



PATIENT & CAREGIVER EDUCATION

Nutrition Guidelines for People With Short Bowel Syndrome

This information will help you maintain your nutrition after your bowel surgery.

About Your Bowels

Your bowels are your small intestine and large intestine (colon). They help your body absorb nutrients from the foods you eat and liquids you drink.

- Your small intestine absorbs carbohydrates, proteins, fats, vitamins, and minerals. It's about 15 to 20 feet long and is divided into 3 sections. The first section is the duodenum, the second is the jejunum, and last section is the ileum. Each section has a specific role in how your body digests and absorbs nutrients.
- Your colon absorbs water and minerals. It's about 5 feet long.

When a part of your bowel is removed, the part that's left can adapt. It does this by absorbing the nutrients and liquids that would've normally been absorbed by the part that was removed. This means that parts of your bowel can be removed without having a major impact on your nutritional health.

However, it takes time for your remaining bowel to adapt. For some time after your surgery, your body may not absorb nutrients, liquids, vitamins, and minerals as well as it did before your surgery.

Short Bowel Syndrome

Short bowel syndrome is a set of symptoms that happen while your remaining bowel adapts after your surgery. You can reduce these symptoms by following the

guidelines in this resource.

People with short bowel syndrome may have:

- Gas
- Cramps
- Diarrhea (loose or watery stools)
- Fluid Loss
- Weight loss

Dietary Guidelines

Follow these guidelines while your bowel is recovering. You can also use the sample menu, located at the end of this resource.

Eat 6 to 8 small meals a day

Eating small, frequent meals will put less stress on your shortened bowel. Small meals help control your symptoms and are easier for your body to digest and absorb.

- Eat slowly and chew your food well.
- Once your bowel has adapted, you can go back to having 3 meals a day.

Only drink ½ cup (4 ounces) of liquids during each meal

Drinking large amounts of liquids with meals pushes your food through your bowel more quickly. This means that you may not digest or absorb enough nutrients.

- Drink most of your liquids between meals, at least 1 hour before or after a meal.

Include enough nutrients in your meals to help you heal.

Your meals should be:

- **High in proteins.** Examples of protein-rich foods include:
 - Fish
 - Poultry (chicken, turkey)
 - Meat (beef, pork, lamb)
 - Eggs
 - Tofu
 - Dairy products (milk, cheese)
 - Smooth peanut butter and other nut butters, such as almond butter
- **High in refined or low-fiber complex carbohydrates (starches).** Examples include:
 - White bread
 - Cereals such as Rice Krispies® and corn flakes
 - Potatoes without skin
 - White rice
 - Pasta
- **Moderate in fats.** Examples of fatty foods are:
 - Oils
 - Butter
 - Margarine
 - Mayonnaise
 - Gravies
 - Cream sauces
 - Regular salad dressings

For example, it's okay to have butter on toast or mayonnaise on a sandwich, but it's better to avoid very high-fat foods such as deep fried foods.

If you had a large section of your ileum removed, you may be able to eat larger amounts of fat at breakfast time better than later on in the day.

- **Low in sugary foods.** Examples of sugary foods are:
 - Sugar (cookies, cakes, candies, chocolate, soda, instant teas, fruit drinks)
 - Corn syrup

- Molasses
- Honey
- Pancake syrup

You can use artificial sweeteners like Splenda® or Sweet N' Low®. However, limit your intake of sugar-free candies or cough drops that contain sugar alcohols such as sorbitol, xylitol, mannitol, and isomalt. Taking large amounts of these may have a laxative effect (make you have a bowel movement).

Include enough liquids in your diet

- Try to drink at least 8 (8-ounce) glasses of liquids each day.
- Avoid very hot or cold drinks.
- Choose drinks that don't have a lot of sugar. This will keep you from getting dehydrated. Examples include water, coffee, tea, milk, or juices diluted with water. Be careful: coffee may have a laxative effect on some people.

If you're lactose intolerant, follow a low-lactose diet

Sometimes, having part of your bowel removed can make you lactose intolerant.

Lactose is a sugar that's found in dairy products. It can cause symptoms such as gas, cramps, and diarrhea. These symptoms usually begin within the first 30 minutes of eating or drinking a dairy product.

- To see if you can tolerate lactose, drink ½ cup of milk. If you have any symptoms, try lactose-free dairy products, such as Lactaid® milk or almond, rice, or soy milk. You can also use Lactaid® tablets or Lactaid® drops before you eat dairy items to help you digest them.
- Some foods have less lactose than others. If you can't drink dairy milk, you can still try cultured yogurt and aged cheeses (for example, hard cheeses such as cheddar and Swiss). If you can eat those, try soft cheeses (for example, cream cheese and cottage cheese). If you're still having symptoms, you may want to avoid all dairy products for 1 or 2 months and then try them again.

Follow a low-oxalate diet

If you had your ileum removed and have an intact colon, you may need to follow a low-oxalate diet. Oxalate is a substance found in many foods and can cause kidney stones. Avoid foods and drinks that are high in oxalates, such as:

- Tea
- Coffee
- Cola drinks
- Chocolate
- Nuts
- Soy products
- Green leafy vegetables
- Sweet potatoes
- Celery
- Berries
- Tangerines
- Rhubarb
- Rutabaga
- Wheat germ

Your doctor or dietitian will discuss this diet with you, if it's necessary.

Fiber

After your surgery, you may find that fiber, especially insoluble fiber, is hard to digest. Insoluble fiber is found mainly in whole-grain and bran products. It doesn't break down in water and your body can't break it down, so it makes stool (feces) more bulky.

Soluble fiber is usually tolerated better because it breaks down in water and can be broken down by your body. It also helps slow digestion. Foods with soluble fiber include:

- Oatmeal
- Oat bran
- Barley
- Soy
- Nut butters
- Fruit
- Fruit Pectin
- Psyllium (fiber supplement)*
- Legumes
 - Chickpeas
 - Lima beans
 - Kidney beans
 - Lentils

*Check with your doctor before taking any fiber supplements.

Many foods contain a mixture of both soluble and insoluble fibers. Use the list below as a guide.

Foods to Include	
<p>Foods with soluble fiber, such as:</p> <ul style="list-style-type: none"> • Canned fruit • Fresh fruit without skins, peels, membranes, or seeds • Smooth peanut butter and other nut butters • Oatmeal and other oat products • Barley • Legumes (such as chickpeas, lima beans, kidney beans, and lentils). Be careful; legumes may cause gas. Start by trying small, 1/4-cup servings. 	<p>Foods with low fiber, such as:</p> <ul style="list-style-type: none"> • Puffed wheat, puffed rice, corn flakes, Special K[®], and other cereals containing 1 gram or less of fiber per serving • Cream of wheat or rice • Farina • White rice • White bread, matzoh, and Italian bread without seeds • Regular pasta (not whole wheat) • Baked or mashed potatoes without skin

Foods to Avoid	
<p>Foods with insoluble fiber, such as:</p> <ul style="list-style-type: none"> • Whole-wheat and whole-grain breads, crackers, cereals, and other products • Wheat bran 	<p>Foods that are hard to digest, such as:</p> <ul style="list-style-type: none"> • Whole nuts, seeds, and coconut • Fruit skins, peels, and seeds • Dried fruits

Vegetables

You will probably have trouble digesting raw vegetables after your surgery. Start by eating small amounts (1/2 cup) of well-cooked vegetables from the “Usually Well-Tolerated” column in the table below. Be sure to chew them well. If you can tolerate the cooked vegetables, you can try small amounts of them raw.

Avoid vegetables that cause gas or discomfort.

Usually Well-Tolerated	May Cause Gas or Discomfort
<ul style="list-style-type: none"> • Carrots • Green beans • Spinach • Beets • Potatoes without skin • Asparagus tips • Lettuce • Cucumbers without skin or seeds • Tomato sauce and tomatoes without skin or seeds • Squash without skin or seeds 	<ul style="list-style-type: none"> • Onions • Cauliflower • Broccoli • Cabbage • Brussels sprouts • Legumes, such as lentils, chickpeas, lima beans, and kidney beans • Corn • Kale • Peas

Vitamin and Mineral Supplements

You're probably not eating some of the foods you did before your surgery. To make sure you get all of the vitamins and minerals you need, it may be a good idea to take 1 multivitamin each day. The multivitamin should have the recommended daily allowance (RDA) for vitamins and minerals.

You may also need more of specific vitamins or minerals. Ask your doctor or dietitian what you should take. Examples include:

- Vitamins A, D, and E
 - You may need water-soluble forms of vitamins A, D, and E. This is rare and happens only if a large portion of your ileum was removed.
- Vitamin B12
 - If the last part of your ileum was removed, you will need to have injections (shots) of vitamin B12 every 1 to 3 months.
- Calcium
 - You may need extra calcium, especially if most of your ileum was removed and most of your colon was left intact.
- Potassium

- If you're having a lot of diarrhea, your potassium levels may go down. Ask your doctor if you should eat foods that are high in potassium. These include oranges, potatoes, tomatoes, and bananas.
- Don't take potassium supplements without talking to your doctor first. They can affect your heart rate, which can be dangerous.
- Zinc
 - If you're having a lot of diarrhea, ask your doctor if you should take a zinc supplement.

Oral rehydration solution

- If you're having a lot of diarrhea, your doctor may recommend that you drink an oral rehydration solution. This will give you back the liquid, sodium, and potassium that are lost with your bowel movements.
- You can buy an oral rehydration solution (such as Hydralyte®) from your local pharmacy without a prescription, or you can make your own.
 - This isn't the same as sports drinks (such as Gatorade®), which don't have the same amount of nutrients.

Liquid nutritional supplements

- If you're losing weight, a high-calorie liquid nutritional supplement may be helpful. However, depending on your surgery, some supplements may not be right for you. This is mainly because they have a high sugar content.
- Your doctor or dietitian may recommend a special supplement for you that's low in sugar and has ingredients that are "pre-digested" so they're easier to absorb. They may also recommend medium chain triglycerides (MCT), a type of fat that's easy to digest for extra calories. Always ask your doctor or dietitian before taking a supplement.
- If you can eat or drink dairy products, try the recipe in the "Fortified Milk Recipe" section. It increases the amount of calories and protein in your diet.

Fortified Milk Recipe

1. Mix 1 quart (4 cups) of milk with $1\frac{1}{3}$ cup of instant powdered milk (usually 1 envelope).
 - You can use any kind of milk (such as whole, 2%, 1%, skim, or Lactaid® milk).
2. Blend the ingredients well.
3. Keep refrigerated.

This makes about 4 servings of fortified milk.

Nutritional value for every 8-ounce serving if mixed with:

- Whole milk: 230 calories, 16 grams of protein
- 2% milk: 200 calories, 16 grams of protein
- 1% milk: 180 calories, 16 grams of protein
- Skim milk: 160 calories, 16 grams of protein

Food Diary Guidelines

Keeping a food diary is a helpful way to find out what foods are best for you. Keep a food diary with the following information:

- The time you ate the meal, snack, or drink
- The name of the food item or drink
- The amount of the food or drink you had
- Any symptoms you had

If you have an ileostomy or colostomy, it's also helpful to record your output from your stoma. Measure the amount of stool in your bag for 1 week. Measure it each time you change or empty the bag. Then, if it's about the same each day, measure it once a month for 1 or 2 days. Write down the amount of output and bring this information with you to your appointments.

If you see a change in the consistency of the stool, measure it more often and tell your doctor.

Contact Information

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

Sample Menu

Breakfast: 7:00 AM <ul style="list-style-type: none">• 1 hard-boiled egg• 1 slice of white toast• 1 pat (about 1 teaspoon) of butter• 1 teaspoon of sugar-free fruit spread• ¼ cup of orange juice mixed with ¼ cup of water	Liquid break: 8:30 AM <ul style="list-style-type: none">• 1 cup of fortified milk (see the recipe above)
Mid-morning snack: 10:00 AM <ul style="list-style-type: none">• 1 ounce of cheddar cheese• 6 saltine crackers• ½ cup of fortified milk	Liquid break: 11:30 AM <ul style="list-style-type: none">• ½ cup of juice mixed with ½ cup of water
Lunch: 1:00 PM <ul style="list-style-type: none">• 2 ounces of turkey on ½ of a white roll• 2 teaspoons of mayonnaise• ½ cup of tomato juice	Liquid break: 2:30 PM <ul style="list-style-type: none">• 1 cup of water
Mid-afternoon snack: 4:00 PM <ul style="list-style-type: none">• 8 ounces of light or sugar-free yogurt	Liquid break: 5:30 PM <ul style="list-style-type: none">• 1 cup of fortified milk

Dinner: 7:00 PM	Liquid break: 8:30 PM
<ul style="list-style-type: none"> • 2 ounces of grilled chicken • 1/2 cup of mashed potatoes • 1/2 cup of cooked green beans • 2 teaspoons of butter • 1/2 cup of water 	<ul style="list-style-type: none"> • 1/2 cup of juice mixed with 1/2 cup of water

Evening snack: 10:00 PM
<ul style="list-style-type: none"> • 2 melba toasts with 1 tablespoon of peanut butter • 1/2 cup of fortified milk

For more resources, visit www.mskcc.org/pe to search our virtual library.

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