Pre/Post Bariatric Surgery Provider Toolkit

2013

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In order to continue to improve the information we make available to you, we ask that you provide us with feedback once you have read and use this resource. Your feedback will be essential in helping us continuously improve this toolkit and provide ongoing support and information that focuses on key messages and issues that are important to California health care providers.

The online survey is available at: https://www.surveymonkey.com/s/2013BariatricSurgeryProviderToolkitEvaluation

This provider toolkit is also available in an electronic format. If you would like to download a free copy, please visit the Obesity Prevention Project website at http://www.thecmafoundation.org/projects/obesityProject.aspx

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Preface

Dear colleagues,

More than two-thirds (68 percent) of American adults are either overweight or obese with 35.5% considered obese. In California, 60% of adults are overweight and 24% are obese. Higher rates of obesity are found in our state's ethnic minority and underserved communities. A combination of poor diet and lack of physical activity has caused adults to be at greater risk for major chronic diseases such as type 2 diabetes, heart disease and cancer.

It is no surprise that many physicians feel overwhelmed and frustrated by the daunting task of addressing weight issues with their patients given the physical, emotional, social, and environmental factors associated with obesity and weight management. Providers hear a variety of messages about the prevention, treatment and management of obesity that make it increasingly difficult to determine the best plan of action to take with patients.

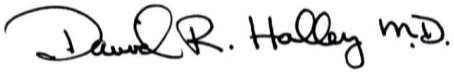
The California Medical Association (CMA) Foundation and California Association of Health Plans (CAHP) convened an expert panel of physicians and other health care providers to update our Pre/Post Bariatric Surgery Provider Toolkit with the support and partnership of Ethicon-Endo Surgery and Allergan, Inc.

Components of the toolkit that have been updated include:

- An Overview of Bariatric Surgery and its Approaches
- Surgical Procedure Types
- Preoperative Preparation
- Post-Operative Patient Care
- Addressing Surgical Complications
- Helping Patients to Live Effectively with Bariatric Surgery
- Patient/Provider Communications Addressing Bariatric Surgery
- Patient Resources
- Provider Resources Regarding Bariatric Surgery
- Update on Health Plan Coverage
- A new component addressing the link between bariatric surgery and control of type 2 diabetes

Please join the efforts of the CMA Foundation and CAHP to reverse obesity trends by utilizing this resource developed by health care providers for health care providers. The toolkit and additional resources are available on the CMA Foundation website. For more information visit: http://www.thecmafoundation.org/projects/obesityProject.aspx.

Sincerely,



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Toolkit Purpose

In 2006, the California Medical Association (CMA) Foundation and the California Association of Health Plans (CAHP) collaborated with commercial and Medi-Cal managed care health plans, practicing physicians and other health provider organizations to complete a Pre/Post Bariatric Surgery Provider Toolkit addressing the prevention, early identification, weight management education and pre/post bariatric surgery care of overweight and obese individuals.

In 2013, CMA Foundation and an Expert Panel again convened to update the clinical components and guidelines in this toolkit and added new resources addressing culturally competent care, multicultural communications and stronger patient and provider resources. This work brought together academic thought leaders specializing in bariatric surgery, practicing physicians, health plan leadership and experts in both patient/provider and multicultural communications. Expert panel members shared their daily experiences of working to address the growing obesity epidemic in their practice and community and communication expertise to strengthen this toolkit.

Through these collaborative efforts, the Pre/Post Bariatric Surgery Provider Toolkit has been updated to address the assessment of the overweight and obese patient for bariatric surgery and provision of the ongoing support and management of the patient after their surgery.

The objective of the Pre/Post Bariatric Surgery toolkit is to supply providers with pertinent information to discuss with patients when considering bariatric surgery as a treatment option. This document contains information about medical, behavioral, psychological and lifestyle changes necessary for long term post operative weight loss success.

Disclaimer

This toolkit is intended for physicians and healthcare professionals to consider in managing the care of their patients before and after bariatric surgery. While the toolkit describes recommended courses of intervention, it is not intended as a substitute for the advice of a physician or other knowledgeable healthcare professional. This toolkit represents best clinical practice at the time of publication, but practice standards may change as more knowledge is gained. Funding for this toolkit was provided by Ethicon-Endo Surgery and Allergan, Inc.

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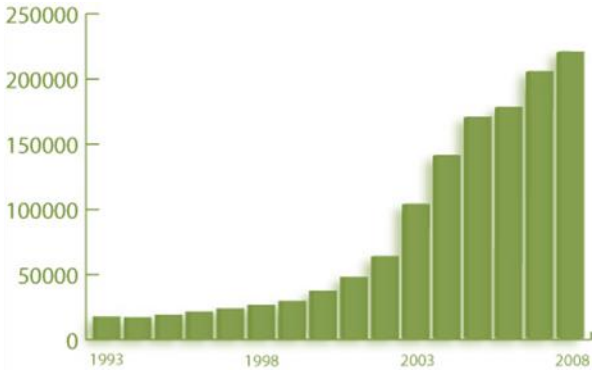
Chapter 1 Bariatric Surgery Overview

Bariatric surgery helps obese individuals achieve long term weight loss by limiting the volume of food intake, reducing appetite, slowing digestion and reducing the absorption of calories/nutrients from food. Bariatric surgery is a tool, not a cure, and will not resolve morbid obesity without active participation by the patient. Individual weight loss depends on a complementary commitment to lifestyle alterations, healthy eating habits, and daily physical activity.

Although it was previously suggested that surgery should only be considered after failed attempts through other weight loss methods such as diet and lifestyle change or pharmacology, bariatric surgery can have many advantages that are not possible through these other methods. Clinical trials have shown that surgery is the only method that has allowed the morbidly obese to lose a substantial (30-70%) amount of weight and keep it off for a long period of time. Surgery also can show a resolution of type 2 diabetes in as little as 24 hours after the procedure and can decrease the occurrence of cardiovascular events and cancer, as well as other obesity related morbidities such as hypertension and dyslipidemia. For these reasons, along with the rising prevalence of obesity, bariatric surgery numbers have shown a steady climb. In 2008, an estimated 350,000 bariatric surgeries were performed worldwide, and these numbers are still increasing.



U.S. Bariatric Surgeries
Source: American Society for Bariatric Surgery

History of Bariatric Surgery

The history of bariatric surgery began in the 1950's with medical advances that suggested a link between obesity and serious medical conditions, such as heart disease and diabetes. Prior to the 20th century, obesity was associated with good health, good nutrition and financial success. These views on weight, along with a sedentary lifestyle due to technological advances made in the appliance and machinery industries after World War II, contributed to a gain in weight among an entire generation. With new medical knowledge linking obesity to medical conditions, a new field was born and it has grown over the decades.

Bariatric Surgery on the stomach and/or intestines changing the digestive system's anatomy to limit the amount of food that can be eaten and digested to help a person with extreme obesity lose weight.

In 1954, Dr. A. J. Kremen devised a surgical procedure that involved connecting the lower and upper portions of the small intestine, simulating a condition known as short bowel syndrome. Unfortunately, patients of this first bariatric surgery suffered diarrhea, dehydration and the inability to absorb necessary nutrients and vitamins.

Several more procedures were developed in the 1960's which closer resemble those used today. By 1966, Dr. Edward Mason developed a procedure, in which the stomach was stapled, and by the 1970's, the biliopancreatic diversion was developed in Italy. Although progress was made, patients continued to suffer undesirable effects.

Gastric banding procedures first appeared during the late 1980's. Today's adjustable gastric bands are improved versions of the older bands. The introduction of laparoscopic surgeries in the 1990's led to the development of other techniques that give patients the option of undergoing less invasive bariatric procedures with less severe side effects.

Laparoscopic Gastric Bypass Roux-en-Y is considered the gold standard of weight loss surgery by the American Society of Metabolic and Bariatric Surgeons and the National Institutes of Health. This procedure is widely viewed as the safest and most effective means of achieving long-term weight loss.

Effectiveness of Bariatric Surgery

According to the NIH Consensus Statement of 2005, surgery is the only way to obtain consistent, permanent weight loss for morbidly obese patients. Operative mortality rates in the hands of a skilled surgeon are low, ranging from 0.1% to 1%, depending upon the procedure performed.

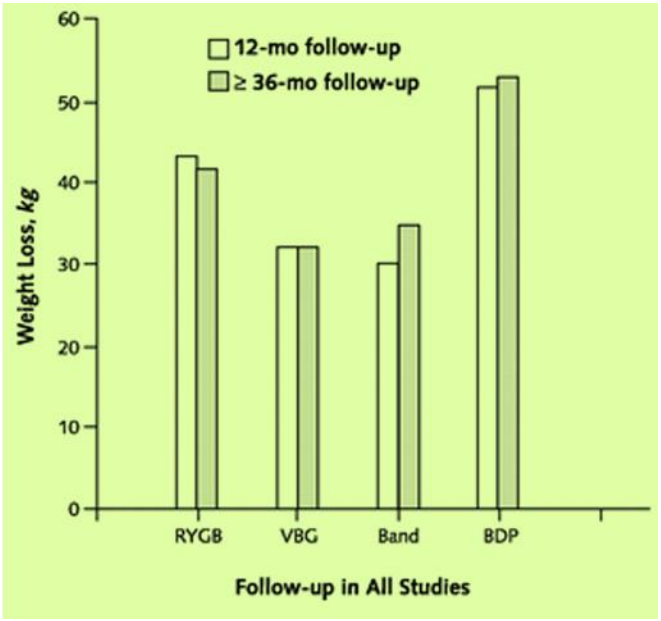
Sources:

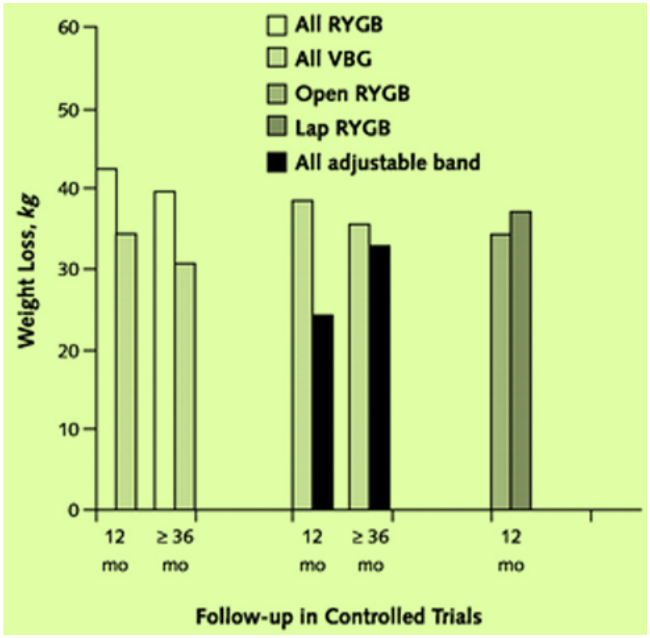
Gastric Banding: Adjustable gastric band: 3-year prospective study in the United States. Surg Obes Relat Dis. 2009;5:588–597.

Sleeve Gastrectomy: Shi X, Karmali S, Sharma AM, et al. A review of laparoscopic sleeve gastrectomy for morbid obesity. Obes Surg. 2010;20:1171–1177.

Gastric Bypass: O'Brien PE, McPhail T, Chaston TB, et al. Systematic review of medium-term weight loss after bariatric operations. Obes Surg. 2006;16(8):1032–40.

Meta-analysis: Surgical Treatment of Obesity





Source:

Ann Intern Med. 2005 Apr 5;142(7):547-59.

Weight Loss Outcome After Roux-en-Y Gastric Bypass: 10 Years of Follow-up.

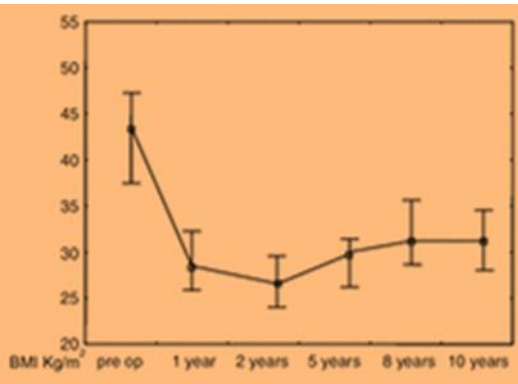


Fig. 1 Evolution of BMI (kg/m^2) for 10 years. Preop: 43.7; 1 year: 28.7; 2 years: 27.6; 5 years: 28.2; 8 years: 29.6; 10 years: 29.6. *BMI* body mass index

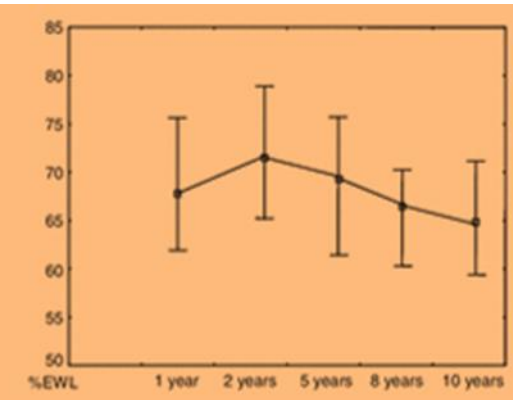
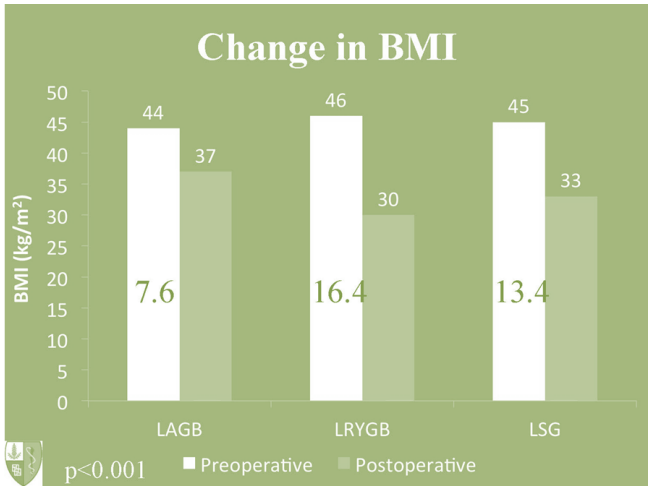


Fig. 2 %EWL in 10 years. 1 year: 67.6; 2 years: 72.6; 5 years: 69.7; 8 years: 66.8; 10 years: 65.3. *EWL* excess weight loss (%)

Source:
Valezi AC, de Almeida Menezes M, Mali J Jr. Obes Surg. 2013 Mar 24. [Epub ahead of print] PMID: 23526083



Source:
MortonJM, Sherif B. Winegar D, Ponce J, Nguyen N, Blackstone R. "National Comparisons of Bariatric Surgery Safety and Efficacy: Findings from the BOLD Database 2007-2010." American Society of Metabolic and Bariatric Surgery Annual Meeting 2012 (Top 5 Paper)

Categories of Bariatric Surgery:

1. **Restrictive:** Reduces the amount of food the stomach can hold without interfering with normal digestion of food and essential nutrients.
2. **Malabsorptive:** The digestive tract is shortened to limit the absorption of calories and nutrients from food.
3. **Hormonal:** Removal or avoidance of the fundus leads to decrease in gherlin (hunger hormone) and rapid transit of nutrients to lower intestine leads to increased GLP-1 (hormone that increases insulin sensitivity).
4. **Combination:** Restricts the amount of food the stomach can hold and reduces absorption of calories through surgical alteration of the digestive tract.

Approaches to Surgery:

Laparoscopic: A series of small incisions allow insertion of a small video camera and surgical instruments into the abdomen to conduct the surgery. As of 2008, over 90% of bariatric surgery is performed laparoscopically.

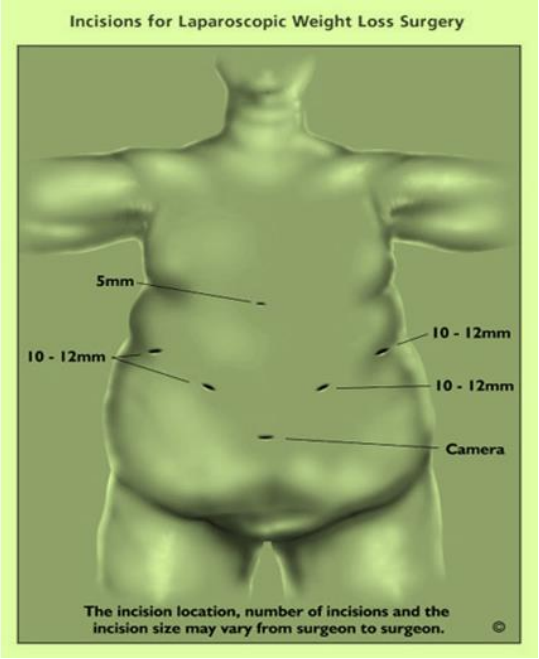
Benefits include:

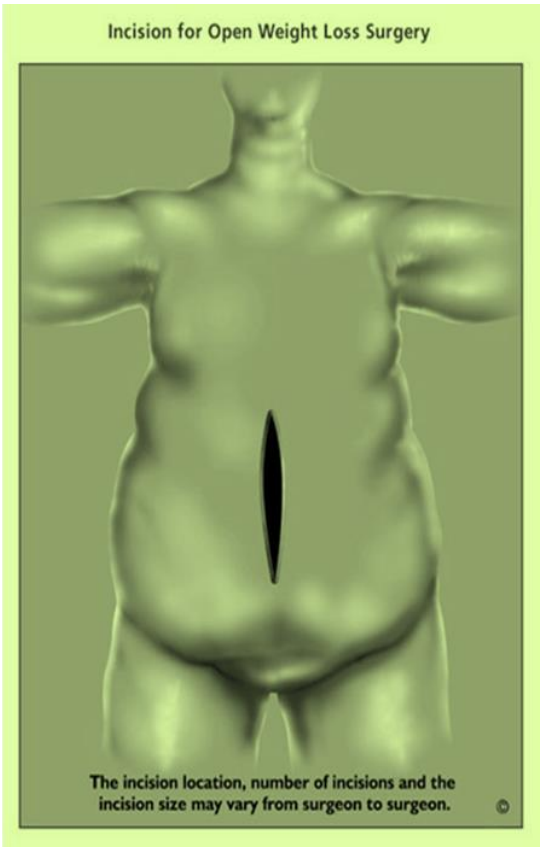
- Less postoperative pain
- Reduced risk of wound infections and incisional hernias
- Faster recovery and return to daily activity
- Less tissue damage

Open: Involves providing the surgeon open abdomen access through a long incision. In some patients conversion from laparoscopic to open surgery may be necessary due to any of the following factors:

- Degree of obesity (weighs > 350 lbs)
- Dense scar tissue from prior abdominal surgery
- Surgeon inability to visualize organs
- Operative bleeding problems
- Co-morbid disease process

The majority of bariatric surgeries performed currently are done laparoscopically, thanks to developments in surgical innovations and the medical device industry coupled with increasing experience in minimally invasive surgery over the past two decades.[1,2]





However, not all patients are suitable for laparoscopy. Patients who are extremely obese, who have had previous abdominal surgery, or have complicating medical problems may require the open approach.[3]

2 Common Surgical Procedure Types

- Roux-en-Y Gastric Bypass (RYGBP)
- Adjustable Gastric Banding(AGB)
- Sleeve Gastrectomy
- Biliopancreatic Bypass/Diversion with Duodenal Switch

Chapter 2 Common Surgical Procedure Types[4,5]

Each type of bariatric surgical procedure has associated benefits, drawbacks, and risk including operative risk, potential for complications and long term weight-loss variation. The possible benefit and risk of each procedure should be carefully considered and discussed with the bariatric surgeon to accommodate individual patient need and preference. Depending upon surgeon expertise and patient circumstances other surgical procedure types may be considered. No single procedure is right for all patients, and the selection of a specific procedure is a decision best left to the patient and physician.

Four common types of procedures are:

- Gastric Bypass
- Gastric Banding
- Vertical Sleeve Gastrectomy
- Biliopancreatic Diversion with Duodenal Switch

The four most commonly performed bariatric surgeries can be divided into two categories. Gastric banding and sleeve gastrectomy are purely restrictive methods, whereas Roux-en-Y gastric bybass (RYGB) and biliopancreatic diversion (BPD) result in significant hormonal changes and some nutrient malabsorption in addition to the reduced stomach size. Each procedure changes the physiology of the patient in a unique way and has its own specific outcomes, risks, merits and limitations.

There is ongoing research in different techniques and technology. After the publication of this toolkit, there may be changes in surgical options or criteria that may be useful for your patients. Your bariatric surgeon can answer your questions.

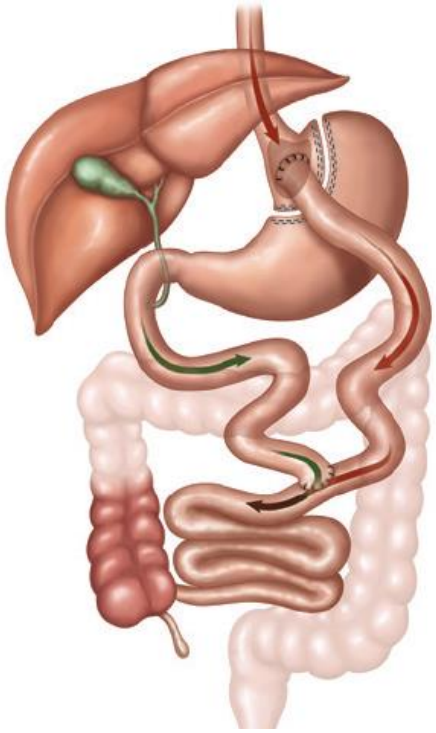
See Appendix B Bariatric Surgical Procedure–Advantages and Disadvantages Table.

Roux-en-Y Gastric Bypass (RYGBP)

This combination procedure is the most commonly used in the United States and is the benchmark standard by which all other bariatric surgical procedures are measured. Roux-en-Y gastric bypass enables weight loss through a combination of restriction and malabsorption. Using staplers, a small stomach pouch (15cc to 30cc) is created to limit food intake. The small intestine is divided and connected to the stomach pouch. Food passes directly into the lower jejunum, bypassing calorie absorption and the duodenum.

Surgery risks may include:

- iron deficiency
- chronic anemia
- heightened bone calcium loss
- anastomotic leak
- fistula
- metabolic bone disease
- vitamin B12 deficiency
- dumping syndrome
- intestinal irritation and ulcers
- difficulty visualizing the lower stomach and segments of the small intestine when using X-ray or endoscopy.

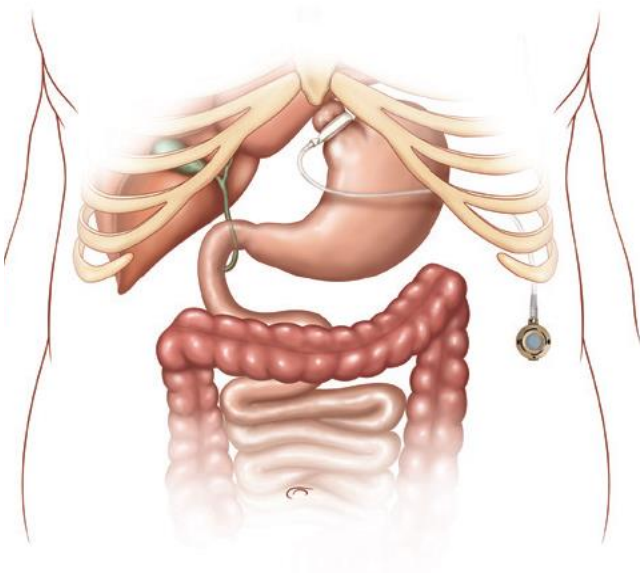


Adjustable Gastric Banding (AGB)

A restrictive procedure that limits food intake by placing an adjustable hollow band around the stomach, dividing it into two parts: a small upper pouch and a lower stomach. The upper pouch only holds about 4 ounces (1/2 cup) of food, helping patients to feel full sooner and longer than usual. This type of procedure is reversible and may reduce the risk of nutritional and mineral deficiencies. The Lap-Band® and the REALIZE™ Bands are the two FDA approved devices. FDA has approved the Lap-Band® for lower weight patients (BMI 30-35).

Surgery risks may include:

- gastric perforation
- reservoir leakage or twisting
- lack of satiety
- reflux
- nausea and vomiting
- outlet obstruction
- pouch dilation
- band slippage
- lack of weight loss

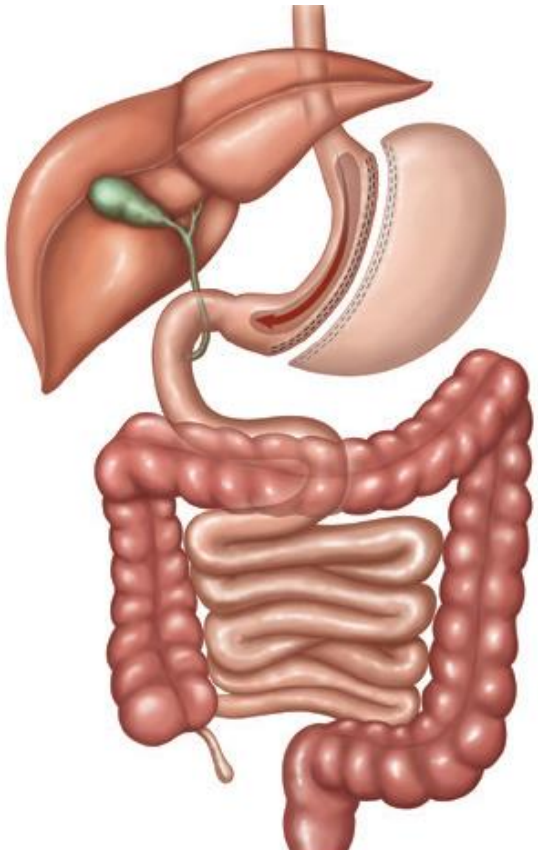


Sleeve Gastrectomy

Sleeve gastrectomy procedures limit food intake by reducing the size of the stomach. In this procedure, a linear stapling device is used divide the stomach vertically along the lesser curvature of the stomach, leaving behind a thin vertical sleeve of stomach that is at least 60% smaller and allows the patient to feel fuller faster. The sleeve reduces the size of the stomach to 50 mL to 150 mL. The rest of the stomach is removed which causes the stomach to make less appetite inducing hormones and further decreases food intake.

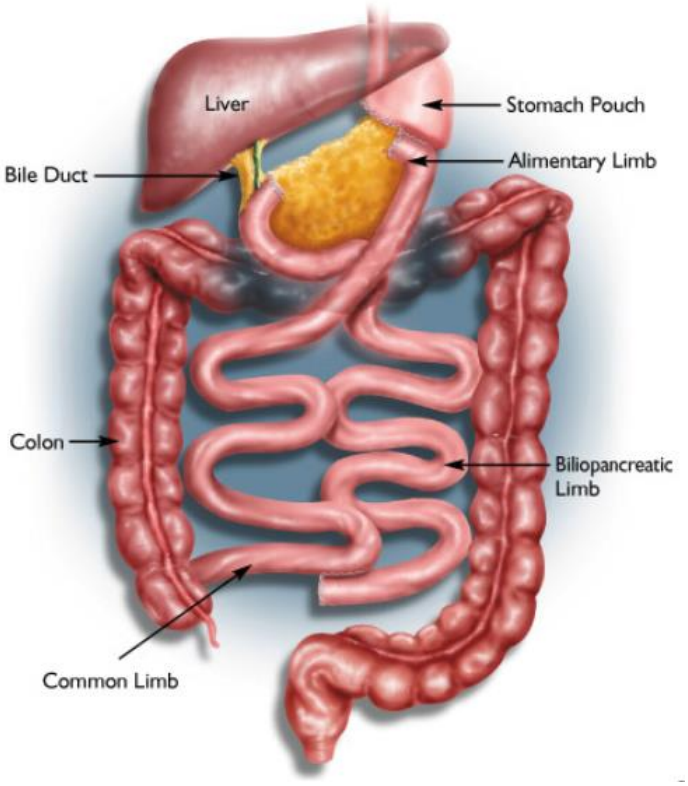
Surgery risks may include:

- complications due to stomach stapling (e.g., tissue separation or gastric leakage)
- GERD
- ulcers
- fistula
- dyspepsia
- esophageal dysmotility
- other risks associated with bariatric surgery



Biliopancreatic Bypass/Diversion with Duodenal Switch

In this variation of the Biliopancreatic Diversion, the stomach is fashioned into a small tube leaving intact the pyloric valve (which regulates the release of stomach contents in to the small intestine) and a small part of the duodenum in the digestive pathway. This procedure restricts the amount of food that can be eaten and limits absorption of food into the body.



Surgery risks include:

- frequent and liquid bowel movements as the intestines adapt
- abdominal bloating and malodorous stool or gas
- lifelong monitoring for protein malnutrition
- anemia
- bone disease
- lifelong vitamin supplement requirements
- increased risk of gallstone formation
- potential intestinal irritation and ulcers

A variety of techniques are being developed with the aim of increasing access to safe and effective minimally invasive weight loss surgical therapy. Expansion of laparoscopic techniques, burgeoning endoscopic procedure, space-occupying and pacing devices are being investigated at this time. A bariatric surgeon should be able to answer your questions on these developing techniques.

Along with major insurers, Medicare, Tricare, 47 State Medicaid plans and 44 State employee plans cover bariatric surgery. Patient safety has increased significantly since the implementation.[6]

3 Link Between Bariatric Surgery and Obesity-Related Comorbidities

- Diabetes
- Cardiopulmonary Comorbidities
- Obstructive Sleep Apnea (OSA)

Chapter 3 Link Between Bariatric Surgery and Obesity-Related Comorbidities

Obesity is associated with increased risk of cardiovascular disease, leading to increased cardiovascular mortality in the obese population. Attempts to reduce this risk have been approached through various methods. One of these methods is pharmacology, but it is difficult to target cardiovascular risk factors with one drug, so highly complex multidrug regimens are usually the only solution. Weight loss has proven to effectively reduce risk of cardiovascular events, but high failure rates of non-operative approaches to weight management have been disappointing. Bariatric surgery achieves significant, sustainable weight loss, and has been shown to induce resolution or improvement in obesity-associated comorbidities such as type 2 diabetes mellitus (DM), hypertension and dyslipidemia.

Diabetes

It is estimated that around 8% of the US population has type 2 diabetes (including the significant number of people who are undiagnosed).[7]There is a clear link between being overweight and developing type 2 diabetes, with statistics showing that more than 80% of people with type 2 diabetes are overweight. Not surprisingly, as obesity rates have increased, so, too, have the number of newly diagnosed cases of diabetes in the U.S. Diagnosis rates have nearly doubled from 4.8 per 1,000 in 1995–1997 to 9.1 per 1,000 in 2005–2007.[8]

According to the American Diabetes Association's (ADA) statement on diabetes care, bariatric surgery should be considered for adults with a BMI of 35 or greater and type 2 diabetes, especially if/when lifestyle and pharmacologic therapy have resulted in little control.[9]

Bariatric surgery is an effective treatment for obesity associated type 2 DM, and more is being done to increase the effectiveness. Roux-en-Y and BPD are the most studied and seem to maintain resolution in the long term. LAGB also shows long term type 2 DM resolution, although it is not as effective as the malabsorptive procedures. The long-term efficacy of sleeve gastrectomy on diabetes is apparent at 6 years. Because bariatric surgery appears to be so effective, gastrointestinal procedures are beginning to be done in patients with BMI >35 kg/m^2, and have shown some promise in resolution of type 2 DM in these patients as well. Novel endoscopic procedures and gastric stimulation may also prove to be less invasive procedures to battle obesity and diabetes in the near future, but because studies are so recent, their efficacy and safety in the long term are unknown.

Patients should be counseled that bariatric surgery alone does not reliably "cure" diabetes.[10]Obesity and diabetes are chronic diseases that may be placed in remission.

- 3568 DM2 RYGB patients enjoyed complete disease remission ranging from 82% to 98%
  - ***Pories et al. Ann Surg 1995***
  - ***Schauer et al. Ann Surg 2000 and 2003***
  - ***Sugerman et al. .Ann Surg 2003***
  - ***Wittgrove et al. Obes Surg 2000***
- Metanalysis of 136 studies/22,094 patients, RYGB completely resolved DM 84% ***Buchwald et al. Bariatric surgery: A systematic review and meta-analysis. JAMA 2004; 292:1724-37***

Adolescent bariatric surgery is an emerging field and is all the more important with the growing prevalence of adolescent obesity. It has shown great promise in treatment of adolescent diabetes.[11]

Cardiopulmonary Comorbidities

Obese subjects are more prone to suffer from cardiopulmonary comorbidities such as hypertension and coronary heart disease. Compared to lean men and women, obese adults are six times more likely to have hypertension. Each 10kg increase in weight is associated with a 3mm Hg higher systolic and a 2.3mm Hg higher diastolic

blood pressure translating to a 12% higher risk of coronary heart disease in the obese individual.[12]

Weight loss following bariatric surgery has led to improvement or resolution of several of these comorbidities associated with morbid obesity including:

- Resolution or improvement of hypertension in 79% of bariatric patients[13]
- Reduction of high cholesterol in 71% of bariatric patients[14]
- Reduction of biochemical cardiac risk factors such as high sensitivity C-reactive protein[15]

Obstructive Sleep Apnea (OSA)

Obesity is considered a major risk factor for the development and progression of Obstructive sleep Apnea (OSA). The prevalence of OSA in obese or severely obese adults is nearly twice that of normal weight adults, and it is estimated that overweight and obese patients represent over 70% of subjects with OSA.[16]

Weight loss following bariatric surgery has led to improvement of OSA. Specifically:

- Resolution of OSA was seen in 86% of bariatric patients (n=1195) in a meta-analysis[17]
- Morbidly obese patients after bariatric surgery demonstrated a weighted average reduction of 38.2 apneic or hypopneic events per hour and a combined reduction in apnea-hypopnea index (AHI) of 71%.[18]

4 Evaluation of the Bariatric Surgery Patient

- Patient Pre-Operative Evaluation and Education
- Pre-Operative Preparations for Providers
- Pre-Operative Preparation Lifestyle Changes
- Patient Selection Criteria
- Additional Considerations When Referring Patients to a Bariatric Surgeon

Chapter 4 Evaluation of the Bariatric Surgery Patient

Traditionally, Bariatric surgery is a treatment option for patients with extreme obesity (BMI ≥40), or obesity (BMI≥35) with related co-morbid conditions. These criteria may change with changes in surgical technique; for example, the Lap Band gastric band device has been FDA approved for patients with BMI as low as 30 with co-morbidities. Surgery should be considered when less invasive methods of weight loss such as diet, exercise, pharmacotherapy, and behavior modification have failed, or the patient is at high risk for obesity related morbidity or mortality.[19]

A multidisciplinary evaluation of potential bariatric surgery patients may include the following health professionals:

- Primary care physician
- Obesity-specialist: bariatrician, endocrinologist, gastroenterologist, internist
- Cardiologist
- Bariatric surgeon
- Psychologist
- Registered dietitian
- Exercise specialist

Patient Pre-Operative Evaluation and Education Could Involve:

- Consultation with the bariatric surgeon and other health professionals should include:
    - An in-depth explanation of the surgical procedure to be performed
    - Open discussions about surgical risks, expected benefits, patient responsibilities, and long term management requirements/consequences
    - Additional diagnostic tests including blood work, x-rays/ultrasounds, and EKGs as requested
- Support group attendance
- Review of informational brochures, facts sheets, handouts, booklets, and videos
- Completion of questionnaires
- Pre-operative teaching and education
- Psychological consultations

Pre-Operative Preparations for Providers:

- Mental or behavioral disorders that may interfere with post-operative outcomes including eating disorders, risk taking behaviors, or other psychopathologies should be thoroughly addressed through appropriate mental health referral.
- Careful screening for current or past alcohol abuse and appropriate referral, as post-operative alcohol abuse has been reported in some susceptible patients.
- History of narcotic or illegal drug abuse may indicate need for mental health/drug addiction counseling pre-operatively and evidence that patient is free of such abusive behaviors prior to surgery.
- Patients with diabetes should be in good control pre-operatively. Significant efforts should be made to bring HgA1C within range of control prior to surgery.
- Patients with other medical conditions may require referrals to specialists for further evaluation.

Pre-Operative Preparation Lifestyle Changes[20]

Preparation for any bariatric surgery procedure involves some lifestyle preparation. It is recommended that patients begin the following activities and changes to their health regimen prior to bariatric surgery:

- Quit smoking at least 30 days prior to surgery.
- Begin taking a daily multivitamin.
- Maintain a healthy diet by eating foods low in fat and high in fiber.
- Eliminate fast food, fried foods, and foods high in sugar.
- Drink non-caloric or low-calorie beverages.
- Decrease consumption of carbonated beverages and caffeine.
- Begin walking 10 to 20 minutes per day.
- Drink six to eight glasses of water per day.
- Attend bariatric support group meetings.
- Learn as much as you can about bariatric surgery and the lifestyle changes that are required after bariatric surgery.

Patient Selection Criteria:[21,22]

- 1991 NIH criteria for bariatric surgery includes:
- BMI>35 with a serious medical problem or BMI≥40kg/m^2
- BMI ≥ 35 kg/m^2 in association with one or more obesity related health conditions including but not limited to:
  - Cardiovascular disease
  - Type2Diabetes
  - Sleep Apnea
  - Obesity of longstanding
- In February 2011 the U.S. Food and Drug Administration (FDA) expanded approval of adjustable gastric band to patients with a BMI between 30 to 40 and one weight-related medical condition such as diabetes or high blood pressure. However, an adjustable gastric band may only be used after other methods such as diet and exercise have previously been tried.

Additional considerations when referring patients to a bariatric surgeon:

- Patient's history of non-surgical weight loss attempts, including completion of non-operative weight loss programs.
- A well-informed, motivated patient with a strong desire for substantial weight loss and a commitment to life- style changes.
- Patient understanding of the source of weight problems and responsibilities following surgery.
- Acceptable operative risks with no contraindications to a major abdominal surgery.

When considering referral for bariatric surgery primary care providers should take the following patient factors and potential barriers to postoperative success into account:

- Does the patient have a realistic post surgery long term weight loss expectation?
- Does the patient have the motivation and desire to put into practice any necessary lifestyle changes in preparation for and/or following bariatric surgery?
- Does the family have a history of being overweight or obese?
- Will the patient have access to a good social and family support system?
- Is the patient a chronic smoker or tobacco product user? Bariatric surgery patients are advised to stop using tobacco products prior to surgery.
- Does the patient use or have a history of substance abuse including alcohol, narcotics, or other illegal substance? Further evaluation may be indicated for patients with a history of substance use.
- Does the patient have any clinically significant or unstable psychopathologies including depression, personality or eating disorders that could prevent a long term successful outcome?
- Is the patient capable of following medical recommendations as directed?
- Does the patient understand how the surgery works?
- Can the patient's existing medical conditions be adequately managed to reduce the risk of post operative complications?
- Will the patient be able to care for him or herself following surgery?
- Does the patient's developmental history indicate any traumatic life events, abuse or neglect that might affect mental stability or lead to adverse coping mechanisms (i.e. eating disorders, etc)?
- Does the patient have any lifestyle or employment stressors that could affect post surgery compliance and outcomes?
- Has the patient been able to lose weight using non-operative means in the past?
- Will the patient be traveling from a distance to the bariatric program for treatment, surgery, and/or follow-up support? Do they have sufficient access to transportation?
- If the patient is traveling from a distance is the primary care provider willing to work with the surgical team to conduct follow-up?
- Does the patient have access to a comprehensive center of excellence (COE) program in bariatric surgery?

5 Special Populations

- Over 65 Years of Age
- Adolescents (Under 18 Years of Age)
- Women of Child-Bearing Age

Chapter 5 Special Populations

Some patients should receive special consideration when contemplating bariatric surgery. Risks and complications may be more severe if the patient is in one of the following categories.

Over 65 Years of Age[23]

A new study shows that age does not appear to significantly increase the risks associated with having weight loss surgery. Researchers analyzed the records of 48,378 bariatric surgery patients that were collected by hospitals around the U.S. through the American College of Surgeons National Surgical Quality Improvement Program who had open or laparoscopic bariatric surgery procedures between 2005 and 2009.

After researchers took into account a host of factors thought to affect the outcome of weight loss surgery, including weight, gender, heart disease, diabetes, and kidney function, they found that risk of death for seniors was not statistically significant, meaning that the numbers didn't show a true difference. Compared to middle-aged adults, older adults also did not appear to be at any increased risk of having major adverse events, like heart attacks, strokes, and serious infections, after their procedures. Seniors did have longer hospital stays than younger adults, however, especially if they were over age 70 and the procedure involved opening the abdomen. Prolonged hospital stays were considered to be anything over three days for a laparoscopic procedure and anything over six days after an open surgery. Adults aged 65 to 69 had a 20% increased risk of a prolonged hospital stay after a laparoscopic procedure and an 80% increased risk of a prolonged hospital stay after an open procedure compared to those younger than 50.

In conclusion, researchers found that adults over 65 were not at significantly greater risk of experiencing a major adverse event or dying within a month of their surgeries compared to those in their 30s and 40s, though seniors were more likely to face longer hospital stays.

Study researcher Robert B. Dorman, MD, PhD suggests that if the patient is over age 65, and they're otherwise relatively healthy, this gives surgeons an opportunity to tell the patients that they can undergo these operations with relatively similar outcomes compared to younger age populations.

Please note that Medicare does cover bariatric surgery in the greater than 65 population.

Adolescent (Under 18 Years of Age)[24,25]

The prevalence of obesity in adolescents is high and becoming a major concern. In some cases of extreme obesity, bariatric surgery has been considered a viable option to help young patients with weight loss. Adolescents considering bariatric surgery should take extra precautions because although results in teens have shown weight loss after surgery, many questions remain about the long-term effects on their developing bodies and minds.

To help potential youth patients and their parents determine whether or not they are prepared for surgery and the lifestyle changes that come with it, health care providers should complete a physical and emotional assessment. If they feel the patient is prepared, they should refer them to special adolescent bariatric surgery centers that focus on meeting the unique needs of adolescents.

Mounting evidence suggests that bariatric surgery can favorably change both the weight and health of youth with extreme obesity. Between 1996 and 2003, an estimated 2,700 youth bariatric surgeries were performed.[26] A review of short-term data from the largest inpatient database in the United States suggests that these surgeries show no significant difference in risk compared to procedures performed in adults. The majority of youth bariatric surgeries have been gastric bypass procedures. Adjustable gastric banding has not yet been approved for use in the United States for people younger than age 18. However, favorable weight-loss outcomes after AGB for youth have been reported abroad.

According to recent adolescent bariatric surgery best practices update:[27]

"Key considerations in patient safety include carefully designed criteria for patient selection, multidisciplinary evaluation, choice of appropriate procedure, thorough screening and management of comorbidities, optimization of long-term compliance, and age-appropriate fully informed consent."

To meet these best practice guidelines and be approved for surgery, adolescents must meet six surgeon-enforced requirements:

1. Have a body mass index that meets the NIH consensus criteria for weight loss surgery in adults (BMI above 40 or BMI between 35 and 40 with a serious co-morbidity)[28]
2. Both patient and parent/guardian must provide consent
3. Psychological evaluation of patients and parent/guardian to ensure mental aptitude for pre- and post-surgery requirements, including:
4. Supportive family environment
5. Willingness/ability to commit to strict diet, exercise and weight loss support group and physician follow-up requirements for the rest of their life (see our Bariatric Treatment and Life After Weight Loss Surgery pages for more about patient requirements before and after surgery)
6. Patient must have reached physical and skeletal maturity. Common methods for determining this include:
7. Evaluating the adolescent's physical maturity to the Tanner Scale. The adolescent patient should have reached Tanner Scale IV or V prior to being approved for surgery.
8. Doctors can determine whether adolescent growth plates have been fully fused via x-ray.
9. The average teenage girl reaches her adult height at 13 or older while the average teenage boy reaches his at age 15 or older.
10. Teenage girls must be willing to avoid pregnancy for at least one year, preferably two (see Pregnancy after Weight Loss Surgery for more information)
11. Prospective patient must have participated in a clinically supervised weight loss program with unsuccessful results for at least 6 months.

Women of Child-Bearing Age

An increasing number of women of child-bearing age are undergoing bariatric surgery procedures and need information and guidance regarding reproductive issues. In light of current evidence available, pregnancy after bariatric surgery is safer, with fewer complications, than pregnancy in morbidly obese women. Multidisciplinary input care is the key to a healthy pregnancy for women who have undergone bariatric surgery.

- Pregnancy should be avoided for at least 12 to 18 months after bariatric surgery. Women experiencing rapid post surgery weight loss may beat a higher risk for pregnancy problems.
- Pregnant women should be carefully monitored by an OB/GYN and the bariatric surgeon due to special medical considerations.

6 Medical Costs

- Medi-Cal Criteria
- Medicare Criteria
- Coverage Under Independent Companies

Chapter 6 Medical Costs[29]

In the United States, the average cost of lap band surgery is $17,000 to $30,000 and the average cost of gastric bypass surgery is $20,000 to $35,000. There are many factors which affect the total price of bariatric surgery, including the choice of:

- Geographic location of the treatment center
- Type of bariatric surgery performed
- Bariatric surgeon experience
- Level of post-op treatment

When comparing prices, relevant fees to consider are:

- Surgeon fees
- Hospital fees
- Anesthesia fees
- Pre-op lab test and x-ray fees
- Travel expenses
- Follow-up medical visits
- Nutritional counseling
- Exercise programs
- Psychological counseling
- Miscellaneous fees

Many insurance companies will cover the cost of bariatric surgery if the patient qualifies for surgery and can establish medical necessity. Before surgery, the patient should submit a request for pre-approval with the proper documentation to the insurance company as outlined in the benefits contract. Most bariatric surgeons are experienced in dealing with insurance companies and will assist patients with the insurance approval process.

Medical insurance coverage varies by state and insurance provider. In 2004, the U.S. Department of Health and Human Services reduced barriers to obtaining Medicare coverage for obesity treatments. Bariatric surgery may be covered under these conditions:

- If the patient has at least one health problem linked to obesity
- If the procedure is suitable for the patient's medical condition
- If approved surgeons and facilities are involved

Patients can contact staff at their regional Medicare, Medicaid, or health insurance office to find out if the procedure is covered and to obtain facts about options.

Medi-Cal Criteria[30]

- The recipient has a BMI of greater than 40, or less than 40 if substantial co-morbidity exists, such as life-threatening cardiovascular or pulmonary disease, sleep apnea, uncontrolled diabetes mellitus, or severe neurological or musculoskeletal problems likely to be alleviated by the surgery.
- Failure of sustained weight loss on conservative regimens.
- The recipient has a clear and realistic understanding of available alternatives and how his/her life will be changed after surgery, including the possibility of morbidity and even mortality, and a credible commitment to make the life changes necessary to maintain the body size and health achieved.
- The absence of contraindications to the surgery including major life-threatening disease not susceptible to alleviation by the surgery, uncontrolled substance abuse, severe psychiatric impairment and demonstrated lack of compliance and motivation.

Medicare Criteria[31]

- Effective February 21, 2006, Medicare will cover open and laparoscopic Roux-en Y Gastric Bypass (RYGBP), laparoscopic adjustable gastric banding (LAGB) and open/laparoscopic biliopancreatic diversion with duodenal switch (BPD/DS) if certain criteria are met and the procedure is performed in an approved facility. Pursuant to the Medicare National Coverage Determinations Manual (NCDM Pub.100-03, Chapter 1, Sections 40.5 and 100.1 Bariatric Surgery for Morbid Obesity).
- Medicare will cover weight loss surgery if there is conclusive evidence of the following: Documentation in the medical record of a body mass index (BMI) ≥ 35, with at least one co-morbidity related to obesity; and previously unsuccessful medical treatments for obesity.
- CMS has determined that reasonable and necessary bariatric surgery procedures will be

covered only when performed at a facility certified by:
    - The American College of Surgeons (ACS) as a Level 1 Bariatric Surgery Center, www.facs.org/cqi/bscn
    - The American Society for Bariatric Surgery (ASBS) as a Bariatric Surgery Center of Excellence, http://www.asmbs.org
    - CMS coverage website, www.cms.hhs.gov/MedicareApprovedFacilitie/BSF/list.asp#topofpage
    - As of Jan 2013, the two accreditation programs have merged into a single entity, the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP).
- The following procedures are not covered for all Medicare beneficiaries:
    - Open/Laparoscopic Vertical Banded
    - Gastroplasty (VBG) and Sleeve Gastrectomy
    - Open Adjustable Gastric Banding (AGB)
    - Patients may be eligible for Sleeve Gastrectomy depending on opinions of administrators in their respective jurisdiction

Coverage Under Independent Companies

Company Name	Bariatric Coverage	URL
Aetna	Per Clinical Policy Bulletin #0157, patients require presence of severe obesity for at least 2 years; physician-supervised nutrition and exercise program of at least 3 consecutive months, documented in medical record, behavior modification treatment and a psych evaluation if medically indicated.	http://www.aetna.com/cpb/medical/data/100_199/0157.html
Anthem Blue Cross/Blue Shield of CA	Per Clinical Policy Bulletin SURG.00024, insurance requires Attachment A to be filled out which requires psych and one diet consult. The first treatment of morbid obesity is dietary and lifestyle changes. Bariatric surgery should be reserved for patients for whom all other methods of treatment have failed. Blue Shield of California pre-authorization for bariatric surgery and requires that PPO members living in select counties in Southern California use only designated providers. Gastric Sleeve is investigational and not covered.	http://www.anthem.com/medicalpolicies/policies/mp_pw_a053317.htm
Health Net	Effective July 2003 under policy number NMP3, certain bariatric surgery procedures are covered if criteria is met. This includes, but is not limited to, BMI >40 kg/m^2 or BMI >35 kg/m^2 with obesity related comorbidities, patient must have previously tried to lose weight, must be under 65 years of age.	https://www.healthnet.com/static/general/unprotected/pdfs/national/policies/BariatricSurgeryApr12.pdf
Kaiser Permanente of CA	Members who meet the medical criteria and are interested in having bariatric surgery enroll in 'Options', a 24-week bariatric surgery preparation program that prepares them physically and emotionally for surgery and for post surgical recovery. Bariatric surgery may be indicated for members with a body mass index (BMI) of 50 or greater, BMI of 40-49.9 with certain co morbidities, or BMI of 35-39.9 with special circumstances.	https://healthy.kaiserpermanente.org/health/care/consumer/member-assistance
PacifiCare	Gastric bypass (Roux-en-Y), vertical banded gastroplasty, adjustable gastric banding, biliopancreatic bypass, biliopancreatic diversion with duodenal switch, and laparoscopic bariatric surgery are proven in adults for the treatment of clinically severe obesity as defined by the National Heart Lung and Blood Institute (NHLBI) who are: 1. Morbidly obese (BMI of 40 or greater) 2. Severely obese (BMI 35-39.9) with at least one of the following obesity related comorbidities	https://www.uhcwest.com/vign/Health%20Services/Medical%20Management%20Guidelines/Documents/MMGs_CPGs_Commercial_Internet.pdf

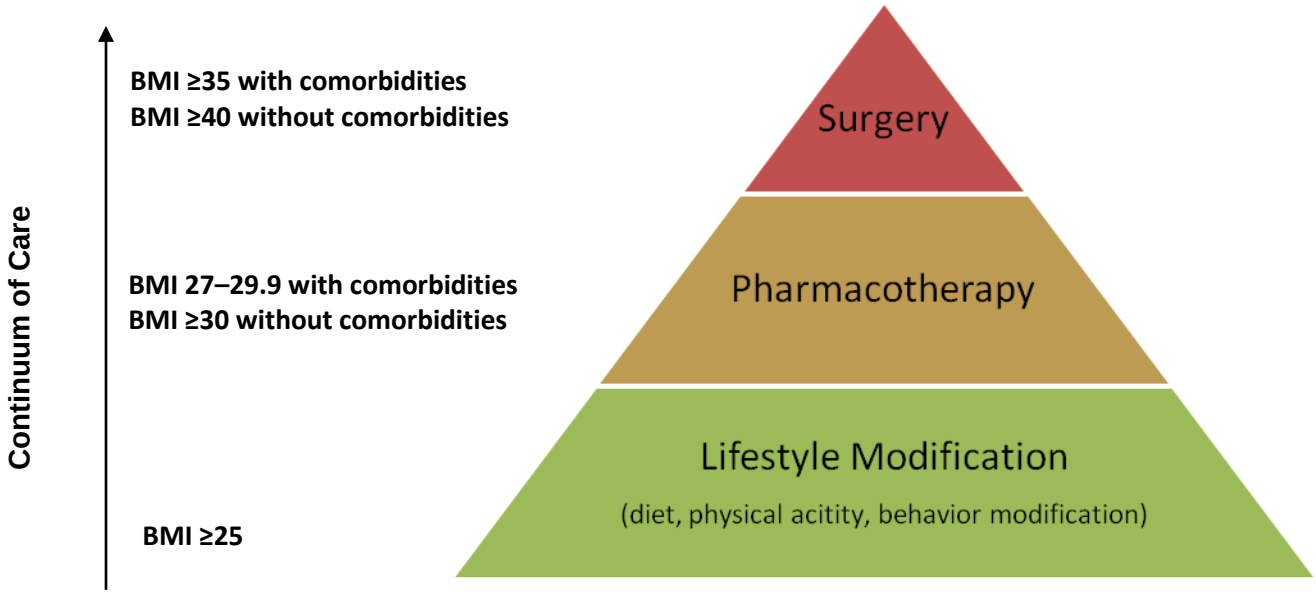
Adopted from www.skinnywishes.com

7 Patient/Provider Communications Addressing Bariatric Surgery

Chapter 7 Patient/Provider Communications Addressing Bariatric Surgery[32]

When considering treatment for obesity, it is important to be aware of the various methods available.

- Dietary therapy
- Exercise
- Behavioral therapy
- Pharmacotherapy
- Combined therapy



Although these methods may show short-term results in severely obese adults, published reports indicate that non-operative methods alone do not achieve medically significant long-term weight loss.[33] In fact, studies show there is nearly a 100% failure rate during a five-year period for persons who diet for weight control. Considering these results, none of these methods alone should be considered as a comprehensive cure.

Having surgery to produce weight loss is a serious decision. Anyone thinking about having this surgery should know what risks and lifestyle changes it involves. The following questions address some of the things patients should consider and may help them decide whether or not weight loss surgery is right for them.

Is the patient:

- Unlikely to lose weight or keep it off over the long term using other methods?
- Well informed about the surgery and treatment effects?
- Aware of the risks and benefits of surgery?
- Ready to lose weight and improve his or her health?
- Aware of how life may change after the surgery? (For example, patients need to adjust to side effects, such as the need to chew food well and the loss of ability to eat large meals.)
- Aware of the limits on food choices, and occasional failures?
- Committed to lifelong healthy eating and physical activity, medical follow-up, and the need to take extra vitamins and minerals?

8 Post-Operative Patient Care

- Post-Operative Primary Care Considerations

Chapter 8 Post-Operative Patient Care[34]

Postoperative bariatric surgery patients require lifelong medical management of obesity related medical problems by the bariatric surgeon and primary care physician. All weight loss surgery patients will need routine follow-up with the bariatric surgeon to minimize the risk of complications and coordinate long term care needs. The frequency of follow-up with the bariatric surgeon depends on the type of procedure performed and program requirements. Some procedures such as adjustable gastric banding require more frequent and long-term follow-up for continuing care and band adjustment.

Ongoing follow-up with the bariatric surgeon involves:

- Treatment of chronic medical conditions
- Postoperative complication monitoring
- Management of patient nutritional needs
- Advancement of dietary intake and calorie intake as tolerated
- Vitamin, mineral and protein supplements may be necessary

Patients should have realistic post- operative expectations; the amount of actual weight loss following a bariatric surgical procedure may depend on individual patient factors including:[35]

- Age and health status of patient
- Weight prior to surgery
- Motivation and ability to exercise
- Type of surgical procedure
- Patient motivation and commitment to lifestyle changes
- Cooperation of family, friends, and associates

Postoperative Primary Care Considerations:[36]

- Long term (greater than 1 year) management of patient primary care needs and post-operative follow-ups should be coordinated with the bariatric surgeon and may include labs, a physical examination, and continuing care updates.
- Patients presenting with abnormal or vague abdominal symptoms should be carefully evaluated for bariatric surgery-related complications which may indicate a need for further evaluation by the bariatric surgeon.
- Patients considering or undergoing a bariatric surgery procedure outside their health plan network (out of network) or out of country may not receive or have access to adequate post operative continuity of care or follow-up.
- Medications: Extended, delayed- release, enteric/film coated or controlled release medications may not be properly absorbed. Patients may be switched to immediate release medications or liquid formulations, which may impact the degree of medication adherence. Other recommendations are suggested below:
- Early post-operative patients taking insulin or oral medications for diabetes and hypertension will require close monitoring.

Many patients are discharged home with no need for diabetes and/or hypertension medications during the initial post-operative period. However, these patients will require close follow-up and blood sugar and/or blood pressure monitoring at home to determine if long term control medications will be necessary in combination with dietary management. A patient care plan should be created clearly identifying the frequency of the home testing and which physician will be coordinating appropriate follow-up and monitoring.

- Non-steroidal anti-inflammatory drugs and salicylates may need to be avoided to prevent ulceration; risk and benefits should be weighed prior to initiation.[37]
- Oral bisophophonates may also increase the risk of ulceration in the gastrointestinal tract.[38]
- Metabolic: Bariatric surgery patients are at ongoing risk for nutritional deficiencies and require daily multi-vitamin supplements. Patients experiencing frequent vomiting during rapid weight loss are at increased nutritional deficiency risk.
- In the event of significant weight regain, the patient should be referred to the bariatric

surgeon and nutritionist for follow-up evaluation.

- Pregnancy: Should be avoided for at least 12 to 18 months after bariatric surgery. Women experiencing rapid post surgery weight loss may be at a higher risk for pregnancy problems.
- Should a patient become pregnant during the first 12 to 18 months, she should immediately follow up with the bariatric surgeon. "Lap-Band" patients need to follow up with the bariatric surgeon for band adjustment.
- Cosmetic Reconstructive Surgery: Some patients will desire cosmetic reconstructive surgery to remove excess skin resulting from significant weight loss. Most health plans only cover medically necessary reconstructive procedures. Patients should contact their health plan for more information about post surgery benefits and coverage.

9 Surgical Complications

- Common Post-Operative Side Effects

Chapter 9 Surgical Complications

While mortality can occur at anytime, the most common causes of post-operative mortality include, but are not limited to, abdominal sepsis secondary to anastomotic leak, deep vein thrombosis (DVT) with secondary pulmonary embolism (PE) or cardiac or pulmonary complication.

Common Complications may be classified by the operative procedure and include:

Intra-Operative	Early Post Operative (Less than60 Days)	Late Post Operative (More than60 days)	Psychological
• **Anesthesia** • **Bleeding** • **Position or pressure** • **Technical in nature** • **Not a complication to open**	• **Anastomotic leak** • **Wound or infections** • **Strictures** • **Deep Venous Thrombosis** • **Myocardial Infarction** • **Congestive Heart Failure** • **Acute kidney or liver failure** **Pulmonary:** • **Atelectasis** • **Pneumonia** • **Pulmonary Embolism** • **Pulmonary Edema** • **Respiratory arrest secondary to sleep apnea** • **Acute respiratory distress syndrome (ARDS)** **Gastrointestinal(GI):** • **Ulcer** • **Stricture** • **Anastomonic obstruction** • **Small bowel obstruction**	• **GI Ulcer (stricture, obstruction)** **Nutritional Deficiency** • **Vitamins B12, B1, A, K, D** • **folate** • **iron** • **zinc** • **copper** • **selenium** • **protein** • **thiamine** • **Internal/Incisional hernia** • **Weight Loss Failure** • **Regain of Lost Weight** • **Reflux** • **Gallstones** • **Hyperinsulinemic hypoglycemia** • **Kidney Stones**	• **Depression** • **Disruption of social relationships** • **Anorexia nervosa** • **Bulimia** • **Psychosis** • **Substance abuse**

Common Post-Operative Side Effects:

- Dumping Syndrome-Physiological reaction caused by rapid gastric emptying of food or liquid into the small intestine. Symptoms may include nausea, cramping, vomiting, diarrhea, dizziness, weakness and shortness of breath.
- Dehydration
- Excess skin
- Food intolerance
- Changed bowel habits

10 Repeat Procedures

- Post-Operative Phases

Chapter 10 Repeat Procedures

In some cases a repeat bariatric surgery or surgical revision may be medically necessary to correct complications or technical failures including:

- Implanted device failure
- Gastric pouch of inappropriate size
- Stricture, fistula, obstruction, or other surgical complication

The causes for short or long term weight loss failure should be carefully investigated prior to undertaking a revision procedure. A patient with inadequate weight loss after a procedure that was only restrictive, may be a candidate for a malabsorptive or combination procedure. Patients unable to maintain weight loss after an initially successful operation, should be encouraged to re-double their efforts by following up with the bariatric support program and adhering to the dietary and exercise recommendations. Many bariatric programs have support groups available to motivate and counsel post operative patients.

In rare cases a surgical reversal of the bariatric procedure may be medically necessary to restore digestive capacity and function back to pre-surgery conditions. Complete reversal patients have a high likelihood of returning to a pre-operative weight status and higher risk of complication.

Post-Operative Phases

Most patients will need to have a post surgery plan that includes diet, nutrition, and physical activity guidance. Weight loss surgery patients will need to significantly change lifestyle and eating habits immediately following surgery to avoid complications and maximize long term success.

It is very important to follow eating and drinking instructions as provided by the bariatric surgeons or staff immediately following the operation to allow for healing and adjustment. The health and adjustment process may take a month or more depending upon the individual.

Most patient post operative phases and intervals will vary by procedure type and surgeon preference typically includes the following:

- Keeping hydrated with lots of water
- An advancing diet of clear liquids, broths/soups, pureed food, soft and solid foods as directed
- A progress exercise program by appropriate activity type and duration
- Special instructions and awareness
- A list of foods to avoid
- Patients are strongly encouraged to participate in support groups provided by the Bariatric Surgery Program.
- Patients traveling greater distances to receive treatment and surgery should ask the bariatric surgeon about convenient and easy to find local support groups

11 Living with Bariatric Surgery

- Steps to Weight Loss Success
- Diet and Nutrition
- Going Back to Work After Bariatric Surgery
- Birth Control and Pregnancy
- Long Term Follow-Up
- Support Groups
- Bariatric Plastic Surgery

Chapter 11 Living with Bariatric Surgery[39,40]

Weight-loss surgery is not a cure for obesity, but rather a tool to help patients lose weight to live a healthier, longer and more fulfilling life. Success depends on your ability to follow guidelines for diet, exercise and lifestyle changes.

Steps to Weight Loss Success

- Diet - Control food portions for calorie reduction
- Diet - Eat healthy foods for good nutrition
- Exercise - Engage in physical activities patients enjoy for exercise
- Support - Participate in nutritional counseling to learn healthier ways of eating
- Support - Participate in bariatric exercise programs for motivation and support
- Support - Participate in counseling to deal with the emotional and mental aspects of obesity and weight loss surgery
- Support - Participate in bariatric support groups and weight loss surgery forums
- Set Goals - Monitor success of weight loss

Diet and Nutrition

Because of the changes made to patients' stomachs during weight loss surgery, patients will need to permanently adjust their eating habits, both in how much food is eaten and what food choices are made. Post-surgery dietary guidelines will vary by bariatric surgeon. Patients may hear about post-surgery guidelines different from the ones other patients receive. It is important to remember that these guidelines will be different depending on the surgeon and type of procedure. What is most important is that patients adhere to their surgeon's guidelines.

Although specific post-surgery dietary guidelines will vary by procedure and bariatric surgeon, there are many aspects of a healthy diet that are appropriate for all bariatric patients. The food consumed by individuals on a bariatric surgery diet should be low in calories and high in nutrition, focusing on low-fat proteins and sides of healthy fruits and vegetables. Since food portions will be small, it is important that the food is nutritious and provides adequate nutrients to the body for good health. Nutritional supplements will be necessary, especially for malabsorptive bariatric procedures.

The following are some of the generally accepted dietary guidelines for a healthy diet after bariatric surgery:

- Food should be introduced slowly as tolerated. Food tolerance will vary from person to person. Many patients may experience food tolerance difficulties during the morning hours.
- Patients should stop eating when they feel full. The amount of food the gastric pouch can hold varies by procedure type. Appropriate meal food volume should be discussed with their surgeon.
- It is important to stay hydrated throughout the day by drinking at least 6-8 cups of water per day between meals.
- When patients start eating solid food, it is important to chew their food slowly and thoroughly, to reduce it to very small pieces before swallowing. It is important to wait two to three minutes between bites. Patients will not be able to digest steaks or other chunks of meat if they are not ground or chewed thoroughly therefore they may want to grind their meat before eating it. Too much or big pieces of food can cause obstruction of the gastric pouch. Some foods may have difficulty passing through the altered gastrointestinal tract and may place the patient at risk for nausea, vomiting, or obstruction.
- Patients should not drink fluids while eating. Fluids consumed with meals produces a premature feeling of fullness that may cause vomiting and dumping syndrome, and can lead to feeling hungry sooner after a meal.
- Patients should avoid eating foods high in sugar and fat and foods that have no nutritional value, such as non-diet soda, juices, high-calorie nutritional supplements and milkshakes. Eating many of these foods can lead to dumping syndrome, a rapid emptying of the stomach into the small intestine that causes considerable discomfort.
- Carbonated beverages should be avoided.

- Avoid alcohol. Alcohol consumption can cause ulcers in the stomach pouch or intestine or lead to weight gain.
- Patients should prioritize foods that contain high amounts of proteins, such as fish, dairy products, meat, beans and legumes. You should also try to eat plenty of fresh vegetables and fruits.
- Daily vitamin and mineral supplements at higher than normally recommended doses are a must to avoid deficiencies because patients will not receive adequate nutrition from the small amounts of food eaten. Patients may wish to use vitamins in liquid or chewable forms, because they cause less discomfort than swallowing large solid vitamin pills.
- Patients should consume small, frequent meals planned throughout the day and avoid drinking immediately following meals due to the reduction of the stomach capacity. Patients should also limit snacking between meals. Below is an example of a daily diet.

Breakfast	banana – 1/4 medium scrambled egg – 1 ham – 1 slice
Lunch	broiled chicken breast – 2 ounces carrots, boiled – 1/4 cup margarine – 1 teaspoon salad – 1/4 cup
Afternoon Snack (if hungry)	fruit cocktail, water-packed – 1/2 cup
Dinner	haddock, baked or broiled – 2 ounces green beans – 1/4 cup rice – 1/4 cup
Evening Snack	cheese, American – 1 ounce saltine crackers – 2 mustard – 1 teaspoon
Important: Consume 6 to 8 glasses of water each day.	

Exercise

The incorporation of regular physical activity into a bariatric patient's daily routine is just as important as their nutritional plan. Exercise after gastric bypass surgery, gastric banding or any other bariatric procedure is critical for effective weight loss. Exercise shortens recovery time for bariatric surgery patients, reduces the risk of postsurgical complications, and helps to preserve and protect muscle tissue during rapid weight loss. In addition, physical activity improves mood and reduces stress. Patients who choose to put an emphasis on exercise lose more weight and have an easier time with weight maintenance.

Ensure that patients speak with their surgeon before beginning an exercise routine after weight loss surgery. After an evaluation of the patient's current health status, the surgeon can determine whether their body is physically able to handle the demands of exercise. Patients that return to exercise too quickly after weight loss surgery can disrupt the body's healing process. Vigorous exercise too soon after surgery could lead to infection, excessive bleeding and torn sutures. Additionally, patients will likely be placed on a restricted diet after weight loss surgery. During this time, patient calorie and nutrient intake may not be adequate enough to support the physical stress of exercise. Typically, patients should be able to resume an exercise regimen two to three weeks after bariatric surgery.

As the provider, you can work with your patient to set fitness goals and establish appropriate rules for their routine. You can help them determine which exercises are best and the amount of time they should spend exercising per day.

- Setting individual exercise goals will help promote personal investment in post bariatric surgery process.
- When it comes to exercise after weight loss surgery, however, it's important to take it easy at first: 20 to 30 minutes of physical activity three days a week should be plenty. In the first weeks after surgery, ten minutes of fast walking twice a day is a great start.
- The recommended amount of exercise for bariatric patients is at least 30 minutes a day, 7

days a week of aerobic activity and 10 minutes of weight/resistance training 3 - 4 days per week.
- There are many low-impact activities that patients can choose to do for exercise, such as walking, and swimming, but the best activity is the one that is fun and enjoyable and keeps one motivated.

Going Back to Work after Bariatric Surgery

Your patient's ability to resume pre-surgery levels of activity will vary according to their physical condition, the nature of the activity and the type of weight loss surgery they've had. Most patients return to work and are able to exercise within one to three weeks after their laparoscopic gastric bypass. Patients who have had an open procedure do so about six weeks after surgery.

Birth Control and Pregnancy

Women of child bearing age are strongly advised against pregnancy and are to use the most effective forms of birth control for 18 to 24 months post-surgery, due to intrauterine restrictions and possible nutritional deficiencies. Regardless of the operation, multivitamins with iron, folate and B-12 are imperative during pregnancy. The added demands pregnancy places on your patient's body and the potential for fetal damage make this a most important requirement.

Long-Term Follow-Up

Although the short-term effects of weight loss surgery are well understood, there are still questions to be answered about the long-term effects on nutrition and body systems. Nutritional deficiencies that occur over the course of many years will need to be studied, and can depend on your patient's diet after bariatric surgery. Over time, patients will need periodic checks for anemia (low red blood cell count) and Vitamin B12, folate and iron levels. Follow-up tests will be conducted at least yearly and more often as indicated.

Support Groups

Support and motivation after bariatric surgery is an important aspect that will help keep a patient on track with diet and lifestyle changes so that significant weight loss is achieved and maintained. Therefore, it is helpful for patients to participate in weight loss surgery support groups and on-line forums for bariatric patients. Support groups provide weight loss surgery patients an excellent opportunity to discuss their various personal and professional issues. Most bariatric surgeons who frequently perform weight loss surgery will tell patients that ongoing post-surgical support helps produce the greatest level of success for their patients in their life after bariatric surgery.

Bariatric Plastic Surgery

Most individuals who undergo bariatric surgery lose a substantial amount of weight in a short amount of time. While weight loss is the goal of bariatric surgery, such massive weight loss can result in excess skin, loose muscles, and localized areas of unsightly fat tissue. Patients who have lost their excess weight may want to consider bariatric plastic surgery for a restorative procedure such as a tummy tuck to remove the excess skin flap and tighten muscles in the abdomen or liposuction to sculpt and reshape the body to improve function and appearance and decrease pain and infection.

A Appendices

- Appendix A: BMI Calculation Method and Table
- Appendix B: Bariatric Surgical Procedures and Advantages & Disadvantages Table
- Appendix C: Bariatric Surgery Resources
  - Provider Resources
  - Patient Resources
- Appendix D: Billing Procedure Codes
- Appendix E: End Notes

Appendix A: BMI Calculation Method and Table

An individual's degree of obesity can be assessed by calculating the Body Mass Index (BMI).

BMI is calculated as follows:

Weight in kilograms (kg) divided by the square of height in meters (m^2).	Weight in pounds (lbs) divided by the square of height in inches (in^2) multipliedby703.
$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height squared } (m^2)}$	$\text{BMI} = \frac{\text{Weight (lbs)}}{\text{Height squared } (in^2)} \times 703$

BMI Overweight and Obesity Classifications:[41]

Category	BMI
Underweight	<18.5
Normal	18.5-24.9
Overweight	25.0-29.9
Obesity Class I	30.0-34.9
Obesity Class II	35.0-39.9
Extreme Obesity Class III	>40.0

BMI Resource Links and Calculators

Resource	Description	URL
Centers for Disease Control and Prevention	Information about BMI, online calculators (Adults, Child/Teen), and links to additional BMI resources, and growth charts.	http://www.cdc.gov/nccdphp/dnpa/bmi/index.htm
National Heart, Lung and Blood Institute – Obesity Education Initiative	Online BMI calculator and information on assessing risk	http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/index.htm
PDA Software (Free Downloads for use on Palm OS and Pocket PC)	Provides information on BMI, PDA calculators (English and Metric measurements), and adult BMI classification tables.	http://hp2010.nhlbihin.net/bmi_palm.htm
National Heart, Lung, and Blood Institute (NHLBI) BMI Calculator iPhone App	One of the most popular tools on the NIH's National Heart, Lung, and Blood Institute (NHLBI) Web site is the BMI (Body Mass Index) calculator. The NHLBI BMI calculator receives 1.6 million visitors a month and ranks #1 on Google. This mobile application provides results right on your phone along with links to healthy weight resources on the NHLBI Web site.	http://apps.usa.gov/bmi-app.shtml
Adult Body Mass Index Calculator Widget	Add this widget to your Web site to let anyone calculate their BMI. This calculator provides BMI and the corresponding weight category. Use this calculator for adults, 20 years old and older.	http://www.cdc.gov/widgets/#adultBMI

Adult Body Mass Index (BMI) Table

Height in Feet and Inches	Weight in Pounds																						
Height	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
4'0"	24	27	31	34	37	40	43	46	49	52	55	58	61	64	67	70	73	76	79	82	85	88	92
4'2"	22	25	28	31	34	37	39	42	45	48	51	53	56	59	62	65	67	70	73	76	79	82	84
4'4"	21	23	26	29	31	34	36	39	42	44	47	49	52	55	57	60	62	65	68	70	73	75	78
4'6"	19	22	24	27	29	31	34	36	39	41	43	46	48	51	53	55	58	60	63	65	68	70	72
4'8"	18	20	22	25	27	29	31	34	36	38	40	43	45	47	49	52	54	56	58	61	63	65	67
4'10"	17	19	21	23	25	27	29	31	33	36	38	40	42	44	46	48	50	52	54	56	59	61	63
5'0"	16	18	20	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59
5'2"	15	16	18	20	22	24	26	27	29	31	33	35	37	38	40	42	44	46	48	49	51	53	55
5'4"	14	15	17	19	21	22	24	26	27	29	31	33	34	36	38	39	41	43	45	46	48	50	51
5'6"	13	15	16	18	19	21	23	24	26	27	29	31	32	34	36	37	39	40	42	44	45	47	48
5'8"	12	14	15	17	18	20	21	23	24	26	27	29	30	32	33	35	36	38	40	41	43	44	46
5'10"	11	13	14	16	17	19	20	22	23	24	26	27	29	30	32	33	34	36	37	39	40	42	43
6'0"	11	12	14	15	16	18	19	20	22	23	24	26	27	28	30	31	33	34	35	37	38	39	41
6'2"	10	12	13	14	15	17	18	19	21	22	23	24	26	27	28	30	31	32	33	35	36	37	39
6'4"	10	11	12	13	15	16	17	18	19	21	22	23	24	26	27	28	29	30	32	33	34	35	37
6'6"	9	10	12	13	14	15	16	17	18	20	21	22	23	24	25	27	28	29	30	31	32	34	35
6'8"	9	10	11	12	13	14	15	16	18	19	20	21	22	23	24	25	26	27	29	30	31	32	33

Key — Healthy Weight — Overweight — Obese

Appendix B: Bariatric Surgical Procedures Advantages & Disadvantages Table

Open Gastric Bypass Roux-en-Y (RYGBP)

Advantages	Disadvantages/Complications

• Better weight loss than purely restrictive procedures
• Lower incidence of malnutrition
• Rapid improvement or resolution of weight related co-morbidities
• Reduced appetite
• Highest rate of Type 2 Diabetes resolution
	• Dumping Syndrome can occur
	• Not adjustable
	• Difficult to reverse
	• Increased risk of nutritional deficiency
	• Increased risk of early and late complications:
	  ○ Early complications including anastomotic leak, pulmonary embolism, wound infection, gastrointestinal hemorrhage, respiratory insufficiency,and mortality
	  ○ Late complications including incisional hernia, bowel obstruction, internal hernia, stomal stenosis, micronutrient deficiencies, and marginal ulcers

Laparoscopic Gastric Bypass Roux-en-Y (RYGBP)

Advantages	Disadvantages/Complications

• Better weight loss than purely restrictive procedures
• Decreased intra-operative blood loss
• Shorter hospital stays
• Reduced post surgery pain
• Fewer pulmonary complications
• Faster recover times
• Improved cosmetic outcome
• Fewer wound complications resulting from incisional hernia and infections
	• Complexity of surgical procedure
	• Dumping Syndrome can occur
	• Not adjustable
	• Difficult to reverse
	• Increased possibility of internal hernia
	• Increased risk of nutritional deficiency
	• Increased risk of early and late complications:
	  ○ Early complications including anastomotic leak, pulmonary embolism, wound infection, gastrointestinal hemorrhage, respiratory insufficiency, and mortality.
	  ○ Late complications including incisional hernia, bowel obstruction, internal hernia, stomal stenosis, micronutrient deficiencies, and marginal ulcers

Biliopancreatic Diversion (BPD) with Duodenal Switch

Advantages	Disadvantages/Complications
• Increased amount of food intake compared to bypass and band procedures • Increased food tolerance • Possible greater long-term weight loss • More rapid weight loss	• Higher risk of mortality when compared to other procedures • Requires surgical alteration of stomach • Difficult to Reverse • Not Adjustable • Higher risk of Dumping Syndrome • Greatest risk of malnutrition and vitamin deficiency • Risk of decreased fat soluble vitamin absorption (Vitamins A, D, E, and K) • Increased risk of intestinal irritation and ulcers

Laparoscopic Adjustable Gastric Banding (LAGB)

Advantages	Disadvantages/Complications
• Least invasive surgery option • No surgical alteration of gastrointestinal tract • Laparoscopic placement • Band Adjustability • Minimal risk of anemia • Lower risk of mortality • Decreased risk of dumping syndrome • Greater absorption of nutrients from food • Shorter hospital stays • Procedure is reversible by band removal	• Slower initial weight loss • Regular follow-up necessary for band adjustments • Possibility of band slipping • Possibility of intra-operative, post-operative and late complications: • Intra-operative complications including hemorrhage, need for conversion to open procedure, and spleen, stomach or esophagus injury • Postoperative complications include band slippage (stomach prolapse), balloon or tubing leak, port infections, band infections, obstruction and nausea/vomiting. • Late complications including band erosion into the stomach, esophageal dilatation, and failure to lose weight

Laparoscopic Vertical Sleeve Gastrectomy (LVSG)

Advantages	Disadvantages/Complications
• Technically easier and relatively faster • Normal digestion and absorption because no rerouting of intestines • Suppresses appetite by decreasing ghrelin levels (appetite hormone) • No foreign objects inserted into body • Safe for people with extremely high BMI (>50)	• Not adjustable • Not reversible • Intra-operative complications including internal bleeding • Postoperative complications including blood clot, pneumonia, and wound infection, hernia, stomal stenosis • Possible leakage around edge of stomach at staple sites requiring secondary surgery to fix

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8. *Brethauer, SA, Hammel, JP, Schauer, PR. (2009) Systematic review of sleeve gastrectomy as staging and primary bariatric procedure 6:469-475*
9. *Gastric Sleeve Surgery - National Bariatric Link, www.nationalbariatriclink.org/about-gastric-sleeve.html*

Appendix C: Bariatric Surgery Resources

Provider Resources

National Consensus Guidelines/Statements

1. Buchwald, H. Bariatric Surgery for Morbid Obesity: Health Implications for Patients, Health Professionals, and Third-Party Payers. Consensus Statement. American Society for Bariatric Surgery (ASBS). 2005.
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Continuing Medical Education (CME) Programs

Name	Description	URL
American Medical Association	When it comes to continuing medical education (CME) activities, the AMA has the right physician resources to help today's busy physicians meet their professional needs. CME activities can be searched by topic or format to see what is currently available.	http://www.ama-assn.org/ama/pub/education-careers/continuing-medical-education/cme-credit-offerings.page?
American Seminar Institute	American Seminar Institute's **General Surgery CME Review Course** provides healthcare professionals with top-quality, accredited continuing medical education. **Bariatric Concerns** Cite evidence-based guidelines for screening for and managing obesity. Tailor an obesity-management program to the needs of the individual patient. Determine whether bariatric surgery should be delayed or denied in a patient with psychologic or psychiatric comorbidities. Diagnose eating disorders in candidates for bariatric surgery. Make appropriate recommendations for psychotherapy in patients who wish to undergo bariatric surgery.	http://www.americanseminar.com/medical-courses/surgery
American Society for Metabolic and Bariatric Surgery (ASMBS) - Obesity Compendium	This unique, interactive resource benefits the entire bariatric care team with 26 hours of online lectures, case studies, debates and video clips that can be completed from the comfort of any home or office. Eight Learning Modules covering *fundamentals* such as obesity as a disease, bariatric medicine, behavioral medicine, nutritional medicine, bariatric surgery, programmatic issues, while *advanced topics* include risk management and metabolic effects.	http://asmbs.org/online-courses/
Duke University School of Medicine - Office of Continuing Medical Education	• **Live Courses:** Live CME activities that take place at a specified date, time and location. • **Enduring Materials:** Non-live CME activities that "endure" over time (i.e., monograph, CD Rom, Internet-based, etc). The learning experience by the physician can take place at any time in any place, rather than only at one time, and one place, like a live CME activity. • **Regularly Scheduled Series**: Live CME activities that 1) have multiple sessions, 2) occur on an ongoing basis (offered weekly, monthly, or quarterly) and 3) are primarily planned by and presented to Duke University's professional staff. • **eCardiology:** A series of eleven web-based activities produced for health care professionals that will address a critical need for up-to-date, easily accessible, and clinically useful information pertaining to the practice of cardiovascular medicine.	http://cme.mc.duke.edu/modules/docme_courses/index.php?id=1
HealthCare Training Center	The HealthCare Training Center offers hundreds of CME courses from industry-leading providers around the country. Rather than having to search the Internet yourself to fulfill your CME needs, use the HealthCare Training Center. Find online CME courses, books with CME credits, CME cruises, CME seminars, and more!	http://www.healthcare-trainingcenter.com/CME.asp

Medscape Education - Obesity and Weight Management CME Learning Center	Medscape's Obesity and Weight Management CME Learning Center offers various CME activities on obesity and weight management.	http://www.medscape.org/resource/obesity/cme
Medscape Education - Bariatric Surgery CME Learning Center	Medscape's Bariatric Surgery CME Learning Center offers an array of CME Activities around bariatric surgery topics and issues.	http://www.medscape.org/resource/bariatric-surgery/cme

Informational Web Links

Allergan, Inc.
www.allergan.com

American College of Surgeons (ACS)
www.facs.org

American Obesity Association (AOA)
www.obesity.org

American Society of Bariatric Physicians (ASBP)
www.asbp.org

American Society for Metabolic and Bariatric Surgery (ASMBS)
www.asmbs.org

California Medical Association Foundation
http://thecmafoundation.org/

Center for Medicare & Medicaid Services
www.cms.hhs.gov

Ethicon Endo-Surgery, Inc.
www.ethiconendo.com

National Heart Lung and Blood Institute
www.nhlbi.nih.gov

Obesityhealth.com
www.obesityhealth.com

Obesity Help
www.obesityhelp.com

Realize™ Personalize Banding Solution
www.realizeband.com

Surgical Review Corporation
www.surgicalreview.org

Weight Loss Surgery Info
www.weightlosssurgeryinfo.com

	Roux-en-Y Gastric Bypass	Adjustable Gastric Banding
Description	In this procedure, we create a new gastric pouch at the bottom of your esophagus, using about 5 percent of your stomach and sealing off the rest. We then connect this pouch to your small intestine. Your stomach will still make important digestive juices that will mix in your intestine with food from your new, egg-sized stomach. In this way, you will still be able to receive the nutrients you need from food—but your brain will get signals of fullness much faster, and the amount of food you can consume will become smaller.	The procedure is performed by suturing a band around the stomach. The band can be adjusted with a specialized needle—usually in a doctor's office setting—so you can have it loosened or tightened as needed to reach your weight loss goals.
Reversible procedure	Potentially	Yes
Expected weight loss	55-65 percent of excess weight	30-40 percent of excess weight
Rate of weight loss	Most weight loss seen in the first year	Weight loss is gradual and may take up to five years
Diet changes required	800-1,000 calories per day, with 40-60 grams of protein daily. Multivitamin with a minimum of 18 mg zinc and 400 mcg of folic acid.	800-1,000 calories per day, with 40-60 grams of protein daily. Multivitamin with a minimum of 18 mg zinc and 400 mcg of folic acid.
Average operating time	90 minutes	45 minutes
Average hospital stay	One to two days	Outpatient
Recovery period	Three weeks	Two to three weeks
Possible complications	Leak, mild nutritional deficiencies, dumping	Band slippage, band erosion, port-related problems

	Vertical Sleeve Gastrectomy	Duodenal Switch
Description	This procedure generates weight loss by removing 85 percent or more of the stomach and restricting the amount of food that can be eaten. The nerves to the stomach and the outlet valve remain intact—with the idea of preserving the functions of the stomach while drastically reducing the volume—without bypassing the intestines or causing any gastrointestinal malabsorption.	This procedure is performed by removing the left portion of the stomach to limit food intake and then "switching" the small intestine around to alter the digestion process and limit food absorption. This procedure is done using the da Vinci Surgical System robot and is a more complex weight loss procedure.
Reversible procedure	No	No
Expected weight loss	40-55 percent of excess weight	60-80 percent of excess weight
Rate of weight loss	Most weight loss seen one to two years after surgery	Most weight loss seen in the first year
Diet changes required	800-1,000 calories per day, with 40-60 grams of protein daily. Multivitamin with a minimum of 18 mg zinc and 400 mcg of folic acid.	800-1,000 calories per day, with 40-60 grams of protein daily. Multivitamin with a minimum of 18 mg zinc and 400 mcg of folic acid.
Average operating time	60 minutes	4 hours
Average hospital stay	One to two days	Three days
Recovery period	Two to three weeks	Three weeks
Possible complications	Leak, stricture	Leak, moderate nutritional deficiencies, more frequent bowel movements

Adult overweight and obesity

8 steps for assessment and treatment recommendations

1 Introduction to the topic of weight assessment and treatment

Soliciting permission to discuss weight issues may increase patient comfort. Patients prefer terms such as "weight," "excess weight," and "BMI" (Body Mass Index) when describing obesity.

Patients who are overweight or obese generally have a history of dealing with a frustrating and visible problem. They often experience discrimination from strangers and even hurtful comments from health professionals. Many patients, however, are comfortable discussing weight with their physicians.

2 Body Mass Index (BMI)

- Height without shoes
- Weight
- Calculate BMI (Refer to BMI Wheel or chart)

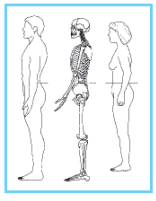
BMI provides an estimate of total body fat* and is related to disease risk for type 2 diabetes, hypertension and CVD. BMI applies to both men and women. It replaces previous terminology such as "percent ideal body weight" or "desirable body weight."

* BMI is not an accurate measure of body fat for certain muscular men such as bodybuilders. Conversely, an elderly individual with a normal BMI might be obese due to a low level of lean body mass. Physicians can use skinfold anthropometry or bioelectrical impedence analysis as a substitute measure for such patients.

3 Measurement of waist circumference if BMI is <35

Excess abdominal fat is clinically defined as a waist circumferance >40 inches in men and >35 inches in women.

It may be helpful to explain why waist circumference is being taken: "A waist measurement is an important clue to your current and future health. I'd like you to breathe normally while I take your measurement."



1. Place a measuring tape just above the top aspect of the iliac crest.
2. Ensure that the tape is snug, but does not compress the skin and is parallel to the floor.
3. Read the measurement at the end of a normal expiration.

Health risks of overweight and obesity are independently associated with excess abdominal fat. Excess abdominal fat categorically increases disease risk for each BMI class up to a BMI of 35. Waist circumference is a better indicator of relative disease risk than is BMI in some populations, such as individuals of Asian descent and the elderly.

4

	BMI (kg/m^2)	Obesity Class	Classification of disease risk relative to normal weight and waist circumference: Men ≤ 40 inches Women ≤ 35 inches	Men > 40 inches Women > 35 inches
Underweight	< 18.5			
Normal	18.5 - 24.9			+
Overweight	25.0 - 29.9		Increased	High
Obesity	30.0 - 34.9	I	High	Very High
	35.0 - 39.9	II	Very High	Very High
Extreme Obesity	≥ 40	III	Extremely High	Extremely High

+ Increased waist circumference can also be a marker for increased risk even in persons of normal weight.

5 Assessment of weight-related risk factors and conditions

Based upon presenting signs and symptoms, consider performing tests to identify conditions associated with obesity and conditions that may contribute to obesity.

Working with your patients

Physicians traditionally have encouraged patients to change behaviors by exerting informational power (providing facts about health and illness) and/or expert power (noting their professional credentials). However, a more collaborative approach is more successful in promoting the lasting lifestyle changes needed to successfully reach and maintain a healthy weight.

Adult overweight and obesity

6 Assessment of patient's readiness to lose weight

Assess the patient's readiness to lose weight if:
- **BMI is 30 or greater**
- **BMI is 25 – 29.9 and patient has two or more risk factors**
- **Waist circumference is greater than 35 inches for women or 40 inches for men and patient has two or more risk factors**

Question: "On a scale from 0 to 10, with 0 being not ready at all and 10 being very ready, how ready are you to work on losing weight at this time?"

– OR –

"On a scale from 0 to 10, with 0 being not important and 10 being very important, how important is it for you to lose weight at this time?"

Answer	Meaning	Follow-up questions or advice
0-4	Very little intention to lose weight	Acknowledge the patient is not ready to work on weight loss at this time and let patient know you respect his/her decision. Express your concerns about the health risks associated with excess weight and how this is affecting the patient (review BMI, waist circumference and health risks) and advise to maintain current weight.
5-7	Ambivalent about taking action to lose weight	Acknowledge the patient's ambivalence in a nonjudgmental manner. Express your concerns about the health risks associated with excess weight and how this is affecting the patient (review BMI, waist circumference and health risks). Invite the patient to bring up the subject at any time in the future. You could also follow up with: • "What would have to happen to make you more ready?"
8-10	Very willing to take action about his/her weight	Discuss treatment options and assist patient in establishing a plan. • "Have you tried losing weight in the past? What sorts of strategies were the most successful and least successful?" • "How much physical activity do you typically get right now? How do you feel about becoming more active?" • "What level of support can you expect from family and friends as you try to lose weight?" • "What potential barriers to success do you foresee?"

7 Selection of an appropriate treatment option for those who are ready

Selecting the appropriate treatment based on BMI and comorbidities

	BMI (kg/m^2)				
Treatment	25.0-26.9	27.0-29.9	30.0-34.9	35.0-39.9	≥40.0
Diet Physical activity Behavior therapy	With comorbidities	With comorbidities	+	+	+
Pharmacotherapy		With comorbidities	+	+	+
Surgery				With comorbidities	+

Consider pharmacotherapy only after the patient has demonstrated a committed but unsuccessful attempt at combined lifestyle therapy. Prevention of weight gain through lifestyle therapy is indicated in any patient with a BMI > 25 k/m^2, even without comorbidities, while weight loss is not necessarily recommended for those with a BMI of 25.0-29.9 k/m^2 or a high waist circumference unless they have two or more comorbidities.

+ Indicates selected treatment regardless of comorbidities.

8 Establishment of quantifiable goals

For patients who indicated they are ready to lose weight:
- Recommend weight loss of 10% of pre-intervention body weight at a rate of no more than 1 to 2 pounds per week.

For patients who indicated a low readiness to change at this time:
- Advise to maintain weight and address other risk factors.

For information on community-based weight loss programs located by county in North Carolina go to ***www.ncahc.org***.

Sources:
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JAMA PATIENT PAGE

The Journal of the American Medical Association

OBESITY

Bariatric Surgery

Millions of individuals in the United States and around the world are overweight or **obese** (severely overweight). When weight increases to an extreme level, it is called **morbid obesity**. Obesity is associated with diabetes, heart disease, high blood pressure, some types of cancer, and other medical problems. **Bariatrics** is the field of medicine that specializes in treating obesity. **Bariatric surgery** is the term for operations to help promote weight loss. Bariatric surgical procedures are considered only for people with severe obesity (having a body mass index greater than 40 [about 100 pounds overweight], or having a body mass index greater than 35 [about 50 pounds overweight] with established complications of obesity) and not for individuals with a mild weight problem. This Patient Page is based on one previously published in the February 10, 2010, issue of *JAMA*.

OBESITY

Body mass index (**BMI**) is a standard way to define overweight, obesity, and morbid obesity. The BMI is calculated based on a person's height and weight—weight in kilograms (2.2 pounds per kilogram) divided by the square of height in meters (39.37 inches per meter). A BMI of 25 or more is considered overweight; 30 or more, obese; and 40 or more, morbidly obese. Bariatric surgery may be offered to patients with severe obesity when medical treatments, including lifestyle changes of healthful eating and regular exercise, have not been effective.

CONSIDERATIONS FOR BARIATRIC SURGERY

Individuals considering bariatric surgery must discuss risks and possible benefits with their doctor. Bariatric surgery has associated risks and long-term consequences and should be considered only one part of an approach to treating obesity. Most bariatric surgeons think that the operations work best when they help promote lifelong behavioral and dietary changes. Long-term follow-up with doctors experienced in the care of patients having these procedures, as well as lifelong vitamin supplementation, is essential to avoid life-threatening complications.

FOR MORE INFORMATION

- National Institute of Diabetes and Digestive and Kidney Diseases
  win.niddk.nih.gov/publications/gastric.htm
- Centers for Disease Control and Prevention, BMI Calculator
  www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm

INFORM YOURSELF

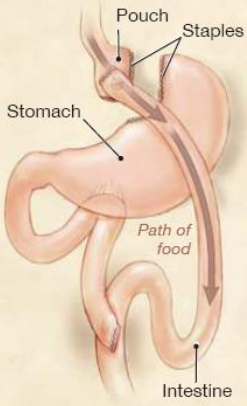
To find this and previous JAMA Patient Pages, go to the Patient Page link on *JAMA*'s website at www.jama.com. Many are available in English and Spanish.

Sources: American Society of Bariatric Physicians, National Institute of Diabetes and Digestive and Kidney Diseases, American Obesity Organization, Centers for Disease Control and Prevention, The Obesity Society

Types of Bariatric Operations

Bariatric surgery can be performed using an open (an 8- to 10-inch incision in the middle of the abdomen) approach or using a laparoscopic (several 1/2- to 2-inch incisions allowing cameras and instruments to enter the abdomen) approach.

Gastric Bypass (Roux-en-Y Gastric Bypass)



The size of the stomach is permanently reduced to an egg-sized pouch.

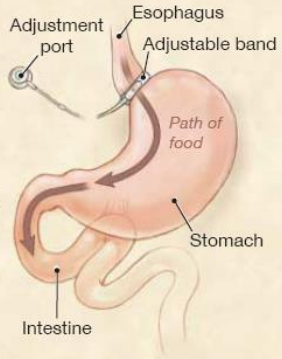
The pouch is reattached to a 2-foot-long tube of intestine that bypasses the stomach.

The amount of food taken in is restricted by the size of the pouch and the size of the connection of the pouch to the intestine.

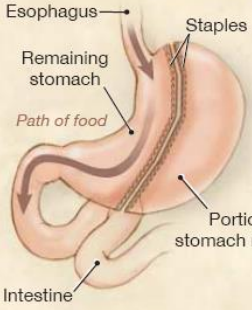
Adjustable Gastric Banding

The size of the opening from the esophagus to the stomach is reduced by the gastric band, decreasing the amount of food that can be comfortably eaten.

The surgeon can adjust the size of the opening by inflating or deflating the band via an adjustment port placed in the wall of the abdomen just underneath the skin. The band can be removed when desired.



Gastric Sleeve Resection



Removal of most of the stomach, turning it into a narrow tube.

Long-term outcomes from this procedure have not been well studied.

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Gastric bypass diet: What to eat after the surgery

By Mayo Clinic staff

Definition

The gastric bypass diet is designed for people who are recovering from gastric bypass surgery to help them heal and change their eating habits. Your doctor or a registered dietitian can help you with a gastric bypass diet by guiding meal planning.

A gastric bypass diet specifies what type and how much food you can eat at each meal. Closely following your gastric bypass diet can help you lose weight safely.

Purpose

The gastric bypass diet has several purposes:

- To allow the staple line in your stomach to heal without being stretched by the food you eat
- To get you accustomed to eating the smaller amounts of food that can be digested comfortably and safely in your smaller stomach
- To help you lose weight and avoid gaining excess weight
- To avoid side effects and complications

Diet details

Diet recommendations after gastric bypass surgery or other weight-loss surgery vary depending on the type of surgery, where the surgery is performed and your individual situation.

Most commonly, the gastric bypass diet has four phases to help you ease back into eating solid foods. How quickly you move from one step to the next depends on how fast your body heals and adjusts to the change in eating patterns. You can usually start eating regular foods with a firmer texture about three months after surgery.

After gastric bypass or other weight-loss surgery, you must pay extra attention to signs that you feel hungry or full. You may develop some food intolerances or aversions.

Phase 1: Liquid diet

You won't be allowed to eat for one to two days after gastric bypass surgery so that your stomach can start to heal. After that, while you're still in the hospital, you start a diet of liquids and semisolid foods to see how you tolerate foods after surgery.

Foods you may be able to have on phase 1 of the gastric bypass diet include:

- Broth
- Unsweetened juice
- Milk
- Strained cream soup
- Sugar-free gelatin

During phase 1, sip fluids slowly and drink only 2 to 3 ounces (59 to 89 milliliters, or mL) at a time. Don't drink carbonated or caffeinated beverages. And don't eat and drink at the same time. Wait about 30 minutes after a meal to drink anything.

Phase 2: Pureed foods

Once you're able to tolerate liquid foods for a few days, you can begin to eat pureed (mashed up) foods.

During this two- to four-week-long phase, you can only eat foods that have the consistency of a smooth paste or a thick liquid, without any solid pieces of food in the mixture.

To puree your foods, choose solid foods that will blend well, such as:

- Lean ground meats
- Beans
- Fish
- Egg whites
- Yogurt
- Soft fruits and vegetables
- Cottage cheese

Blend the solid food with a liquid, such as:

- Water
- Fat-free milk
- Juice with no sugar added
- Broth
- Fat-free gravy

Keep in mind that your digestive system might still be sensitive to spicy foods or dairy products. If you'd like to eat these foods during this phase, add them into your diet slowly and in small amounts.

Phase 3: Soft, solid foods

With your doctor's OK, after a few weeks of pureed foods, you can add soft, solid foods to your diet. If you can mash your food with a fork, it's soft enough to include in this phase of your diet.

During this phase, your diet can include:

- Ground or finely diced meats
- Canned or soft, fresh fruit
- Cooked vegetables

You usually eat soft foods for eight weeks before eating foods of regular consistency with firmer texture, as recommended by your dietitian or doctor.

Phase 4: Solid foods

After about eight weeks on the gastric bypass diet, you can gradually return to eating firmer foods. You may find that you still have difficulty eating spicier foods or foods with crunchy textures. Start slowly with regular foods to see what foods you can tolerate.

Avoid these foods

Even at this stage after surgery, avoid these foods:

- Nuts and seeds
- Popcorn
- Dried fruits
- Sodas and carbonated beverages
- Granola
- Stringy or fibrous vegetables, such as celery, broccoli, corn or cabbage
- Tough meats or meats with gristle
- Bread

These foods are discouraged because they typically aren't well tolerated in the weeks after surgery and might cause gastrointestinal symptoms. Over time, you may be able to try some of these foods again, with the guidance of your doctor.

A return to normal

Three to four months after weight-loss surgery, you may be able to start returning to a normal healthy diet, depending on your situation and any foods you may not be able to tolerate. It's possible that foods that initially irritated your stomach after surgery may become more tolerable as your stomach continues to heal.

Throughout the phases

To ensure that you get enough vitamins and minerals and keep your weight-loss goals on track, at each phase of the gastric bypass diet, you should:

- **Keep meals small.** During the diet progression, you should eat several small meals a day and sip liquids slowly throughout the day (not with meals). You might first start with six small meals a day, then move to four meals and finally, when following a regular diet, decrease to three meals a day. Each meal should include about a half-cup to a cup of food. Make sure you eat only the recommended amounts and stop eating before you feel full.
- **Take recommended vitamin and mineral supplements.** Because a portion of your small intestine is bypassed after surgery, your body won't be able to absorb enough nutrients from your food. You'll need to take a multivitamin supplement every day for the rest of your life, so talk to your doctor about what type of multivitamin might be right for you, and whether you might need to take additional supplements, such as calcium.
- **Drink liquids between meals.** Drinking liquids with your meals can cause pain, nausea and vomiting as well as dumping syndrome. Also, drinking too much liquid at or around mealtime can leave you feeling overly full and prevent you from eating enough nutrient-rich foods. Expect to drink at least 6 to 8 cups (48 to 64 ounces or 1.4 to 1.9 liters) of fluids a day to prevent dehydration.
- **Eat and drink slowly.** Eating or drinking too quickly may cause dumping syndrome — when foods and liquids enter your small intestine rapidly and in larger amounts than normal, causing nausea, vomiting, dizziness, sweating and eventually diarrhea. To prevent dumping syndrome, choose foods and liquids low in fat and sugar, eat and drink slowly, and wait 30 to 45 minutes before or after each meal to drink liquids. Take at least 30 minutes to eat your meals and 30 to 60 minutes to drink 1 cup (237 milliliters) of liquid. Avoid foods high in fat and sugar, such as non-diet soda, candy, candy bars and ice cream.
- **Chew food thoroughly.** The new opening that leads from your stomach into your intestine is very small, and larger pieces of food can block the opening. Blockages prevent food from leaving your stomach and can cause vomiting, nausea and abdominal pain. Take small bites of food and chew them to a pureed consistency before swallowing. If you can't chew the food thoroughly, don't swallow it.
- **Try new foods one at a time.** After surgery, certain foods may cause nausea, pain and vomiting or may block the opening of the stomach. The ability to tolerate foods varies from person to person. Try one new food at a time and chew thoroughly before swallowing. If a food causes discomfort, don't eat it. As time passes, you may be able to eat this food. Foods and liquids that commonly cause discomfort include meat, bread, pasta, rice, raw vegetables, milk and carbonated beverages. Food textures not tolerated well include dry, sticky or stringy foods.
- **Focus on high-protein foods.** Immediately after your surgery, eating high-protein foods can help heal your wounds, regrow muscle and skin, and prevent hair loss. High-protein, low-fat choices remain a good long-term diet option after your surgery, as well. Try adding lean cuts of beef, chicken, pork, fish or beans to your diet. Low-fat cheese, cottage cheese and yogurts also are good protein sources.

- **Avoid foods that are high in fat and sugar.** After your surgery, it may be difficult for your digestive system to tolerate foods that are high in fat or added sugars. Avoid foods that are fried and look for sugar-free options of soft drinks and dairy products.

Results

Gastric bypass and other bariatric surgery can result in long-term weight loss. The amount of weight you lose depends on your type of weight-loss surgery and the changes you make in your lifestyle habits. It may be possible to lose half, or even more, of your excess weight within two years.

The gastric bypass diet can help you recover from surgery and return to enjoying many of the healthy foods before surgery. And remember that if you return to unhealthy eating habits after weight-loss surgery, you may not lose all of your excess weight, or you can eventually regain any weight that you do lose.

Risks

The greatest risks of the gastric bypass diet come from not following the diet properly. If you eat too much or eat food that you shouldn't, you could have complications. These include:

- **Dumping syndrome.** This complication occurs most often after eating foods high in sugar or fat. These foods travel quickly through your stomach pouch and "dump" into your intestine. Dumping syndrome can cause nausea, vomiting, dizziness, sweating and eventually diarrhea.
- **Dehydration.** Because you're not supposed to drink fluids with your meals, some people become dehydrated. You can prevent dehydration by sipping 48 to 64 ounces (1.4 to 1.9 liters) of water or other low-calorie beverages throughout the day.
- **Nausea and vomiting.** If you eat too much, eat too fast or don't chew your food adequately, you may become nauseated or vomit after meals.
- **Constipation.** If you don't follow a regular schedule for eating your meals, don't eat enough fiber or don't exercise, you may become constipated.
- **Blocked opening of your stomach pouch.** It's possible for food to become lodged at the opening of your stomach pouch, even if you carefully follow the diet. Signs and symptoms of a blocked stomach opening include ongoing nausea, vomiting and abdominal pain. Call your doctor if you have these symptoms for more than two days.
- **Weight gain or failure to lose weight.** If you continue to gain weight or fail to lose weight on the gastric bypass diet, it's possible you could be eating too many calories. Talk to your doctor or dietitian about changes you can make to your diet.

Original Article: http://www.mayoclinic.com/health/gastric-bypass-diet/MY00827

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Exercise Before and After Weight-Loss Surgery

Maintaining a fitness program before and after bariatric surgery puts you on the road to a healthy weight.

By Cynthia Ramnarace

Days after Holli Dunayer-Shalvoy's gastric bypass surgery in 2005, she ventured out onto the beachside boardwalk near her Long Beach, New York, home. Her first walks were short, but each day they got a little bit longer. Now, three years after her surgery and more than 120 pounds lighter, Dunayer-Shalvoy runs four miles every morning.

"You hear the doctors say, 'You have to exercise,'" Dunayer-Shalvoy says. "I think it's not a given that you're going to do that. That is where you separate people and their will to succeed. I wanted it. I was hungry for a different life."

Exercise Is Crucial for Weight-Loss Success

Exercise after gastric bypass surgery is critical for effective weight loss, says Christopher Still, DO, director of the Geisinger Obesity Institute in Danville, Pennsylvania, and a member of the Integrated Health program of the American Society for Metabolic and Bariatric Surgery (ASMBS).

"When we lose weight rapidly, we lose muscle," Dr. Still says. "Muscle gauges and controls our metabolism. Exercise is a safe and effective way of maintaining lean body mass, which maintains metabolism and will facilitate [healthy] weight loss."

A recent study reported in the journal Obesity found that of 190 patients who underwent bariatric surgery, 68 percent said that they became physically active in the year after the procedure — "active" defined as at least 200 minutes per week of walking or other moderate or vigorous exercise. The exercisers lost an average of 13.2 more pounds than inactive patients and also suffered from less depression and anxiety and had higher scores in general health.

Exercise also shortens recovery time for bariatric surgery patients and reduces the risk of postsurgical complications. In addition, physical activity improves mood and reduces stress, according to the ASMBS. "People who choose to put an emphasis on exercise lose more weight and have an easier time with weight maintenance," Still says.

Kristine Salmon, an exercise physiologist with the Banner Good Samaritan Bariatric Center in Phoenix, offers the following example of a typical exercise program recommended to bariatric surgery patient:

6–12 Months Before Surgery

Patients who start an exercise regimen *before* surgery are twice as likely as those who don't to have an easy time adjusting to exercising *after* surgery, according to a Harris survey conducted for ASMBS. But exercise is almost always difficult for people who carry a lot of extra weight. For this reason, starting slow is imperative. If you are morbidly obese and are contemplating an exercise regimen, you should have a cardiac evaluation by your internist. The goal, says Salmon, should be 20 to 30 minutes of physical activity three days a week. Some sample exercises:

- Walking for 10 minutes, twice a day.
- Marching in place for 20 minutes while sitting in a chair (especially effective for people with back problems).

1–6 Months After Surgery
You should resume an exercise regimen two to three weeks after bariatric surgery. The goal is to increase range of motion so you can take off your shoes, for example, and pick things up off the ground. Strength-training exercises are also important because as you lose weight you will lose muscle. You should work toward 30 minutes of continuous exercise three to five days per week by the time six months have passed. Sample exercises during this stage:

- Walking, biking, or swimming exercises for aerobic fitness.
- Resistance training with dumbbells, weight bands, or gym machines to build muscle mass.

6–12 Months After Surgery
A year after gastric bypass, you should be able to perform 45 minutes of exercise at least four times a week. Salmon recommends varying workouts so your body is constantly challenged. Strengthening the stomach muscles is also important because it helps improve your posture, which will change as you lose more weight. Some sample exercises:

- Yoga, dancing, aerobics, or kickboxing for 45 minutes four times a week.
- Resistance training using dumbbells while sitting on a balance ball, which helps to strengthen the abdominal muscles.

1 Year–Plus After Surgery (Long-term Maintenance)
Now that more than a year has passed since surgery, you've probably lost more than 100 pounds. Such a drastic change can leave many patients thinking that they no longer need to exercise, but "we tell patients that exercise is not an option, it's a must," Salmon says. At this stage the recommendation is the same as that for the general population: 45 minutes of exercise at least four days per week. Sample exercises:

- Interval training on a treadmill, varying speed and incline, for 45 minutes.
- Hiking, running, or bicycling — take your exercise outdoors and be proud of your new body and how good it feels to be physically fit.

Original Article:
http://www.everydayhealth.com/weight-loss-surgery/weight-loss-surgery-exercise.aspx

Appendix D: Billing Procedure Codes

Gastric Bypass Procedures for Morbid Obesity AMA CPT® 2013 CODING Guidelines	
43644	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and Roux-en-Y gastroenterostomy (roux limb 150 cm or less) (Do not report 43644 in conjunction with 43846, 49320) (Esophagogastroduodenoscopy [EGD] performed for a separate condition should be reported with modifier 59) (For greater than 150 cm, use 43645) (For open procedure, use 43846)
43645	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and small intestine reconstruction to limit absorption (Do not report 43645 in conjunction with 49320, 43847)
43770	Laparoscopy, surgical, gastric restrictive procedure; placement of adjustable gastric restrictive device (e.g., gastric band and subcutaneous port components) (For individual component placement, report 43770 with modifier 52)
43771	Laparoscopy, surgical, gastric restrictive procedure; revision of adjustable gastric restrictive device component only
43772	Laparoscopy, surgical, gastric restrictive procedure; removal of adjustable gastric restrictive device component only
43773	Laparoscopy, surgical, gastric restrictive procedure; removal and replacement of adjustable gastric restrictive device component only (Do not report 43773 in conjunction with 43772)
43774	Laparoscopy, surgical, gastric restrictive procedure; removal of adjustable gastric restrictive device and subcutaneous port components (For removal and replacement of both gastric band and subcutaneous port components, use 43659)
43775	Laparoscopy, surgical, gastric restrictive procedure; longitudinal gastrectomy (i.e., sleeve gastrectomy) (For open gastric restrictive procedure, without gastric bypass, for morbid obesity, other than vertical-banded gastroplasty, use 43843)
43842	Gastric restrictive procedure, without gastric bypass, for morbid obesity; vertical-banded gastroplasty
43843	Gastric restrictive procedure, without gastric bypass, for morbid obesity; other than vertical-banded gastroplasty (For laparoscopic longitudinal gastrectomy [i.e., sleeve gastrectomy], use 43775)
43845	Gastric restrictive procedure with partial gastrectomy, pylorus-preserving duodenoileostomy and ileoileostomy (50 to 100 cm common channel) to limit absorption (biliopancreatic diversion with duodenal switch) (Do not report 43845 in conjunction with 43633, 43847, 44130, 49000)

43846	Gastric restrictive procedure, with gastric bypass for morbid obesity; with short limb (150 cm or less) Roux-en-Y gastroenterostomy (For greater than 150 cm, use 43847) (For laparoscopic procedure, use 43644)
43847	Gastric restrictive procedure, with gastric bypass for morbid obesity; with small intestine reconstruction to limit absorption
43848	Revision, open, of gastric restrictive procedure for morbid obesity, other than adjustable gastric restrictive device (separate procedure) (For laparoscopic adjustable gastric restrictive procedures, see 43770-43774) (For gastric restrictive port procedures, see 43886-43888)
43886	Gastric restrictive procedure, open; revision of subcutaneous port component only
43887	Gastric restrictive procedure, open; removal of subcutaneous port component only
43888	Gastric restrictive procedure, open; removal and replacement of subcutaneous port component only (Do not report 43888 in conjunction with 43774, 43887) (For laparoscopic removal of both gastric restrictive device and subcutaneous port components, use 43774) (For removal and replacement of both gastric restrictive device and subcutaneous port components, use 43659)

Appendix E: End Notes

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