

Possible Nutritional Side Effects Following Bariatric Surgery

Following bariatric surgery, your diet will need to be modified to accommodate your new, much smaller pouch. You will lose weight by making lifestyle changes. **Bariatric Surgery is not a quick or temporary fix for weight loss.** Diet and behavioral modifications are required for long-term success.

How does weight loss occur after bariatric surgery?

Bariatric surgery causes several changes in the body that lead to weight loss:

1. Reduced stomach size

- a. The size of your new stomach is about 3 ounces, or the size of a chicken's egg (GBP) or banana (SL).
- b. Only a small amount of food or liquid can fit into this pouch.
- c. The amount of food that you will be able to eat is restricted.
- d. A typical meal size shortly after surgery may be 2 tablespoons. to $\frac{1}{4}$ cup. About 1 year after surgery, a typical meal size is 1 to 1.5 cups.

2. Malabsorption

- a. The smaller stomach size, reduction in stomach acids, and smaller portion sizes will reduce your body's ability to absorb vitamins and minerals from food
- b. After gastric bypass, the shortening of the small intestine further limits absorption of nutrients.

3. Food intolerances

- a. After bariatric surgery your body may become intolerant to foods high in sugar and high in fat. These foods may cause nausea vomiting, gas, bloating and diarrhea.
- b. Foods that you may have been able to tolerate before surgery may be less tolerated after surgery.
- c. Some people may not be able to tolerate healthy foods such as raw leafy greens, eggs, beef and pork.
- d. Food intolerances are very individual. Each person may have different food intolerances.

What changes may be necessary for successful weight loss?

Avoid high calorie foods, which do not provide nutritional value:

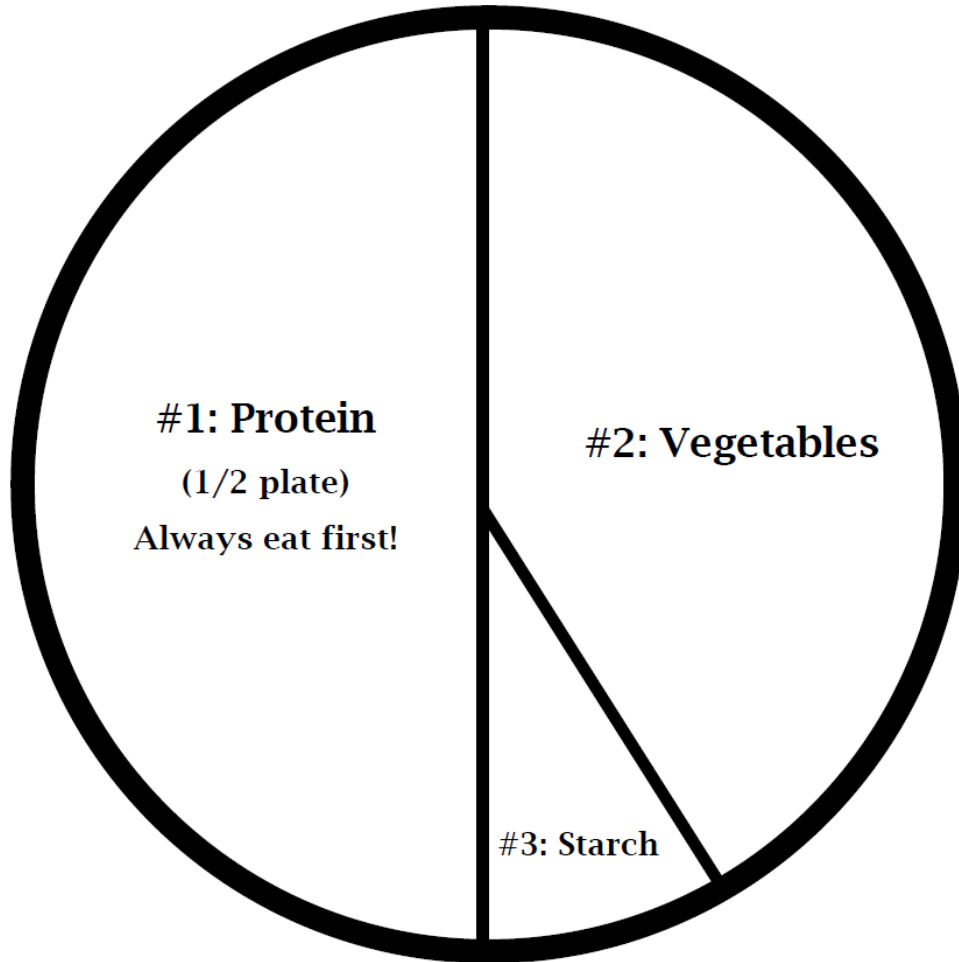
- Fried foods
- High-fat processed meat: hot dogs, bacon, sausage and ribs
- Desserts and other sweet bakery items
- Sweetened beverages: pop, sports drinks, energy drinks, juice and sweet tea.

Avoid foods such as refined grains that may “swell” in your stomach and feel very heavy, which may cause you to vomit:

- Pasta - instead, try spaghetti squash
- Rice - instead, try “cauliflower rice” (recipe on CTools or check the produce or freezer sections of your grocery store)
- Bread products (bread, crackers, other flour-based food) - try a lettuce wrap

Also, these “filler foods” often displace protein, fruits, and vegetables in your diet.

Bariatric Plate



What nutrition-related side effects may occur after surgery?

1. **Hair Loss** - This is a temporary side effect caused by numerous factors such as: a reaction to the anesthesia, a reaction to the stress of the surgery, rapid weight loss, a lack of protein intake, and rarely, a vitamin deficiency. The life cycle of the hair follicle is approximately 3 months, so you may notice your hair falling out 3 months after surgery. To prevent hair loss; take in 70 grams of protein daily and take your vitamin/mineral supplements, as prescribed.
2. **Dumping Syndrome** (with gastric bypass) - may be caused by eating simple sugars and drinking liquids with meals. Avoid foods and liquids with high sugar content along with fried, fatty foods. Symptoms of dumping syndrome include diarrhea, bloating, gas, sweating, rapid heart rate, headache, shakiness, dizziness, etc.
3. **Nausea and vomiting** - may be caused by eating too fast or too much, or by drinking liquids while eating, eating foods you do not tolerate, or eating pieces of food that are too large. **Do not drink fluids 30 minutes before and while eating. Wait 30 minutes after eating to drink any fluid.** Drinking while eating can flush food through the stomach too quickly, leaving you hungry.
4. **Pain in upper shoulder or upper chest area** - can occur when you eat too much food at one time or a food is too difficult to digest. Chew your food well and take small bites.
5. **Dehydration** - it is necessary to take in at least 64 oz. of sugar-free, decaf, non-carbonated fluids per day. Water or zero-calorie fluids are best. Carry a water bottle and sip on it all day. As you progress after surgery, you will be able to take in a larger volume of fluid at one time.
6. **Lactose Intolerance / Diarrhea** - use lactase-treated milk or lactase enzyme tablets (Lactaid® products). Usually people can tolerate yogurt and hard cheeses even if they are not tolerating liquid milk. Diarrhea can also occur from high sugar, high fat foods (see #2, dumping syndrome).

7. **Constipation** - may be a common occurrence. It usually resolves within the first month of surgery. The most common cause of this is not drinking enough fluids. Sip water & zero-calorie drinks between meals. Drink at least 64 oz. of fluids per day. Gradually increase fruits and vegetables as your diet progresses.
8. **Gas** - fiber in certain foods can cause gas, like broccoli, cauliflower, and beans. Take Bean-o or Gas-X to alleviate gas symptoms. Eventually, your body will adjust to this fiber.
9. **Heartburn** - can be caused by taking in extra air through carbonated beverages (soda, sparkling water, sparkling juice). Heartburn can also be caused by drinking through a straw (you may swallow a large amount of air) and chewing gum.
10. **Weight plateaus and weight gain** - weight plateaus are normal in the first year after surgery. If your plateau lasts longer than a 3-4 weeks, you may want to consider increasing exercise or evaluating your dietary intake (let a program dietitian know if you need help looking over your daily intake).
11. **Inadequate protein intake** - a minimum of 70 grams of protein a day is necessary to promote healing, maintain muscles, and protect organ function. After surgery, the goal of 70 grams of protein per day is reached through protein supplements (mostly shakes), skim milk, low fat dairy products, and lean meats as tolerated. Include protein at every meal and snack. **At every meal or snack eat protein foods first!**
12. **Intolerance to alcohol**- following gastric bypass surgery, the stomach no longer metabolizes alcohol therefore it enters the bloodstream at a much faster rate and stronger concentration. This increases your risk for developing alcoholic fatty liver disease. The risk of alcoholism greatly increases among people who have had bariatric surgery. Alcohol is a source of empty calories (for all procedures) and can contribute to dumping syndrome (bypass patients).

What changes should I make before surgery?

1. Take 1 adult complete multivitamin (with iron) daily before your surgery, at least two hours apart from calcium.
2. Take 500-600mg (2 tablets) twice daily of Calcium Citrate which will provide 1,000-1,200mg daily. Do not take all 4 at the same time.

Example Schedule for Supplements:

Morning	1 complete multivitamin with iron
Afternoon	500-600mg calcium citrate (2 tablets)
Evening	500-600mg calcium citrate (2 tablets)

(A pill box may be helpful if you have difficulty remembering to take pills.)

3. Exercise a minimum of 10 minutes per day to start, and increase exercise by 5-10 minutes every week.
4. Eat breakfast daily, within 1-2 hours after waking up. Then, every 3-4 hours throughout the day, schedule a small snack or meal.
5. Consume protein first and eat lean proteins at all meals and snacks.
6. Sip on water and calorie-free beverages throughout the day to reach at least 64 oz. of fluid. Remember not to drink a ½ hour before and after eating meals.
7. Taper off the caffeine by ½ to 1 cup every day until you are caffeine-free. Caffeine is a diuretic.
8. Avoid alcoholic beverages, which are a source of empty calories.
9. Switch any carbonated beverages to non-carbonated versions.
10. Avoid high fat, high sugar foods (for example, fried foods, processed meats, cookies, cakes, candy, soda, sports drinks, lemonade, sweet tea, Kool-Aid).

11. Limit breads, rice, pasta (for example, avoid all wraps, English muffins, pretzels, crackers, cereal, tortillas).
12. Use skim (non-fat) or 1% (low-fat) milk products.
13. Eat very slowly; chewing foods very well, to applesauce consistency or at least 25 times before swallowing, this will be a life-long change.
14. Invest in a blender/food processor, crock pot, re-useable water bottle and measuring cups.
15. Purchase UNJURY or GNC Amp protein powder and sample flavors before starting the pre-op diet (these may be used as a meal or snack replacement).

Pre-Surgical Nutrition Education Class

You will be scheduled for a nutrition class before surgery. There will be other patients in this class with you and it will take at least 4 hours. If someone else prepares the meals and/or buys the groceries in your household that person will need to attend the class with you. Please contact the RD with questions. The information below will be discussed at this class. **Make sure to bring this binder with you.**

Pre-Surgery Diet

You will start to follow a full liquid diet 2 to 4 weeks before surgery. This diet is intended to shrink your liver. You will also lose weight while following this diet plan. The details regarding what to eat during the pre-surgery diet and when you will need to start it will be provided at your Pre-Surgical Nutrition Education Class.

Overview of Post-Surgery Diet

1. Bariatric Clear Liquids: starts the day after surgery
2. Bariatric Full Liquids: starts the day you go home from the hospital and lasts for 2 weeks at home
3. Bariatric Pureed Food: starts at your 2-week post-op clinic visit and lasts about 4 weeks for Bypass and 2 weeks for Sleeve
4. Bariatric Soft Foods: usually lasts about 2 weeks for Bypass and 4 weeks for the Sleeve
5. Bariatric Regular diet: begins at your 2-months post-op visit. This is the plan you will follow for the rest of your life! A bariatric diet is one that is low in fat, low in sugar, focuses on protein, fruits, and vegetables, and limits refined grain products like bread, pasta, white rice.

You will attend follow-up clinic appointments with your dietitian to monitor your nutritional health, diet progression, and food tolerance. You can call or message the dietitians with any food or nutrition-related questions both before and after surgery.

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