



# VIVEK PATIL, MD

COLORECTAL SURGERY OF MARYLAND AND WASHINGTON, DC

## What is dietary fiber?

The major function of the colon is to absorb water and change the liquid stool that enters from the small intestine to a solid stool that is excreted out. Fiber, the indigestible portion of plants and grains that we eat, holds fluid in the stool and allows for the smooth passage of bowel movements. If one is constipated, fiber softens the stool and if one has loose stools, fiber bulks it up to a normal consistency. A diet high in fiber is a factor in preventing such health problems as cancer of the colon and rectum, diverticular disease of the colon, hemorrhoids, anal fissures, constipation, high cholesterol, coronary artery disease, and obesity.

When a diet high in fiber is ingested, a large, soft stool forms and passes quickly through the bowels, without abnormal pressure and without alteration of the bacteria flora. Fiber can stimulate the smooth, efficient working of the bowel because it is able to absorb many times its weight in water. It acts like a sponge in the large intestine, by drawing water in the feces and making the stool larger and easier to pass. When the fiber is removed from the diet, the stool is small and hard so that the colon has to squeeze to move it along.

A high-fiber diet is generally accepted as 25-30 grams of ingested fiber daily. This ideally would be obtained through the foods one eats (see below) but fiber supplements can also be utilized to achieve this goal. Fiber supplements function in the same way as dietary fiber and bran. They are taken by mouth once or twice a day and are not absorbed. Most of these products contain psyllium, which is a seed product. Some examples are Metamucil, Benefiber, Konsyl, and Citrucel and can be found in powder or tablet form. Each brand is slightly different so if you are having trouble tolerating the supplement due to bloating or gas, try a different brand.

Examine your daily diet and calculate roughly how much fiber you eat. If it is less than 25-30 grams, add fiber supplements (each serving generally contains 3 grams of fiber) until you reach the goal. Over time, increase the amount of grains, fruits, and vegetables you eat and phase out the fiber supplements. The idea is to eventually obtain all 25-30 grams via food. Dietary fibers intake should be increased gradually, since too much too quickly can cause diarrhea and bloating. A slow gradual substitution of high-fiber for low-fiber foods will become a more lasting way of eating.

Since the major function of fiber is to hold fluid in the stool, it is important to drink enough water and other liquids during the day, at least 6 to 8 glasses of water

and other liquids. Like a sponge, fiber will become hard and stiff if it dries out and does not have enough water in it.

It is ideal to have a bowel movement daily but it is not a necessity. Normal bowel function is a range of having up to three bowel movements daily to having one movement every three days. If you are having difficulty producing a bowel movement, do not force it. Straining increases the pressure on the rectum and will worsen such conditions as hemorrhoids and fissures. Additionally, reading on the toilet unnecessarily prolongs the time spent in the bathroom and also increases the pressure on the rectum. Do not spend more than a few minutes at a time in the bathroom.

### **Where to find fiber**

Dietary fiber is an essential part of the human diet. The most common source of fiber in our diets is whole grains, fruits and vegetables. In addition, pectins, gums and mucilages are commonly used as additives in processed foods as thickening agents to improve texture and consistency. The type of fiber ingested is also important. For example, bran has no beneficial effect on cholesterol levels. But pectins (found in fruits), guar gum (found in beans) and the fiber in rolled oats and carrots can lower cholesterol.

High fiber foods are bulkier and require more chewing, thereby producing the feeling of fullness sooner than eating low-fiber foods. Also, since it absorbs water as it passes through your digestive tract, fiber is filling, and you are more likely to feel full before you've over-stepped your calorie quota. People on this diet tend to excrete more fat from their bodies.

Many *vegetables and fruits* have high fiber content. These include broccoli, brussels sprouts, cabbage, cauliflower, beets, sweet potatoes, carrots, berries, tomatoes, eggplant and squash. Raw fruits and vegetables have more useful fiber than those that have been pureed, peeled, cooked or otherwise processed, so be sure to eat fresh fruits and raw vegetables daily.

*Cereal fiber* is found in whole grains and bran. In breakfast cereals, the largest amounts of fiber are found in those with "bran" in their names. The fiber content is sometimes indicated on the label. Bran, one of the richest and most common sources of food fiber, is simply the outermost layer of the grain, seed, or kernel. This part of the seed also contains a major share of the nutrients in grain including vitamins and minerals. Dietary fiber from whole wheat cereals is one of the oldest and most relied-upon sources of food fiber in the country.

*Commercial, 100% whole-wheat breads* are good sources of fiber. So are homemade whole-grain wheat-flour breads, whole-grain flour pancakes, muffins made with whole ground cornmeal or a combination of whole-wheat flour and bran

cereal. Other sources include oatmeal, brown rice and buckwheat oats. But there is little fiber in white rice or in white breads and baked goods.

Make sure you consume a wide variety of fibrous foods in reasonable amounts. Don't focus on one type of fiber and neglect the rest. Whole grains may be the answer for a sluggish gut and any type should help with weight control, but pectins and gums are important for how the body handles fats, cholesterol and carbohydrates.

The USDA website contains helpful tips on fiber and the types of foods that contain it: <http://fnic.nal.usda.gov/consumers/eating-health/fiber>. Also, some examples are listed below:

## High-fiber Foods

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### **Fruit Group:**

Each serving has approximately two grams of fiber. Eat four or more daily.

Apples, 1 small	Cherries, 10 large
Pear, 1/2 small	Banana, 1 small
Orange, 1 small	Plums, 2 small
Strawberries, 1/2 cup	Peach, 1 medium

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### **Bread and Cereal Group:**

Each serving has approximately two grams of fiber. Eat four or more daily

Whole wheat bread, 1 slice	Grape-Nuts, 3 tbsp
Oatmeal, dry, 3 tbsp	Rye bread, 1 slice
Raw Bran or Miller's Bran, 1 tbsp	Corn Flakes, 1 cup
Cracked wheat bread, 1 slice	Shredded Wheat, 1/2 biscuit
	Puffed Wheat, 1/2 cup

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### **Vegetable Group:**

Each serving has approximately two grams of fiber. All are cooked portions, unless otherwise indicated. Eat four or more a day.

Broccoli, 1/2 stalk  
Potato, 2" diameter  
Lettuce, raw, 2 cups  
Carrots, 1/3 cup  
Celery, 1 cup

Corn on the cob, 2"  
Brussel sprouts, 4  
Tomato, raw, 1 medium  
Green beans, 1/2 cup  
Baked beans, canned, 2 tbsp

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**Miscellaneous Group:**

Each serving has approximately one gram of fiber.

Peanut butter, 2 tsp  
Peanuts, 10

Pickle, 1 large  
Strawberry jam, 5 tbsp

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