



University of Missouri  
**HEALTH CARE**

*LEARNING... The Pathway to Understanding*

# **Missouri Bariatric Services**

## **Nutrition Guidelines Before and After Vertical Sleeve Gastrectomy**





# Table of Contents

	<b>Page</b>
<b>1. Nutrition Guidelines Before Surgery</b>	<b>1</b>
<b>2. Understanding Your Weight Loss Surgery</b>	<b>1</b>
<b>3. General Nutrition Guidelines After Surgery</b>	<b>1</b>
<b>4. Carbohydrates: Good, Bad, or Both?</b>	<b>2</b>
<b>5. The Sweet Stuff: No-Calorie Sweeteners</b>	<b>4</b>
<b>6. Protein: What's The Big Deal?</b>	<b>4</b>
<b>7. Fats: They're Not All The Same</b>	<b>5</b>
<b>8. Fluids</b>	<b>7</b>
<b>9. Reading Labels</b>	<b>7</b>
<b>10. Diet Progression After Surgery</b>	<b>9</b>
<b>11. When To Add "New" Foods</b>	<b>10</b>
<b>12. How To Eat Around Your Plate</b>	<b>11</b>
<b>13. Measuring Foods After Surgery</b>	<b>11</b>
<b>14. Estimating Portion Sizes</b>	<b>11</b>
<b>15. Digestive Difficulties After Surgery</b>	<b>12</b>
<b>16. Protein Supplements</b>	<b>13</b>
<b>17. Vitamin and Mineral Supplementation Guidelines</b>	<b>14</b>
<b>18. Additional Resources</b>	<b>14</b>
<b>19. Frequently Asked Nutrition Questions</b>	<b>14</b>
<b>20. Shopping List</b>	<b>15</b>
<b>21. Additional Information</b>	<b>16</b>



## Nutrition Guidelines Before Surgery

Before surgery is the best time to begin making adjustments to your daily eating habits. Doing so often results in pre-operative weight loss. In addition, these changes make an easier transition to new eating patterns after surgery.

- No fluids with meals. Stop drinking 30 minutes before a meal, and wait at least 30-60 minutes after meals to resume drinking.
- Take small bites and chew food at least 10-20 times before swallowing. Food needs to be the consistency of toothpaste before being swallowed.
- Give up/reduce caffeine.
- Give up alcohol.
- Give up carbonation/straws.
- Carry a water bottle and sip on it throughout the day.
- Start eating more fruits and vegetables, less processed junk food.
- Add whole grain products to your diet.
- Eat three meals per day.
- Give up grazing.
- Keep a food diary.
- Begin/continue taking a multivitamin and a calcium supplement.
- Go shopping. Purchase products you will need for at least the first 2 weeks after surgery.



## Understanding Your Weight Loss Surgery

Bariatric surgery is an effective, lifelong tool for dealing with morbid obesity.

Vertical sleeve gastrectomy is a restrictive type of bariatric weight loss surgery where about 85% of the stomach is removed. This leaves a sleeve-shaped stomach that holds ½ to 1 cup at a time. The new size of the

stomach helps you make changes in portion control, or how much you eat.

When you are not eating as much, you are getting fewer calories, so you will lose weight. However, because you will be eating very small amounts, you will not be able to get enough of some vitamins, minerals, and other nutrients without careful planning and daily supplements.

Below are some rules to help you make this tool work for you. If you do not follow these rules and the other diet guidelines in this booklet, you can cause complications or problems to occur after the surgery.

**It's a good idea to read over this booklet several times before your surgery. You will probably notice new things each time you read it, and you will be better prepared for the surgery. The gastric sleeve does not guarantee lifestyle changes. You guarantee your changes and your success!**

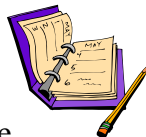
## General Nutrition Guidelines After Surgery

- Foods/beverages need to be low-fat and sugar-free or no sugar added.
- Fluids between meals, not with meals. Avoiding fluids with meals allows you to feel full longer. Once your small stomach is filled with foods at a meal, you don't want to rinse them out. Drinking calories will not make you feel full. This will lead to weight gain.
- **Three** small meals/day—protein in between as needed. No skipping meals or grazing is allowed. Even though your new pouch is small, daily grazing will often lead to slowed weight loss or weight gain after surgery.
- To ensure life-long success with Vertical Sleeve Surgery, you will need to eat meals differently. Eat your meals in the following order:

1. Have a source of protein at each meal and eat that protein source first.
2. Have a few bites of a colorful, non-starchy vegetable, like green beans, carrots, or red cabbage.
3. If you are still hungry, have some fruit or whole grains.

Eating around your plate in this way will help you get the right amount of protein and fiber, and get the right kinds of carbs every day.

- No carbonation. Carbonation causes excess gas, reflux and pouch distention. There is some evidence that it may even stretch your “new” stomach.
- No straws—drinking from a straw allows too much liquid and air to enter your stomach too quickly.
- No alcohol. Alcohol is high in calories and has no nutritional benefits. In addition, it can irritate your “new” pouch after surgery. For these reasons, alcohol must be avoided for the first year after surgery. After this time period, it should be saved for special occasions and be consumed in moderation. It is acceptable to take communion with wine after surgery.
- Keep a food diary—research shows individuals who write down what they eat/drink, lose more weight! This is a good way to ensure you are meeting your fluid/protein goals after surgery, in addition to assessing your tolerance to new foods.



## Carbohydrates: Good, Bad, or Both?

Carbohydrates have been given quite a bad rap lately. Thousands of people have jumped on the bandwagon to rid their diets of all carbs from apples to donuts, bread to corn. Even after bariatric surgery, where adequate protein intake is stressed, it is important not to fast from carbohydrates in general, as our

bodies do prefer to use them for energy. The best choice is to change the carbohydrates we fuel our bodies with by choosing healthy carbs over unhealthy carbs.

### Healthy carbs

Good carbs are those that are high in fiber and nutrients, while low in sugar and refined flours. Good carbs include fruits, vegetables, and whole grains. Most carbs classified as good carbs do not cause extreme changes in blood sugar level as the fiber they contain allows sugar to enter the bloodstream at a more gradual pace. Whole grains include whole-wheat pasta, whole grain breads, high-fiber cereals, bulgur, brown rice, quinoa, and barley. The majority of fruits and vegetables are good choices as well. Keep in mind that peas, corn, and potatoes are more like starches than vegetables, so keep your portions in check when eating them.

### Unhealthy carbs

Back in the old days, grain products were not processed. Whole grains were the only kind of grains available until we came up with the great idea to process our grains, leach all the fiber and nutrients from them, and then turn them into soft, white goodies. These refined flour products now are present in almost all grain and snack foods from corn flakes to chocolate chip cookies, saltines to Butternut bread. We now add back some of the B vitamins and iron to these products, but their benefits are minimal and they often cause sudden increases in blood sugar due to their low fiber content.

**Carbohydrates consist of starches (complex carbohydrates), sugars (simple carbohydrates), and fiber.**

### Dietary fiber

Complex carbohydrates your body cannot digest or absorb are called dietary fiber. Instead of being used for energy like other

carbohydrates, fiber is excreted. There are two types of fiber: soluble and insoluble.

**Insoluble fiber**

Also known as roughage. It doesn't dissolve, instead it picks up water and acts like a broom in your GI tract decreasing the transit time through the colon. Insoluble fiber is most commonly found in whole grains such as wheat and many fruits and vegetables.


**Soluble fiber**

Dissolves in your GI tract and becomes gummy which allows it to bind to fatty substances in your body and promote their excretion as waste. This is how they help lower your cholesterol levels. Soluble fiber is found in foods such as apples and oat products.

**Sugars**

Sugars are considered simple carbohydrates because they are more easily converted to energy by the body. Sugars can be added or natural. Remember, even if a product has no sugar added, it may contain natural sugar. Examples of this include milk and fruit.

We most commonly think of sucrose (table sugar) as the only sugar, but many words on labels can indicate a product has added sugar:

Brown sugar	Raw sugar
Cane sugar	Corn syrup
Dextrin	Honey
Invert sugar	Maple syrup
Molasses	Malt
Confectioner's sugar	Corn sweeteners
Turbinado sugar	Fruit juice concentrate
High-fructose corn syrup	

**Sugar alcohols**

Alcohol refers to their chemical structure. Sugar alcohols include sorbitol, mannitol

and xylitol. (These are the most common sugar alcohols – other polyols are sugar alcohols as well). They are often used to sweeten foods instead of sugar. They also add texture and moisture to foods. Sugar alcohols are digested more slowly than sugars in the GI tract, often have little effect on blood sugars, and are not cavity producing. Keep in mind they still have 4 calories per gram, though, and may have a laxative effect for some people.

**Sugar substitutes**

Sugar substitutes do not add calories to foods and, therefore, are not included under carbohydrate content. The most common sugar substitutes are aspartame, sucralose, and saccharin. All have been proven to be safe in reasonable amounts by the FDA. See “the sweet stuff” page in your booklet.

**“Net” or “impact” carbs**

The terms “net” and “impact” carbs were created by the low-carbohydrate food industry during the low-carb diet fad. These words are placed on food labels to attract low carb dieters. The terms are also used on bariatric specialty food products. These are not FDA approved terms. Net carbs are found by taking the total grams of carbohydrates and subtracting grams of fiber and grams of sugar alcohols. The total amount of net or impact carbs are how many carbohydrates will affect your blood sugar. However, because fiber and sugar alcohols do not lead to dumping, net or impact carbs can be used to determine how many carbohydrates may affect whether you may or may not dump. Be aware that foods low in net or impact carbs are not always low in calories because sugar alcohols still contribute four calories/gram to foods. These terms alone should not be how you evaluate the appropriateness of a food.

**The bottom line**

Even after bariatric surgery, you should not give up carbohydrates. Yes, you need to eat your protein first, but make sure to eat some healthy carbs, too. Because fruits and

vegetables are mostly fiber, they are always a good choice and should never be eliminated from your diet. However, it is important to realize that every patient is different in terms of how many grams of carbohydrates or sugar they can tolerate. By monitoring your food choices and using nutrition fact labels, you will be able to determine the appropriate amount of carbohydrates for you.

## The Sweet Stuff: No-Calorie Sweeteners

It is a well known fact that sugar is poorly tolerated after bariatric surgery. In addition, sugar adds extra calories and minimal nutrients to foods. For these reasons, after surgery you need to find a sweetener you like/tolerate well. Below are the most common options.

### Aspartame

This sweetener is 180-200 times sweeter than sugar.

Truth: Discovered in 1965 and made primarily of two amino acids. It was first marketed as NutraSweet® and Equal®. Now it is also sold under other brand names. It is best when added to foods after they are cooked as it may lose its sweetness if heated for a long time.

Myth: Aspartame will turn to formaldehyde in the body.

Myth Busted: While this could occur in a test tube, your body does not have the right environment to turn aspartame to formaldehyde.

### Saccharin

Saccharin is 300 times sweeter than sugar.

Truth: It was discovered in 1879 and produced from a substance that occurs naturally in grapes. Most commonly sold under the names Sweet'N Low® and Sugar Twin®. Saccharin is heat-stable and can be used in baking, but does not provide the volume that sugar does.

Myth: Saccharin causes cancer.

Myth Busted: Though it was banned in 1977 due to large amounts causing cancer in rats, no human study ever confirmed the findings and it reentered the market in 1991.

### Sucralose

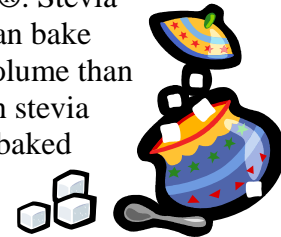
Sucralose is 600 times sweeter than sugar.

Truth: It is made from sucrose (table sugar) with chlorine atoms switched for the usual hydrogen-oxygen atoms. Sold under the brand name Splenda®, it is heat-stable and has a similar volume to sugar so it is well suited to replace sugar in most recipes.

### Stevia

Stevia is 300 times sweeter than sugar.

Truth: Stevia comes from the root of a plant in the Sunflower family. It is sold under the brand name Sweet Leaf®. Stevia is heat-stable, so you can bake with it, but it has less volume than sugar. Foods baked with stevia may not rise like foods baked with sugar.



## Protein: What's The Big Deal?

Anyone who has looked into bariatric surgery knows that protein is stressed as the most important nutrient after surgery. But why is it so important?

### Protein's vital functions in the body

- Wound healing
- Hair and nail growth
- Muscle maintenance (including heart, diaphragm, legs and arms)
- Hormone and enzyme production
- Blood clot formation
- Blood pressure control
- Immune system function

### Protein deficiency can cause

- Hair loss
- Decreased pigmentation in hair
- Loss of muscle strength

- Fluid retention (especially in your lower legs)
- Decreased ability to fight infections

### Protein Goals After Bariatric Surgery

**Women** need a minimum of **65** grams protein per day.

**Men** need a minimum of **80** grams protein per day.

- Your protein goal immediately after surgery will be met by protein supplements. You will need to continue your protein supplement after surgery until you are consistently able to meet your protein goal with food alone. See list on page 6 for protein content of commonly consumed foods. Keep in mind the above protein goals are a minimum.

❖ **Always eat your protein first!** ❖

## Fats: They're Not All The Same

Fat, like protein and carbohydrates, is a nutrient essential for your health. Despite the low-fat diet craze of the '90s, research is beginning to reveal that the type of fat you consume is just as important, if not more, than the amount. Yes, a low-fat diet is recommended after bariatric surgery, as fat is high in calories (9 kcal/g) and excess calories make weight loss difficult, but a diet without any fat can cause serious problems.

### Fat's vital functions in the body:

- Hormone production
- Energy
- Transportation of fat-soluble vitamins (vitamins A, D, E, and K) from food into the bloodstream

### Fatty acid deficiency can cause:

- Hair loss and/or dry, stiff hair
- Dry, flaky and/or thickened skin
- Diarrhea

- Fatigue
- Acne
- Poor wound healing

### Look for products with the following:

- Low in fat
- Monounsaturated fat
- No trans fat
- No saturated fat
- Omega-3 fatty acids

### Avoid products with the following:

- Partially-hydrogenated oil
- Cocoa butter
- Palm kernel oil
- Coconut oil
- Butter

Even though fat has many important functions in the body, only a small amount of fat is needed to perform these functions. After bariatric surgery, your diet needs to be low in fat and include heart-healthy fats such as olive oil, canola oil, nuts, and flaxseed. Fats from animal products and from processed foods should be avoided. Reading labels is the best way to ensure a product is low in fat and/or contains good fat rather than bad fat.



## Protein Content of Commonly Consumed Foods

Food/Beverage	Serving Size	Protein	Calories
<b>MEAT, FISH, POULTRY</b>			
Lean ground sirloin	3 oz	21 gm	230
Roast	3 oz	21 gm	200
Corned beef	3 oz	21 gm	215
Pork chop	3½ oz	21 gm	150
Spare ribs	6 pieces	15 gm	200
Red snapper	1 cup	21 gm	100
Shrimp, boiled	3 oz	21 gm	85
Tuna, in water	½ cup	22 gm	90
Salmon	3 oz	20 gm	125
Perch	3 oz	22 gm	100
Flounder	3 oz	21 gm	100
Lobster	1 cup	19 gm	85
Haddock	3 oz	16 gm	95
Baked ham	3 oz	26 gm	130
Chicken, dark	3 ½ oz	25 gm	175
Chicken, white	3 ½ oz	28 gm	160
Turkey	3 oz	25 gm	120
Peanut butter	2 tbsp	8 gm	190
TVP (texturized vegetable protein)	¼ cup dry	11 gm	59
Boca Burger	1 patty	10 gm	70
<b>STARCHES</b>			
Mashed potatoes	½ cup	2 gm	100
Fat free refried beans	½ cup	9 gm	135
Baked potato, no skin	1 small potato	3 gm	130
Barley	1 cup	3 gm	200
Baked beans	½ cup	8 gm	160
Kidney beans	½ cup	7 gm	110
<b>SOUPS</b>			
Broth	½ cup	1 gm	25
Low-fat creamed soup	1 cup	6-9 gm	90
Chicken noodle soup	1 cup	4 gm	35
Bean, pea, or lentil soup	1 cup	7 gm	60
Minestrone soup	1 cup	5 gm	60
<b>MILK, CHEESE, YOGURT</b>			
Cottage cheese	½ cup	14 gm	80
Skim mozzarella	1 oz	6 gm	80
Fat free American cheese	1 slice	7 gm	35
Fat free cheddar, shredded	¼ cup	9 gm	35
Skim milk	1 cup / 8oz	8 gm	80
Nonfat dry milk	1 tbsp	1 gm	5
Yogurt, light	1 cup	8 gm	90
Egg, large size	1 egg	7 gm	65
Egg white	1 egg white	3 gm	20
Egg substitute	¼ cup	7 gm	50
Tofu	¼ cup	5 gm	95
Soynuts	1 oz	12 gm	120

## Fluids

On average, an adult's body weight is 55-75 percent water. Water serves many important functions in the body, including waste elimination, nutrient transportation and maintenance of both blood pressure and body temperature. Adequate hydration following gastric bypass surgery is critical. Rapid weight loss along with a protein-rich diet causes the kidneys to work harder to eliminate waste. Drinking plenty of water helps the body flush out these waste products and prevents dehydration.

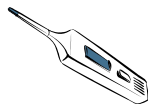
### Symptoms of mild dehydration

- Dry mouth, lips and or tongue
- Thirst
- Fatigue
- Headache
- Dry skin
- Constipation
- Irritability
- Nausea
- Urine that is both dark yellow in color and produced in very small amounts



### Symptoms of severe dehydration

- Dizziness
- Flushed and clammy skin
- Elevated temperature



If any symptoms occur, immediately increase your fluid intake. **This may mean replacing food with liquids until hydration is restored.** If symptoms persist longer than 24 hours or become more severe, call your physician. If not corrected early, dehydration can become a serious health emergency requiring medical treatment. Any non-carbonated, sugar-free beverage can help meet your daily fluid needs **but to help your body function at its best, ideally at least half of your daily fluid should come from water.**

- Do not rely on thirst to tell yourself to take a drink. If you are thirsty, you are already mildly dehydrated.
- Have a water bottle or its equivalent with you at all times. Take small frequent sips.
- Aim to drink six ounces per hour.
- Drink water before, during, and after exercise.
- Limit caffeine intake because caffeine acts as a diuretic.



## Reading Labels

Reading food labels after bariatric surgery is essential to make sure the foods you eat contain adequate protein, the right kind of carbohydrates, and not too much fat. Food labels consist of four different types of health information and all of them can assist you in making healthy choices.

### Nutrition facts

This panel gives specific information regarding the amount of calories, fat, protein, and carbohydrates in a product. It also includes information on vitamins, minerals, sodium and fiber.

### Ingredients

This section lists “the recipe” of the food product. It is important to note that ingredients are listed from greatest content to least content.



### Nutrition description

This is where you would see the words “low-fat” or “high in fiber”. In order to have these descriptions on their label, foods must meet certain criteria. See “label lingo” sheet for more information.

<b>Label Lingo</b>	
<b>TERM</b>	<b>MEANING (ALL PER SERVING)</b>
<b>Free</b>	Less than 5 kcal Or Less than 0.5 g fat Or Less than .5 g sugar
<b>Low</b>	Less than 40 kcal Or Less than 3 g fat Or Less than 1 g saturated fat Or Less than 140 mg sodium Or Less than 20 mg cholesterol
<b>Lean</b>	Less than 10 g fat, 4.5 g saturated fat
<b>Extra lean</b>	Less than 5 g fat, 3 g saturated fat
<b>High</b>	20% or more of the daily value for a particular nutrient
<b>Good source</b>	10-19% of the daily value for a particular nutrient
<b>Reduced</b>	Contains at least 25% less of a nutrient/kcal
<b>Less</b>	Contains 25% less of a nutrient/kcal
<b>Light</b>	Or Contains 1/3 fewer kcal and/or 50% less fat Contains 50% less sodium
<b>More</b>	10% more of a nutrient
<b>Healthy</b>	Must be low in fat, and contain limited amounts of sodium and cholesterol. Also must contain at least 10% of one or more Vitamin C, Vitamin A, Iron, Calcium protein, or Fiber

**Health claims**

This section describes potential health benefits a food may have. Listed below are FDA-approved health claims you may see on various food labels.

1. Contains calcium and can prevent osteoporosis
2. Low-fat and can prevent certain types of cancer
3. Low in saturated fat/cholesterol and can prevent heart disease
4. Fiber in fruits/vegetables/ whole grains and can prevent heart disease and certain types of cancer
5. Low sodium and can prevent high blood pressure
6. Contains folate and can prevent neural tube birth defects
7. Dietary sugar alcohols can prevent tooth decay, as opposed to other dietary sugars
8. Contains soluble fiber and can prevent heart disease

# Diet Progression After Surgery

## Pre-operation liquid diet

- Start:** Approximately two weeks before surgery
- Duration:** Two weeks
- Diet:** Enough protein drinks to get a minimum of 100 grams of protein a day and at least 64 ounces of sugar-free clear liquids.

## Stage 1

- Start:** Midnight day of surgery
- Duration:** Usually day of and morning after surgery
- Diet:** NPO (nothing by mouth)



## Stage 2

- Start:** Usually the day after the surgery
- Duration:** 7-10 days (until your first clinic follow-up appointment)
- Diet:** Sugar free clear liquids. Begin taking a bariatric specific multivitamin, iron, calcium, and vitamin B-12 when discharged from the hospital.
- Goal:** Aim for 4-6 ounces of fluid per hour for a total of 64 ounces per day

## Recommended foods

- Clear, no sugar added juices (no citrus)—apple, cranberry, or grape—dilute with 1 part juice and 1 part water
- Clear broth or bouillon
- Tea
- Coffee—limit to 1-2 cups each day
- Sugar-free gelatin



- Sugar-free Kool-Aid<sup>®</sup> and Crystal Light<sup>®</sup>
- Fruit ice made with sugar-free beverage such as Crystal Light<sup>®</sup> or sugar-free Kool-Aid<sup>®</sup>
- Sports drink containing no more than 50 calories per 8 ounce serving, such as Gatorade<sup>®</sup>, Vitamin Water<sup>®</sup>, or Sobe<sup>®</sup> Lean
- Sugar-free, non-carbonated flavored waters (Propel<sup>®</sup>, Dasani<sup>®</sup>, Fruit2O<sup>®</sup>, etc.)
- Sugar-free Popsicles<sup>®</sup>
- Optional: Clear liquid protein drinks (see protein supplement section)



## Stage 3

- Start:** Typically following your first clinic appointment after surgery (1 week post-op)
- Diet:**
- Continue Stage Two clear liquids
  - Add high-protein drink
- Duration:** Approximately one week
- Goal:**
- Aim for 4-6 ounces of fluid per hour, for a total of 64 ounces daily
  - Protein drinks: 4-6 ounces, 3 per day (see protein supplement section)

## Stage 4

- Start:** Week three after surgery
- Diet:** Semi solid—start with 1-2 tablespoons per meal. Eventually will be ½ cup per meal
- Duration:** Approximately one week
- Goal:**
- Aim for 64 ounces of fluid per day to prevent dehydration
  - Continue protein drinks 4-6 ounces, 3 per day.

**Recommended foods (no more than ½ cup total/meal)**

- All foods from previous stages—continue protein supplement beverages
- Protein powder may be mixed with foods
- Cream of Wheat®, Cream of Rice® or blended oatmeal
- Cottage cheese—low-fat or nonfat
- Yogurt—nonfat, no fruit chunks
- Potato—boiled, mashed, or baked with skin removed. Do not eat fried potatoes
- May add the following blended soups—chicken noodle, chicken rice, cream of chicken, cream of mushroom, turkey noodle, vegetarian vegetable, cream of potato and cream of tomato
- Sugar-free pudding
- Eggs—not fried



**When To Add “New” Foods**

**Four weeks**

- Deli-shaved chicken or turkey
- Seafood—moist white fish or shellfish and tuna—not fried
- Toast
- Tofu and soy products
- Crackers containing less than 3 grams of fat per serving
- Cheese—containing less than 5 grams of fat per ounce
- Natural peanut butter



**Five weeks**

- Cold cereals—should not contain more than 3 grams of sugar per serving
- Raw lettuce (must use dressing with less than 5g fat/serving)
- Vegetables—soft cooked such as carrots, green beans, broccoli (may cause abdominal discomfort/gas)

- Fruits—canned or soft bananas, apples, melon, peaches – NO CITRUS!

**Six weeks**

- Ground beef
- Ham

**Seven weeks**

- Pasta—do not use white sauces as they are usually high in fat, use red sauces instead. Whole grain pasta is preferred
- Bread, un-toasted
- Poultry—moist white meat—BAKED—DO NOT FRY OR EAT SKIN
- Raw vegetables/fruit, crunchy—peeled (chew well)
- Beans
- Rice
- Grapes
- Nuts
- Raisins



**Eight weeks**

- Red meat and pork—lean, visible fat trimmed; DO NOT FRY (chew well)
- Citrus fruits
- Protein bars (less than 200 kcal and at least 15 g protein)

Important Points	
✓	Add foods back to your diet one at a time to assess tolerance.
✓	Meals at first will only consist of bites. Only eat until your first sign of fullness, no more than a ½ cup per meal.
✓	Always eat your protein foods first at meals.
✓	Moist foods, especially meats, are often better tolerated than dry foods. Use moist cooking methods whenever possible.

## How To Eat Around Your Plate

Knowing what foods you need at each meal can help with meal planning. Eat foods in this order:

1. Protein
2. Non-starchy vegetables
3. Fruit
4. Whole grains; you may exchange a serving of whole grains for a serving of starchy vegetables (potatoes, peas, and corn)

❖Remember to drink fluids between meals, not with meals.❖

## Measuring Foods After Surgery

Directly after surgery, measuring your foods and liquids is highly recommended to ensure you are meeting your fluid and protein goals. Estimating portion sizes is very inaccurate as our eyes have been trained by very large portion sizes. Below are some helpful conversion factors to make keeping track of your protein and fluids easier.

## Estimating Portion Sizes

Although measuring foods is best when determining appropriate portion sizes, it's not always possible. Here are some practical guidelines to follow when you don't have a measuring device handy.

WEIGHTS	EQUIVALENTS
1 gram	1000 milligrams (mg)
1 ounce (oz)	28 grams (g or gm)
1 kilogram (kg)	1000 grams OR 2.2 pounds
1 pound (lb)	16 ounces OR 454 grams



LIQUIDS	EQUIVALENTS
1 cubic centimeter (cc)	1 milliliter (ml)
1 teaspoon (tsp)	5 milliliters
1 tablespoon (Tbsp)	3 teaspoons OR 15 milliliters
1 fluid ounce (fl oz)	2 tablespoons OR 28 milliliters OR 1/8 cup
1/4 cup	4 tablespoons
1/3 cup	5 tablespoons and 1 teaspoon
1/2 cup	4 fluid ounces OR 120 milliliters OR 8 tablespoons
1 cup	8 fluid ounces OR 240 milliliters OR 16 tablespoons
1 pint	2 cups OR 16 fluid ounces OR 480 milliliters
1 quart (qt)	4 cups OR 2 pints OR 32 fluid ounces OR 950 milliliters
1 gallon	4 quarts OR 128 fluid ounces OR 3.8 liters (L)

FOOD	=	ESTIMATED SIZE
1 ounce of meat	=	matchbox
3 ounces of meat	=	deck of cards or bar of soap
3 ounces of fish	=	checkbook
1 ounce of cheese	=	4 dice
Medium potato	=	computer mouse
2 tablespoons peanut butter	=	ping pong ball
1 cup pasta	=	tennis ball
Average bagel	=	hockey puck
Medium apple	=	tennis ball

## Digestive Difficulties After Surgery

Your body needs time to heal and adjust to the changes in the digestive process after gastric surgery. By following these guidelines, you will be able to minimize or prevent discomfort.

### Nausea and reflux

Reflux occurs when food comes back up immediately after you have eaten. Unlike vomiting, reflux has no force behind it.

**Vomiting indicates illness, while reflux indicates that you may need to evaluate your eating patterns.**

The main cause for gastric distress is not following the nutrition guidelines specific for gastric banding. Most distress is caused by:

1. Eating or drinking the *wrong type* of food or liquid.
2. Eating or drinking *too much* food or fluid.
3. Eating or drinking *too fast*.
4. *Not chewing* food well enough.

Any problems with nausea or reflux should prompt the following questions and necessary changes to avoid further pain and discomfort:

1. Did I eat my meal in less than 15 minutes?
2. Am I drinking more than 4 ounces in 30 minutes?
3. Did I drink fluids with my meal or too soon before or after the meal?
4. Am I eating more than 4 ounces or ½ cup in 30 minutes?
5. Do I continue eating after I feel full?
6. Am I chewing solid foods until they resemble toothpaste consistency?
7. Did I lie down too soon after my meal?

8. Did I eat hard to digest foods such as tough meat or fresh bread?
9. Am I eating foods that are not allowed according to my current stage of diet advancement?

Repeated vomiting may cause stress on the new stomach and result in irritation or—even worse—rupture of the staple line. If reflux continues, please contact Missouri Bariatric Services.

### Constipation

After surgery, given the drastic change in your eating habits, your bowel habits will change. Be prepared that you will not likely have a bowel movement every day given the reduced intake of food. After surgery it is common to have a bowel movement every two to three days.

If you are struggling with constipation, ensure you are getting adequate fluid (minimum of 64 ounces per day) between meals. Increase your fiber intake as your diet progression allows (fruits, vegetables and whole grains are the best sources of dietary fiber). Getting adequate exercise often helps as well.

If the following suggestions do not resolve the problem, you can consider taking a fiber supplement or flaxseed meal.

### Fiber supplements

Choose a fiber supplement that does NOT use psyllium as a source of fiber. Psyllium causes gas, which is particularly uncomfortable following weight loss surgery. Metamucil® and Fibercon® both use psyllium as a fiber source. Some good choices for fiber supplements include:

- Benefiber® (may be purchased at pharmacies)
- FiberSure® (may be purchased at grocery stores)

- LiquaFiber™ (may be ordered online at [www.globalhp.com](http://www.globalhp.com))

These products can be added to food or liquid without changing taste or consistency.

### Flaxseed

Flaxseed is a good source of heart-healthy omega-3 fatty acids and an excellent source of both insoluble and soluble fiber. Adding 1-2 tablespoons daily to your diet may help with bowel regularity.

If you are interested in adding flaxseed to your diet, start slowly with 1-2 teaspoons daily and be sure to buy flaxseed meal (already ground flaxseed) instead of the whole seeds. It will need to be stored in the freezer to prevent the fat from going rancid. Flaxseed meal may be sprinkled over yogurt, added to cereal, or added to any other food/beverage you consume.

### Gas

Many patients experience gas after surgery. To prevent gas after surgery, follow these guidelines:

- Sip fluids slowly.
- **DO NOT** use straws.
- **DO NOT** drink carbonated beverages.
- Dilute fruit juice 50/50 with water.
- Eat slowly.

Gas may also be caused by foods such as broccoli, cauliflower, cabbage, beans, and onions.

### Food intolerances

Some foods may not be tolerated after weight loss surgery. Foods may make you nauseous or taste or smell different after your surgery. Introduce new foods one at a time so that you know how these foods will taste and if they will be tolerated after surgery. If a healthy, favorite food tastes different to you or does not sit well after surgery, but you want to add it back to your diet, allow another week or two to go by and try the food again. Please note there may be

some foods that you do not tolerate well after surgery.

## Protein Supplements

After surgery you **MUST** use a high quality protein supplement to help you heal and preserve your muscle mass while you continue to lose weight. Several nutritional supplements are available; however you will want to choose a product that is:

- **High in protein**
- **Low in carbohydrates**
- **Low in fat (less than 3 g per serving)**

**DO NOT** use Ensure®, Boost®, Glucerna®, Slim Fast®, etc. These are meal replacements and are too high in carbohydrates, fat, and/or calories.

Protein supplements may be purchased as a powdered drink mix, ready-made shakes, or tasteless odorless powder. For examples, see the list of appropriate protein drinks included in the packet of additional information. This is **NOT** an exhaustive list. Use the rules above to see if a protein drink is acceptable.

**Again, you MUST find two or three protein drinks that you like. You will have to pay for protein drinks. Some are costly, but some are not. Regardless, you must have some protein supplement that you can tolerate.**

**Getting adequate protein is of the utmost importance! It is UNACCEPTABLE to not meet your protein goal**

**Women** need a minimum of **65** grams protein per day.

**Men** need a minimum of **80** grams protein per day.

## Vitamin and Mineral Supplementation Guidelines

When you begin your high protein/low carbohydrate pre-operative liquid diet, begin to take your bariatric vitamin routine you will continue for life. Below you will find Web sites for high quality bariatric-specific vitamins.

Regardless of which product you choose, please follow the instructions on the packaging for dosage. You will have to take your vitamins multiple times per day to receive the best nutrition.

### Metagenics

[www.bxessentials.com](http://www.bxessentials.com)

- BariatrXEssentials multivitamin without iron
- Iron support
- Will need to buy calcium citrate with vitamin D over-the-counter

### Bariatric Advantage

[www.bariatricadvantage.com](http://www.bariatricadvantage.com)

- Complete chewable multivitamin
- Chewable iron: 30 mg
- Sublingual B-12
- Calcium citrate with vitamin D lozenge

### Building Blocks

[www.bbvitamins.com](http://www.bbvitamins.com)

- Multiple chewable
- Iron chew
- Calcium chewable

### Celebrate Vitamins

[www.celebratevitamins.com](http://www.celebratevitamins.com)

- Multivitamin chewable
- Iron + C 30 mg chewable
- Calcium plus chewable

### Vista Vitamins

[www.vistavitamins.com](http://www.vistavitamins.com)

- Chewable wellness formula

- Must get the following over-the-counter:
  - Calcium citrate with vitamin D (such as Citrical®)
  - Iron (in “ferrous fumarate” or “ferrous gluconate” form, such as Vitron C®)
  - Vitamin B-12 (sublingual or as a prescription injection)

### After surgery

Begin taking vitamin supplements when discharged from the hospital. You can take pills after surgery; however, most patients find it easier to tolerate chewable vitamins for the first month.

### Calcium/iron interaction

Calcium and iron cannot be absorbed at the same time. Allow 2 hours between taking these two minerals.

### Additional supplements

Some patients require additional supplements after surgery. Common deficiencies are iron and vitamin D. Your physician will determine your dosage.

## Additional Resources

For support/general information:

- [www.obesityhelp.com](http://www.obesityhelp.com)
- [www.gastricbypassfamily.com](http://www.gastricbypassfamily.com)
- [www.obesity.org](http://www.obesity.org)
- [www.beyondchange-obesity.com](http://www.beyondchange-obesity.com)
- [www.bariatriceating.com](http://www.bariatriceating.com)

---

*This list is provided for educational purposes only. Missouri Bariatric Services is not endorsing any particular service or product listed above.*

---

## Frequently Asked Nutrition Questions

1. **If I am tolerating foods well in my current diet stage, can I jump ahead to the next stage?**

No – the diet progression has been designed to allow time for your “new stomach” to heal and induce appropriate weight loss. Jumping ahead in your meal plan unless your doctor or dietitian recommends it can lead to slowed weight loss and/or poor tolerance to foods.

**2. Can I use spices and condiments on foods as I add them back into my diet?**

Yes – condiments and herbs/spices are a good way to add flavor to foods as long as they are used in moderate amounts. Choose low-fat, low-sugar varieties whenever possible. Spray butter or light spreads are preferred over butter. Low-fat or fat free mayo should be used instead of the full-fat version. Be cautious with overly spicy herbs/condiments the first 6-8 weeks.

**3. I cannot find a protein drink I like; can I just try and get my protein through my foods?**

No – unless you are 2-3 months out from surgery and are getting at least 65 grams of protein a day through food alone. Given the small amount of food your pouch holds immediately after surgery, it is nearly impossible to get adequate protein from your 3 small meals per day. If you are having trouble finding a protein drink you can tolerate, refer to the list of suggested options in your nutrition packet, or call your dietitian for suggestions.

**4. Will I always only be able to eat ½ cup to 1 cup of food per meal?**

No – after surgery your pouch will expand to accommodate 1 to 1½ cups of food per meal. You do not want to speed along this process, though! The first six months after surgery is when you will experience the majority of your weight loss, due in part to your small pouch size. For this reason, only eat until your first sign of fullness—stopping at no

more than ¾ cup total food per meal for at least the first 3 to 6 months after surgery.

**5. I am having trouble tolerating milk after surgery; what should I do?**

Lactose intolerance is not uncommon after bariatric surgery. If using milk for your protein drinks is causing problems, you may use Lactaid® milk or Soymilk as long as it is unflavored and low/fat free. You may also purchase Lactase tablets that will make digesting the milk easier.

**6. I am sick of how my protein drink tastes; can I add flavorings to it to make it taste different?**

Yes – you may add extracts such as peppermint, vanilla, etc., to your protein drinks AS LONG AS THEY DO NOT ADD ANY CALORIES OR SUGAR. Make sure you read the label before adding anything to add flavor to your protein drink

## Shopping List



Listed below are the items you will need to purchase for the first three weeks after surgery. Plan ahead and shop early. As your diet progresses, you can continue to have the foods from previous stages. The items listed below each stage are new “allowed” foods.

### Week one (Stage II)

- Fat-free broth or bouillon
- Coffee
- Tea
- Sugar-free gelatin
- Sugar-free Popsicles®
- Crystal Light®
- Sugar-free Kool-Aid®
- Gatorade®
- Non-carbonated, sugar-free flavored waters (Propel®, Dasani®, Aquafina®, Fruit2O®)

