

Gastroparesis, also called delayed gastric emptying, is a disorder in which the stomach empties slowly. Normally, the stomach contracts to move food down into the small intestine during digestion. This activity is controlled by the vagus nerve. When the vagus nerve is damaged, the stomach muscles do not function normally causing food to move very slowly – or sometimes not at all – through the digestive tract.

### **WHAT CAUSES GASTROPARESIS?**

In many individuals the cause of gastroparesis is unknown; however, the most common cause is diabetes. Individuals with diabetes have high blood glucose (or blood sugar), which can cause chemical changes in nerves and can damage the blood vessels that carry oxygen and nutrients to nerves and other cells in the body. Overtime, the high blood glucose can cause permanent damage to the vagus nerve and thus affect gastric motility (or movement).

Some other causes of gastroparesis include

- Viral infections
- Anorexia nervosa or bulimia
- Gastroesophageal reflux disease
- Certain medications, including narcotics
- Surgery on the stomach or vagus nerve
- Nervous system diseases
- Metabolic disorders, including amyloidosis and scleroderma

#### **Remember the 3 Fs:**

- Small frequent meals
- Low fat foods
- Low fiber intake

### **WHAT ARE THE SYMPTOMS OF GASTROPARESIS?**

The symptoms of gastroparesis may vary from person to person, and symptoms can be frequent or sporadic. For many, eating foods high in fiber, fatty foods, or solid foods may contribute to the symptoms as listed below

- Nausea
- Vomiting
- Pain in upper abdomen
- Abdominal bloating
- Decreased appetite
- Early feeling of fullness after eating a small amount
- Heartburn
- Gastroesophageal reflux
- High and low blood glucose levels
- Muscular spasms in abdomen
- Weight loss due to poor absorption of nutrients

- **Cook all vegetables (see list)**
- **Peel all fruit (see list)**
- **Soups, stews, crock pot style meals**

### **HOW IS GASTROPARESIS TREATED?**

Overall management of the disease is crucial so you can be as comfortable and as healthy as possible. Gastroparesis is a chronic condition, so treatments do not necessarily cure the disease. Rather, they help alleviate symptoms.

Treatment generally relies on:

- Dietary modifications
- Medications that enhance gastric emptying
- Medications that reduce nausea and vomiting

If you have lost a considerable amount of weight due to gastroparesis, a feeding tube may be indicated by your doctor to help you obtain vital calories and nutrients that you have lost, and to help stabilize blood glucose in diabetics.

There are many nutritional energy drinks available which provide a convenient source of calories and nutrients. Most of these beverages are lactose free and offer complete and balanced nutrition when consumed along with foods or additional nutritional beverages. They come in a variety of flavors and formulations, and many provide additional nutrients, protein, and vitamin and minerals. Some are even gluten-free or no sugar added.

Beverage like Ensure® and Boost® provide calories, protein, and fat, and are loaded with essential vitamins and minerals. Originally, these products were only offered in hospitals. However, nowadays they are available in grocery stores and pharmacies. You will find subtle differences between these two nutrition beverages.

The below table can help you compare the nutritional content in some of these popular supplement drinks and help you determine which product might be the right one to meet your nutritional needs.

Name	Website	Serving Size	Calories	Calories from fat	Protein	Total Fat	Sugar	Additional Notes
Boost®	<a href="http://www.boost.com">www.boost.com</a>	8 fl oz	240	35	10 g	4 g	25 g	These values are for the vanilla flavor.
Ensure®	<a href="http://www.ensure.com">www.ensure.com</a>	8 fl oz	250	50	9 g	6 g	16 g	
Glucerna®	<a href="http://www.glucerna.com">www.glucerna.com</a>	8 fl oz	200	60	10 g	10 g	6 g	For diabetic
Carnation® Instant Breakfast	<a href="http://www.carnationbreakfastessentials.com">www.carnationbreakfastessentials.com</a>	325 mL / 10.98 fl oz	250	50	14 g	5 g	31 g	Also, a no-sugar added variety that has <7g sugar
Orgain™	<a href="http://www.drinkorgain.com">www.drinkorgain.com</a>	11 fl oz	255	60	16 g	7 g	12 g	
Slim-Fast®	<a href="http://www.slim-fast.com">www.slim-fast.com</a>	295 mL / 9.98 fl oz	180	50	10 g	6 g	18 g	Most people see Slim-Fast as a diet drink. This is only true if you use it as a meal replacement. If you use it as a supplement, it is similar to the other supplemental drinks.
Boost Glucose Control®	<a href="http://www.boost.com">www.boost.com</a>	237 mL	190		15 g	7 g	4 g	
Fairlife	<a href="http://www.fairlife.com">www.fairlife.com</a>	240 mL	120		13 g	4.5 g	6 g	
Muscle Milk	<a href="http://www.musclemilk.com">www.musclemilk.com</a>	414 mL	220		40 g	2.5 g	1 g	
Premier Protein	<a href="http://www.premierprotein.com">www.premierprotein.com</a>	11 fl oz	160		30 g	3 g	1 g	
Equate		237 mL	250		20 g	6 g	17 g	

## DIETARY FIBER

Dietary fiber is defined as an indigestible carbohydrate. It's classified into soluble and insoluble fiber – each with specific properties and possible health benefits. Soluble fiber dissolves in water and forms a gel when water is added to it. Insoluble fiber absorbs liquid in the intestine and adds bulk to stool. Both types of fiber are important in the diet and have digestive system benefits.

However, fiber can be a double-edged sword for persons with intestinal disorders. Certain high fiber foods, such as bran, may increase gas production and bloating. If you find that fiber is gas producing or seems to be a problem that causes you to feel bloating or pain, it is usually insoluble fiber (mainly found in cereals or whole grains) that is the problem. Soluble fiber, mainly found in vegetables and fruits, is less likely to be a problem.

When adding fiber to the diet, it is best to do so slowly over a period of weeks. If gas or distention occurs, try reducing the dose of fiber and reducing consumption of gas-producing foods, such as beans, cabbage, legumes (e.g., peas, peanuts, soybeans), apples, grapes, and raisins. A physician or registered dietitian can provide individual advice on dietary fiber consumption. Experiment with fresh foods.

The National Academy of Sciences' Institute of Medicine recommends that men and women should limit their fiber to less than 15-18g per day.

### GRAINS, BEANS, NUTS, AND SEEDS

Food	Serving Size	Fiber (g)
Almonds	1 oz	4.2
Bagels	4" bagel	2.0
Barley (pearled), cooked	½ cup	3.0
Black beans, cooked	1 cup	13.9
Bread, raisin	1 slice	1.1
Bread, honey wheat, white, sourdough	1 slice	1.9
Cashews	1 oz	1.0
Flax seeds	3 Tbsp.	6.9
Garbanzo beans, cooked	1 cup	5.8
Kidney beans, cooked	1 cup	11.6
Lentils, red cooked	1 cup	13.6
Lima beans, cooked	1 cup	8.6
Oat bran, cooked	½ cup	2.8
Pasta, whole wheat	1 cup	6.3
Peanuts	1 oz	2.3
Pistachio nuts	1 oz	3.1
Pumpkin seeds	¼ cup	4.1
Quinoa (seeds) dry	¼ cup	6.2
Quinoa, cooked	1 cup	8.4
Rice (brown), cooked	½ cup	1.7
Rice (white, long-grained), instant	½ cup	0.5
Soybeans, cooked	1 cup	8.6
Spaghetti, cooked	½ cup	1.7
Sunflower seeds	¼ cup	3.0
Walnuts	1 oz	3.1

### CEREALS (INCLUDES BRAND NAMES)

Food	Serving Size	Fiber (g)
General Mills Cheerios™	½ cup	1.8
General Mills Golden Grahams™	½ cup	0.6
General Mills Lucky Charms™	½ cup	0.7
General Mills Raisin Nut Bran, Total™ Raisin Bran	½ cup	2.5
General Mills Rice Chex™	½ cup	0.1
General Mills Trix™	½ cup	0.4
General Mills Wheaties™	½ cup	1.5
Kellogg's® All-Bran	½ cup	8.8
Kellogg's® Apple Jacks	½ cup	0.5
Kellogg's® Frosted Flakes	½ cup	0.7
Kellogg's® Frosted Mini-Wheats	½ cup	2.5
Kellogg's® Fruit Loops, Cocoa Krispies	½ cup	0.4
Kellogg's® Raisin Bran	½ cup	3.6
Kellogg's® Special K, Corn Flakes	½ cup	0.3
Quaker® Cap'n Crunch	½ cup	0.3
Quaker® Instant Oatmeal, apples and cinnamon, with boiling water	1 packet	2.7
Quaker® Low Fat Natural Granola with Raisins	½ cup	2.8
Quaker® Oats, honey and raisins	½ cup	4.2
Post® Shredded wheat, plain no sugar	2 biscuits	5.5
Wheatena®, cooked with water	½ cup	3.3
Old fashioned oats (cooked)	½ cup	3.0
Grits	½ cup	2.5

## VEGETABLES (Cooked well)

Food	Serving Size	Fiber (g)
Avocado (fruit)	1 medium	11.8
Beans (navy), cooked	½ cup	9.5
Beans (pinto, black), cooked	½ cup	7.7
Beet greens	1 cup	4.2
Beets, cooked	1 cup	2.8
Bok choy, cooked	1 cup	2.8
Broccoli, cooked	½ cup	2.5
Brussels sprouts, cooked	1 cup	3.6
Cabbage, cooked	1 cup	4.2
Carrots, cooked	½ cup	2.3
Carrots, raw	1 carrot	2.0
Cauliflower, cooked	1 cup	3.4
Celery	1 stalk	1.1
Chickpeas (garbanzo beans), cooked	½ cup	6.2
Cole slaw	1 cup	4.0
Collard greens	1 cup	2.6
Green beans, cooked	½ cup	2.0
Kale, cooked	1 cup	7.2
Lentils, cooked	½ cup	7.8
Lettuce (green leaf), raw	1 cup	0.7
Lettuce (romaine), raw	1 cup	1.2
Mixed Veggies (frozen), cooked	½ cup	4.0
Onions, raw	1 cup	2.9
Peas (frozen), cooked	½ cup	4.4
Peppers, sweet	1 cup	2.6
Popcorn, air-popped	3 cups	3.6
Potato (with skin), baked	1 potato	4.4
Soybeans, cooked	½ cup	3.8
Spinach, cooked	1 cup	4.3
Summer squash, cooked	1 cup	2.5
Sweet corn (on the cob), cooked	1 ear	1.8
Sweet potato, cooked	1 medium	4.9
Swiss chard, cooked	1 cup	3.7
Tomato	1 medium	1.0
Vegetable soup (Progresso™)	1 cup	1.4
Winter squash, cooked	1 cup	6.2
Zucchini	1 cup	3.0

## FRUITS-FRESH AND DRIED (Peeled)

Food	Serving Size	Fiber (g)
Apples, raw	1 apple	5.0
Applesauce (unsweetened)	½ cup	1.5
Apricot	2	1.0
Apricots, dried	¼ cup	2.9
Bananas, raw	1 banana	3.1
Blackberries, raw	½ cup	3.8
Blueberries	½ cup	4.2
Canned fruit in natural juice	½ cup	2.2
Cantaloupe, cubes/melon	½ cup	1.3
Figs, dried	¼ cup	3.7
Grapefruit (pink and red), raw	½ grapefruit	2.0
Grapefruit (white), raw	½ grapefruit	1.3
Orange juice (unsweetened), frozen concentrate	6 fl oz can	1.7
Oranges, raw	1 orange	3.1
Peach	1	2.0
Peaches, dried	¼ cup	3.2
Pears, raw	1 pear	5.1
Plum	2	1.1
Raisins (1 miniature box), seedless	14 g	0.6
Raspberries, raw	2-4	4.0
Strawberries	2-4	4.4

Dietary changes may be needed to help control symptoms of gastroparesis. It is recommended that you meet with a Registered Dietitian to discuss the appropriate diet for your individual needs.

### **BASIC DIETARY GUIDELINES FOR PATIENTS WITH GASTROPARESIS**

- **Small, frequent meals.**

By eating smaller meals, you may not feel as full or bloated and the stomach may empty faster. It's important that the number of meals increase to 4-6 per day in order to maintain adequate nutritional intake.

- **Avoid foods high in fat.**

Fats can delay emptying of the stomach. Eating less fat-containing foods will decrease the amount of time food stays in the stomach. However, fat-containing liquids, such as milkshakes, may be tolerated and provide needed calories.

- **A diet low in fiber is suggested.**

Aim for less than 15-18g of dietary fiber/day. Fiber delays gastric emptying. In addition, fiber may bind together and cause a blockage of the stomach, called a bezoar. Examples of high fiber foods that should be avoided include whole grains and bran, nuts and seeds, legumes, berries, potato peels, apples, coconut, lettuce, and Brussels sprouts. Fiber supplements for treatment of constipation should also be discontinued if possible. Reference our "Dietary Fiber Food List" for fiber content in common foods.

- **Chew food well before swallowing.**

Avoid foods that may not be easily chewed such as broccoli, corn, popcorn, nuts, and seeds. Solid food in the stomach does not empty well. Dental problems, such as missing or broken teeth, may lead to poorly chewed food and add to the problem of inadequate breakdown of food in the stomach.

- **Move more.**

Walking 10-15 minutes after each meal may help with emptying meals from the stomach. Drinking fluids throughout the meal and sitting upright after meals also helps.

- **Supplement.**

A daily multivitamin/mineral supplement can be taken if dietary intake is inadequate.

- **Avoid certain medications.**

Some medications can delay stomach emptying. These include aluminum-containing antacids (Amphojel®); narcotic pain medications (Percocet®, Tylenol® #3, Oxycontin®, etc.); anticholinergic agents (Bentyl, Levsin®, Elavil, etc.); and bulk-forming agents (Metamucil®, Peridium, Fibercon®, etc.).

- **Manage blood sugars.**

If diabetic, maintain good glucose control. Aim for blood sugars <180 mg/dl.

If these measures are ineffective, you may be advised to consume the bulk of your meals as semi-solids or liquids, such as pureed foods or soups. Liquid nutrients are often better tolerated over solid food, and stomach emptying of liquids is often normal in those with gastroparesis.

**GASTROPARESIS-FRIENDLY FOODS**

A food can generally be considered “gastroparesis-friendly” if it’s low in fat, low in fiber, and doesn’t contain indigestible parts (nuts, seeds, skins, peels, etc.)

Examples include:

- Juices, beverages, and milk products (if tolerated)
- Ground or pureed meats
- Creamy peanut, almond, or nut butters
- Cooked, pureed, or strained vegetables
- Skinless/seedless fruits (if necessary, blenderized/strained)
- Low-fiber breads, crackers and cereal (avoid whole grain or bran – use sourdough, rye, honey wheat or white)

**BREAKFAST**

- ½ cup of cream of wheat cereal/oatmeal  
(may sub. any low-fiber breakfast cereal or 2 slices low-fiber bread, bagel, or English muffin)
- ½ cup skim milk (may sub. ½ cup low-fat yogurt, or 1 oz. low fat cheese)
- ½ cup juice (may sub. ½ banana or 1 small peeled, low fiber fruit)
- 1 egg (may sub. 1 oz. low-fat cheese or lean meat)

**SNACK**

- Carnation® Instant Breakfast with skim milk (may sub. nutritional beverage such as Ensure®, Orgain™, or Boost®)
- Diabetics use Glucerna® Boost Glucose Control
- Or homemade smoothie with allowed ingredients

**LUNCH**

- ½ cup vegetable soup (or any low-fat soup, broth or bone broth)
- ½ turkey sandwich on white bread with 1 tsp mayo./mustard (may sub any lean meat and low-fiber bread)
- ½ cup low fiber fruit

**SNACK**

- Same as above snack or may use low-fat cheese and saltines or other ½ of sandwich above
- Turkey, chicken, or lean meat roll-up on ½ flour tortilla

**DINNER**

- 2-3 oz. lean meat, fish, or chicken
- ½ cup mashed potato, rice, sweet potato, or pasta
- 1 Tbsp butter/avocado oil/olive oil
- ½ cup well cooked spinach, zucchini, yellow squash, or french cut green beans
- ½ cup skim milk or low-fat yogurt
- ½ cup applesauce, fruit cocktail, or other canned fruit in natural juices or low fiber fruit

**SNACK**

- ½ cup low-fat cottage cheese or yogurt
- Crackers and 1oz low fat cheese
- 1 Tbsp nut butter with low fiber fruit

This is only a SAMPLE meal plan. You may need to adjust food choices according to your individual tolerances. You may also need to adjust the portion sizes to meet your calorie and protein requirements.

**SMOOTHIES**

Smoothies can be well tolerated by individuals with gastroparesis, and they can be a great source of calories and protein.

- \*\*Use frozen, ripe bananas to add flavor and sweetness to smoothies.
- \*\* Add non-fat dry milk powder as added an added protein source.
- \*\*Use low-fat or fat free Greek yogurt for added thickness and to add calcium and protein.

**BASIC SMOOTHIE RECIPE**

½ small frozen banana  
½ cup skim milk  
½ cup Vanilla Greek style yogurt  
2 oz. non-fat dry milk powder  
Blend all ingredients until smooth

**STRAWBERRY-BANANA SMOOTHIE**

½ cup strawberry Greek yogurt  
½ cup skim milk  
¼ cup orange juice  
1 Tbsp strawberry jam

**VANILLA-PEACH SMOOTHIE**

½ cup vanilla yogurt  
½ cup canned peaches in own syrup  
½ cup skim milk  
Dash vanilla  
Blend in blender until smooth

**TRIPLE-BERRY SMOOTHIE**

6 oz. low fat strawberry yogurt  
6 oz. low fat blueberry yogurt  
6 oz. low fat raspberry yogurt  
½ cup skim milk  
Blend all ingredients until smooth

**FRUITY BLENDS**

Add ½ cup low-fat cottage cheese to blender  
Add ½ cup canned pears or ½ cup canned peaches or ½ cup fruit cocktail.  
Blend until smooth.

**MILKSHAKES**

Milkshakes may come in handy on days when you have no appetite or are feeling nauseous. You still need your nutrition!

**HIGH CAL/HIGH PROTEIN SHAKE**

½ cup ice cream  
1 can Ensure or Boost  
½ frozen banana  
1 cup skim milk  
Put all ingredients into blender and blend until smooth

**CHOCOLATE-PEANUT BUTTER SHAKE**

1 can chocolate Ensure or Boost  
2 Tbsp. smooth peanut butter  
1-1.5 cups vanilla ice cream  
Put all ingredients into blender and blend until smooth

**QUICK-CHOCOLATE SHAKE**

1 pkg. Carnation Instant Breakfast  
8 oz. 2% milk  
1 tsp. chocolate syrup  
Put all ingredients into glass or blender and mix until smooth

The following suggestions may help you reduce nausea and vomiting and allow you to eat adequately until your symptoms subside.

**Nausea**

- Eat small, frequent meals instead of large ones.
- Eat slowly and chew your food thoroughly.
- Avoid eating foods that are fatty, greasy, fried, very sweet, spicy, hot or with strong odors.
- Try eating foods without strong aromas such as toast, crackers, ginger ale, Popsicles®, pretzels, angel food cake, oatmeal, as well as fruits and vegetables that are soft or bland, such as canned peaches or green beans.
- Eat foods at room temperature or cooler. Hot foods may add to nausea.
- Avoid eating in a room that's too warm or has cooking odors that might disagree with you.
- Drink or sip cold/chilled liquids throughout the day, except at mealtimes.
- Drink fewer liquids with meals. Liquids may cause a full, bloated feeling.
- To ease digestion, rest sitting up for about an hour after meals. Avoid lying down for at least 2 hours.
- Avoid eating for 1-2 hours before treatment if nausea occurs during radiation therapy or chemotherapy.
- Ask your doctor about anti-emetics (drugs used to relieve nausea and vomiting).

**Vomiting**

- Do not try to eat or drink anything until the vomiting is under control.
  - Once vomiting is under control, try small amounts of clear liquids. As your body allows, gradually resume your regular diet.
  - If vomiting is severe, frequent or lasts for more than 1-2 days, contact your doctor.
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**Day 1**

**Breakfast**

**Lunch**

**Dinner**

**Snack**

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**Day 2**

**Breakfast**

**Lunch**

**Dinner**

**Snack**

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**Day 3**

**Breakfast**

**Lunch**

**Dinner**

**Snack**

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**Day 4**

**Breakfast**

**Lunch**

**Dinner**

**Snack**

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**Day 5**

**Breakfast**

**Lunch**

**Dinner**

**Snack**

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