along with your related medical records. Your insurance provider will review your documentation and determine your eligibility for pre-authorization to pay for your surgery. This process can take several weeks or longer. You will receive a letter from your insurance company with their decision. If you have Medicare, you will be notified by our Patient Assistance Center.

If pre-authorization is denied, you may appeal their decision, if appropriate. Detailed instructions are included with the denial letter to use if desired. You may also consider paying out-of-pocket for metabolic and bariatric surgery. Contact our Patient Assistance Center for a fee estimate or additional information at **715-389-4475**.

Step 6: Schedule surgery, preoperative visit, and two postoperative visits

After notification of pre-authorization is received **in the surgeon's office**, which may take several days after you receive the insurance approval letter, you will be contacted to make all the necessary arrangements for your surgery. Multiple appointments will be scheduled for preoperative screening visits, tests, and a consultation with your surgeon. These are usually scheduled for the same day. During the surgeon appointment, your surgeon will confirm that you fully understand the benefits, risks, and potential complications of your operation and obtain your written consent for the designed metabolic and bariatric procedure. You will also be notified either by phone or at this visit when to start the preoperative liquid diet or other instructions.

Appointment Record		
Information Session (group or individual)	Date	General Surgery
Nutritional Evaluation, Counseling, and Monitoring; Preoperative weight loss, exercise, and instructions for diet and lifestyle changes before and after surgery	Date	Registered Dietitian
Psychological Evaluation and Testing	Date	Psychologist
Support Group Meetings (be sure to sign in at the meeting to get credit for attending)	Date	Leader/Speaker, Topic, and Location
Other Appointments As Requested. Examples include: general surgery office visit(s), annual primary care wellness visit, sleep medicine, gynecology, etc.	Date	Provider, Reason, and Location

Metabolic and Bariatric Surgery Options

How it works

Metabolic and bariatric procedures being done are based on several concepts: restriction, malabsorption, changes in gut hormones, and possibly others.

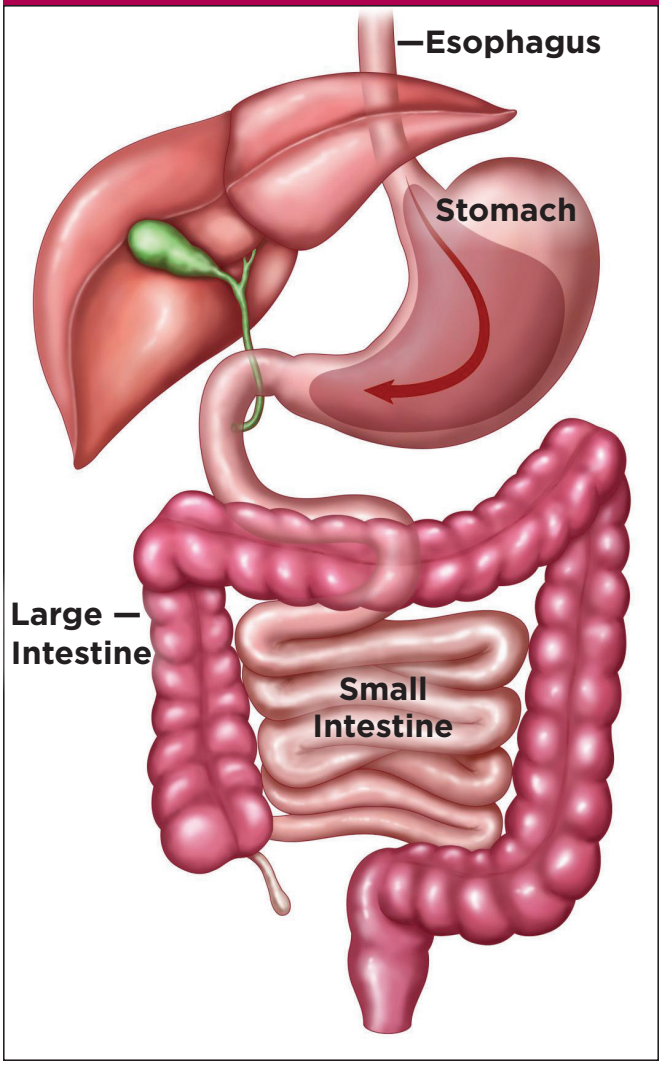
- **Restriction** limits the amount of food that can be comfortably eaten at any one time by reducing the capacity of the stomach.
- **Malabsorption** causes food and calories to be incompletely absorbed by bypassing a portion of the intestines where this normally occurs.
- **Gut hormone** changes occur when removing part of the stomach or re-routing intestines, which promotes feelings of being satisfied and decreasing hunger. Insulin sensitivity may also be increased. Other changes may occur and research is ongoing.

Some metabolic and bariatric procedures are purely restrictive; the stomach capacity is reduced, but no changes are made to the intestines. Purely malabsorptive procedures are no longer done due to complications. Combination procedures use both restriction and malabsorption; the stomach capacity is reduced **and** a portion of intestine is bypassed.

In order to understand how metabolic and bariatric surgery works; you must first understand the normal digestive process.

- Food moves from our mouth down the esophagus and into the stomach, which normally holds about 3 pints of food.
- In the stomach, food mixes with acids and other digestive juices to help breakdown proteins, fats, and carbohydrates for absorption.
- The partially digested food moves into the first segment of the small intestine (duodenum) where most of the iron and calcium in our food is absorbed.
- The digestive process continues as food moves through the rest of the small intestine (jejunum and ileum) where fat-soluble vitamins A, D, E, and K and other nutrients and calories are absorbed.
- The remaining food particles move on to the large intestine for elimination in the stool.

Normal Anatomy



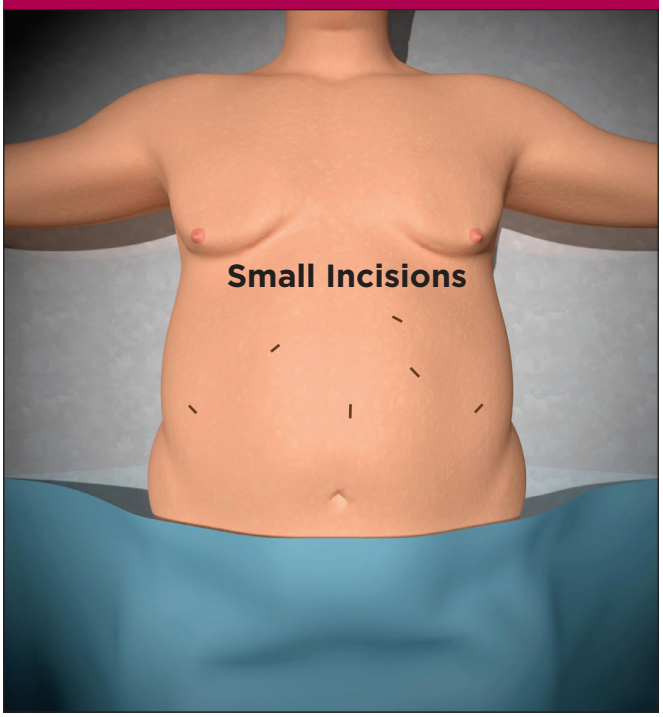
Laparoscopic approach

All of the Marshfield Clinic Health System metabolic and bariatric surgeons are trained and experienced in doing laparoscopic surgery. Using this approach, the surgeon makes small incisions through which surgical instruments are passed. The vast majority of metabolic and bariatric surgery is done using this method.

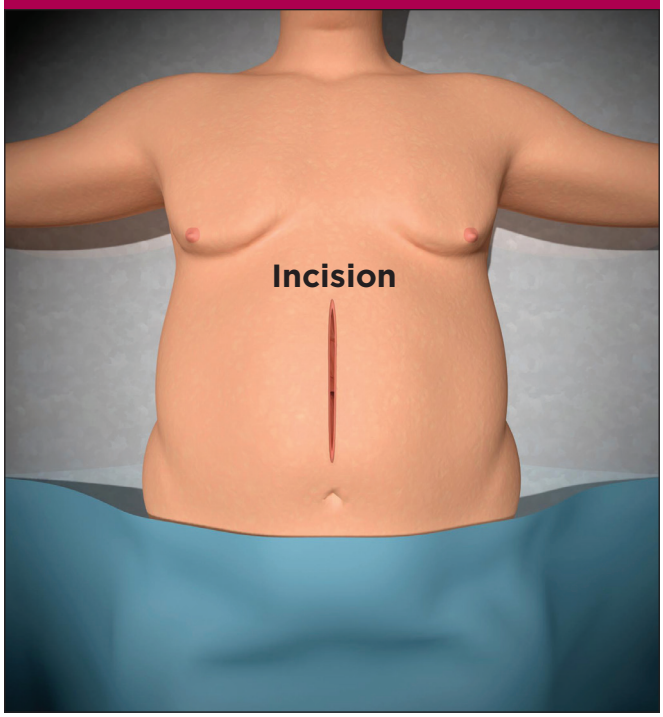
Open approach

Using the open approach, the surgeon makes one large incision. This approach may reduce the length of time it takes to do the procedure and may allow the surgeon to see the organs better. This is more common in patients that have had previous extensive upper abdominal surgeries or if a complication occurs during surgery.

Laparoscopic approach



Open approach



Over the years, the laparoscopic approach has become the most popular among patients seeking metabolic and bariatric surgery. The advantages of the laparoscopic approach are a shorter hospital or comfort and recovery stay, less postoperative pain, faster recovery, and decreased risk of developing an incisional hernia or infection. The disadvantages of the laparoscopic approach may include a slightly longer operating time and up to a 5% chance of developing internal hernias and small bowel obstruction after some procedures. At times, air pockets may form from the carbon dioxide used to inflate the abdomen, resulting in pain or a bloated feeling for 2 or 3 days.

The amount of expected weight loss is the same, regardless of which approach is used. The risk of death and other major complications such as a blood clot to the lung (pulmonary embolism), and a leak at a new connection (anastomosis leak) is about the same for both approaches. Recovery time varies from one patient to the next, and depends on the kind of work you do. In general, patients return to their normal activity in 2 to 4 weeks after laparoscopic surgery, or 4 to 6 weeks with an open surgery.

Our surgeons will have a detailed discussion with you about the risks and benefits of both approaches before you have surgery.

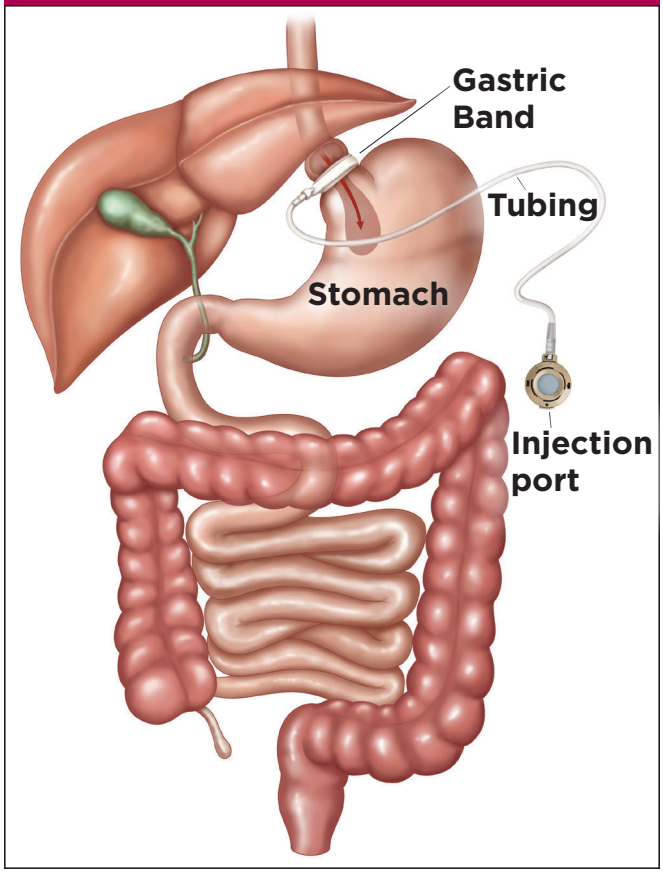
Adjustable gastric band

Frequently referred to as the "Band," it is an adjustable silicone band that is placed laparoscopically around the upper part of the stomach, creating a small pouch and a narrow opening into the lower portion of the stomach. A reservoir (port) is implanted under the skin of the abdomen and attaches to the band with tubing. The band is adjusted by adding or removing fluid through the port with a needle and syringe during office visits. Adding or removing fluid adjusts the tightness of the band and how much a person can eat before feeling full. Finding the right amount of tightness may take frequent office visits. This method restricts how much a person can eat and does not alter metabolism.

Complications include band slippage, band erosion into the stomach, a break or leak in the tubing, or twisting or other movement of the port. Inadequate weight loss may require an operation to remove, replace, repair, or convert the procedure to a sleeve gastrectomy or RNYGB.

This procedure was popular in the early 2000s, but has since fallen out of favor because high maintenance and frequent reoperations due to mechanical failure, or revisions to an alternate procedure due to inadequate weight loss. For this reason, new bands are rare. Our providers will continue to maintain or revise adjustable gastric bands as needed.

Adjustable gastric band



Weight Loss Expectations

Weight loss varies and is highly dependent on ongoing diet and lifestyle changes to lose about a pound a week and may take 2 years to achieve goals. Some never achieve significant weight loss.

Sleeve gastrectomy

The sleeve gastrectomy is newer, and has gained popularity as it is technically easier to do and recovery may be a little shorter and with less risk for surgical complications. However, no surgery is without risk for complications up to and including death. While nutrition deficiencies may occur related to decreased acid in the stomach and changes in diet, they may not be as great as a RNYGB. However, lifelong supplements with vitamins and minerals along with regular blood tests are still required.

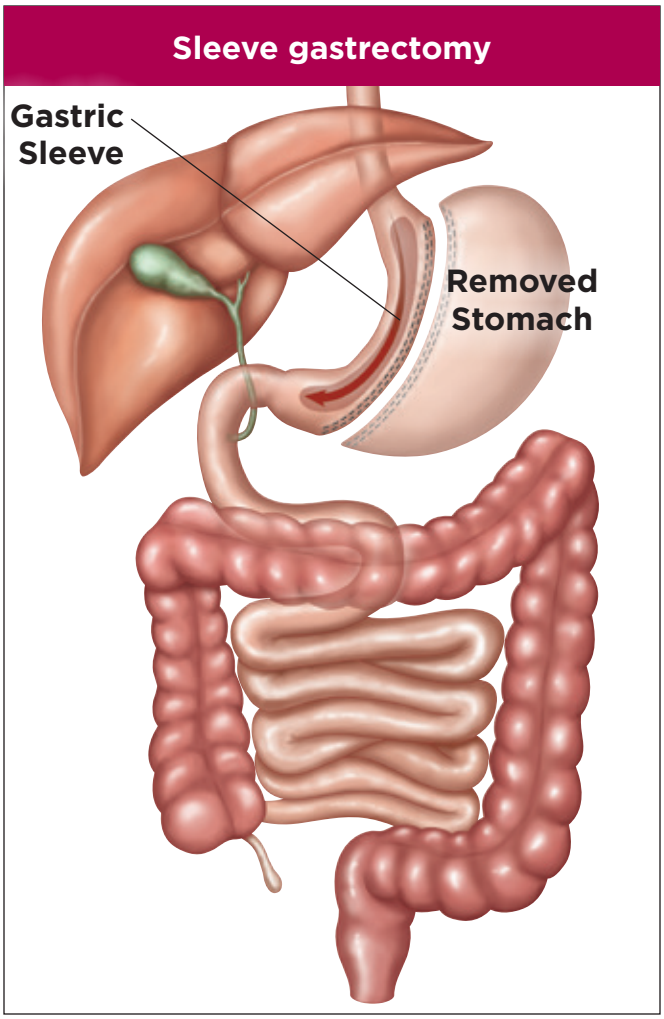
It is a purely restrictive operation when done as a primary bariatric procedure, but also influences gut hormones that affect satiety, hunger, and how your body uses energy.

The "sleeve" is created by removing about 66% to 85% of the stomach. This restricts food intake but allows larger portions than a RNYGB, so it is critical that you control the types and amounts of food or beverage you consume long term. Exercise is also critical to overall success. This procedure is not reversible.

Sometimes, this operation is done as the first stage of a two-stage procedure for patients with an extremely high BMI or for patients who have an unusually high operative risk. When a sleeve gastrectomy is done as the first stage of a two-stage procedure, a second malabsorptive operation is done 12 to 18 months later when the patient reaches a safer weight. This also helps maximize the total amount of weight lost for those with an extremely high BMI.

Insurance coverage for a two-stage operation will depend on the details of your insurance plan and may not be an option for you without alternate funds.

Sleeve gastrectomy may not be an option for people with significant gastric reflux disease because it could get worse. Additional tests may be needed to determine if this is an option for you.



Sleeve Gastrectomy Weight Loss Expectations

Current data shows an average of 60% excess weight lost at 2 years and 40% to 77% excess weight lost at 6 to 9 years with ongoing effort. In general, it is similar to the RNYGB, but weight loss may be slightly less and it may take longer for improvements in conditions such as type 2 diabetes.

Roux-en-Y gastric bypass (RNYGB)

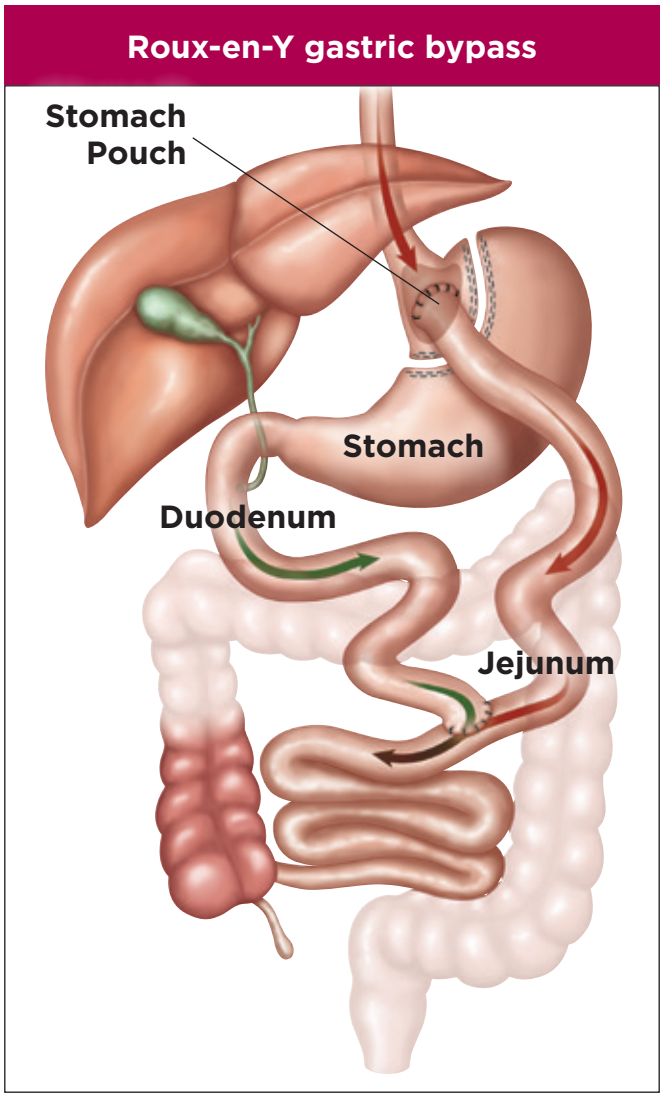
The Roux-en-Y gastric bypass procedure is considered the "gold standard" in bariatric surgery, meaning it is the procedure used to compare all other procedures and has been done for many years. It is a technically complex procedure and uses a combination of restriction and malabsorption. Restriction is achieved by creating a very small stomach pouch, limiting the amount of food that can be eaten at one time. Malabsorption occurs when the new stomach pouch is attached to the jejunum (second segment of the small intestine) after "bypassing" the rest of the stomach and the duodenum (first segment of the small intestine).

Gut hormone changes and possibly other things help increase satiety, decrease hunger, and improve how your body uses energy with decreased insulin resistance. Some people may experience "dumping syndrome" if they eat too many simple carbohydrates such as sugar, starchy vegetables, or processed grains including white flour, white rice, etc. Symptoms may include abdominal cramping, diarrhea, feeling woozy, and usually come on within 15 to 30 minutes of eating and pass within an hour. Some people see this as a negative problem and others feel it helps remind them they ate something they should not have and may help them comply with the eating regimen long term. Nutrition deficiencies may also occur such as vitamin B12, iron, calcium, and folate. For these reasons, it is important to follow dietary recommendations, take vitamin and mineral supplements as prescribed, and regular follow-up to see your provider and for blood tests.

Improvements in conditions such as type 2 diabetes occur rapidly, even before significant weight loss. For some, diabetes resolves completely.

The RNYGB may be done laparoscopically or open. Our surgeons most frequently use the laparoscopic approach. But depending on your individual circumstances, the open approach may be recommended. Every patient must be aware that even if your operation starts laparoscopically, there is a slight chance that the surgeon will need to convert to an open approach to safely complete the operation. This will be discussed with you in detail before you sign a consent for surgery, because the decision to convert to an open procedure is made during the operation when you are asleep.

Whether done laparoscopically or open, the RNYGB has good outcomes as well as risks for complications, including death as with any operation. These will be discussed with you in detail during your preoperative consultation.



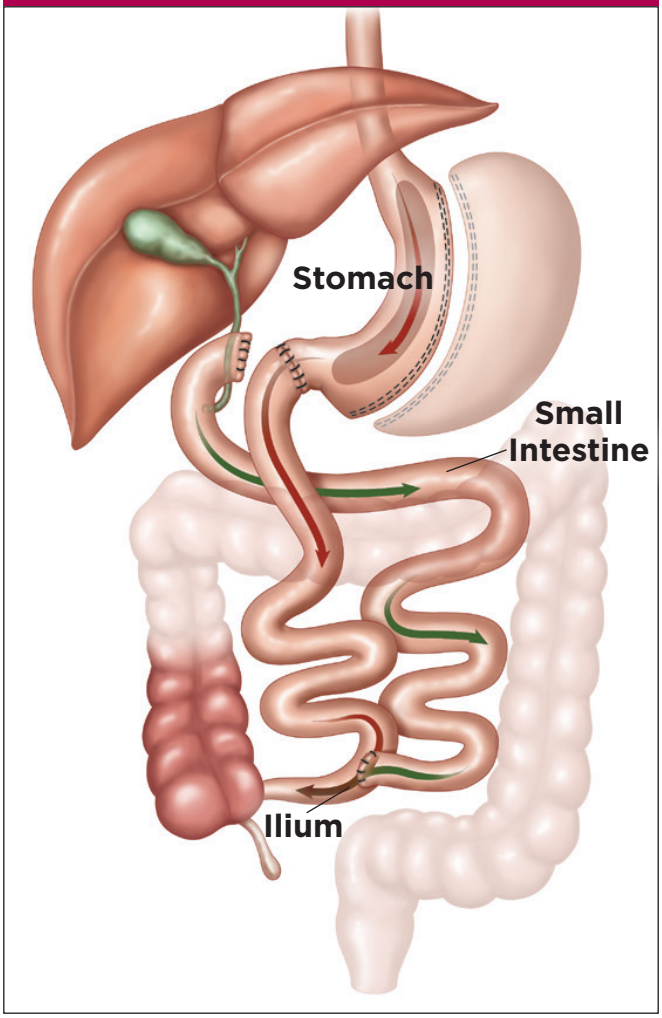
RNYGB Weight Loss Expectations

With the RNYGB procedure the majority of weight loss occurs in the first 12 to 18 months after surgery. On average 70% to 75% of excess weight is lost at 2 years and 42% to 82% excess weight lost is maintained at 10 years with ongoing effort.

Biliopancreatic diversion with duodenal switch (BPD/DS)

This is an extreme procedure and is only used in those with super morbid obesity due to higher complication rates. For this procedure, the surgeon first removes a portion of the stomach, similar to a sleeve gastrectomy. The remaining sleeve-like portion of the stomach restricts food intake but allows larger portions than a RNYGB. Next, the newly formed stomach is attached near the end of the small intestine (ilium). This arrangement bypasses most of the small intestine, leaving only a small area to digest and absorb food. Risk of complications is higher, as well as major nutrition deficiencies. Changes in gut hormones also occur, increasing satiety, decreasing hunger, and modifying how your body uses energy which improves diabetes.

Biliopancreatic diversion with duodenal switch (BPD/DS)



BPD/DS Weight Loss Expectations

Weight loss is rapid in the first 12 to 18 months after surgery. At 2 years, 70% to 80% of excess weight is lost. Long term, 66% to 94% excess weight loss is maintained at 10 years with ongoing effort.

Metabolic and bariatric surgery procedure comparison chart				
	Adjustable Gastric Band	**Sleeve Gastrectomy**	**Roux-en-Y**	**Biliopancreatic Diversion With Duodenal Switch**
Laparoscopic or Open Approach	Lap	Lap	Lap	Lap or Open
Weight Loss	Slowest	Slower	Faster	Fastest
National Average Excess Weight Lost	50% to 60% at 2 years 29% at 4 years	60% at 2 years 40% to 86% at 5 years 40% to 77% at 6 to 9 years	70% to 75% at 2 years 42% to 93% at 5 years 42% to 82% at 10 years	70% to 80% at 2 years 66% to 94% at 10 years
Restrictive or Malabsoptive	Restrictive	Restrictive	Restrictive and Malabsoptive	Restrictive and Malabsoptive
Vitamin Deficiency Risk	Lowest	Medium	High	Highest
Average Hospital Stay	1 night	1 or 2 nights	1 or 2 nights	2 or 3 nights

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Notes

Marshfield Medical Center
1-800-782-8581, ext. 7-9220
715-387-9220

Marshfield Medical Center-Eau Claire
1-800-924-8515, ext. 7-4747
715-858-4747

www.marshfeldclinic.org/ specialties/general-surgery/bariatric-surgery
Email: bariatric.surgery@marshfieldclinic.org

Marshfield Clinic
Health System

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