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Patient education: High-fiber diet (Beyond the Basics)

Author: Arnold Wald, MD
Section Editor: David Seres, MD
Deputy Editor: Shilpa Grover, MD, MPH, AGAF

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HIGH-FIBER DIET OVERVIEW

Eating a diet that is high in fiber has many potential health benefits, including a decreased risk of heart disease, stroke, and type 2 diabetes. Because high-fiber foods may be healthy for reasons other than their fiber content, the research has not always been able to determine if fiber is the healthful component. A high-fiber diet is a commonly recommended treatment for digestive problems, such as constipation, diarrhea, and hemorrhoids, although individual results vary widely, and the scientific evidence supporting these recommendations is weak.

Fiber is normally found in beans, grains, vegetables, and fruits. However, most people do not eat as much fiber as is commonly recommended. This topic discusses what fiber is, why it is helpful, and how to increase dietary fiber.

WHAT IS FIBER?

There is no single dietary "fiber." Traditionally, fiber was considered that substance found in the outer layers of grains or plants and which was not digested in the intestines. Wheat bran, the outer layer of wheat grain, fit this model. We now know that "fiber" actually consists of a number of different substances. The term "dietary fiber" includes all of these substances and is now considered a better term than just "fiber."

Most dietary fiber is not digested or absorbed, so it stays within the intestine where it modulates digestion of other foods and affects the consistency of stool. There are two types of fiber, each of which is thought to have its own benefits:

- Soluble fiber consists of a group of substances that is made of carbohydrates and dissolves in water. Examples of foods that contain soluble fiber include fruits, oats, barley, and legumes (peas and beans).
- Insoluble fiber comes from plant cell walls and does not dissolve in water. Examples of foods that contain insoluble fiber include wheat, rye, and other grains. The traditional fiber, wheat bran, is a type of insoluble fiber.
- Dietary fiber is the sum of all soluble and insoluble fiber.

BENEFITS OF A HIGH-FIBER DIET

The health effects of a high-fiber may depend to some extent on the type of fiber eaten. However, the difference between the health effects of the two types of fiber are not very clear and may vary between individuals, so many providers encourage adding fiber in whatever way is easiest for the patient.

There are several potential benefits of eating a diet with high-fiber content:

- Insoluble fiber (wheat bran, and some fruits and vegetables) has been recommended to treat digestive problems such as constipation, hemorrhoids, chronic diarrhea, and fecal incontinence. Fiber bulks the stool, making it softer and easier to pass. Fiber helps the

stool pass regularly, although it is not a laxative. (See "Patient education: Constipation in adults (Beyond the Basics)" and "Patient education: Hemorrhoids (Beyond the Basics)" and "Patient education: Chronic diarrhea in adults (Beyond the Basics)".)

- Soluble fiber (psyllium, pectin, wheat dextrin, and oat products) can reduce the risk of coronary artery disease and stroke by 40 to 50 percent (compared to a low fiber diet) [1,2].
- Soluble fiber can also reduce the risk of developing type 2 diabetes. In people who have diabetes (type 1 and 2), soluble fiber can help to control blood glucose levels.
- It is not clear if a high-fiber diet is beneficial for people with irritable bowel syndrome or diverticulosis. Fiber may be helpful for some people with these diagnoses while it may worsen symptoms in others.

HOW MUCH FIBER DO I NEED?

The recommended amount of dietary fiber is 20 to 35 grams per day. By reading the nutrition label on packaged foods, it is possible to determine the number of grams of dietary fiber per serving (figure 1).

Dietary sources of fiber — The fiber content of many foods, including fruits and vegetables, is available in the table (table 1). Breakfast cereals can be a good source of fiber. Some fruits and vegetables are particularly helpful in treating constipation, such as prunes and prune juice.

Other sources of fiber — For those who do not like high-fiber foods such as fruits, beans, and vegetables, a good source of fiber is unprocessed wheat bran; one to two tablespoons can be mixed with food. One tablespoon of wheat bran contains approximately 1.6 grams of fiber.

In addition, a number of fiber supplements are available. Examples include psyllium, methylcellulose, wheat dextrin, and calcium polycarbophil. The dose of the fiber supplement should be increased slowly to prevent gas and cramping, and the supplement should be

taken with adequate fluid. The fiber in these supplements is mostly of the soluble type.

FIBER SIDE EFFECTS

Adding fiber to the diet can have some side effects, such as abdominal bloating or gas. This can sometimes be minimized by starting with a small amount and slowly increasing until stools become softer and more frequent.

However, many people, including those with irritable bowel syndrome, cannot tolerate fiber supplements and do better by not increasing fiber in their diet. (See "Patient education: Irritable bowel syndrome (Beyond the Basics)".)

WHERE TO GET MORE INFORMATION

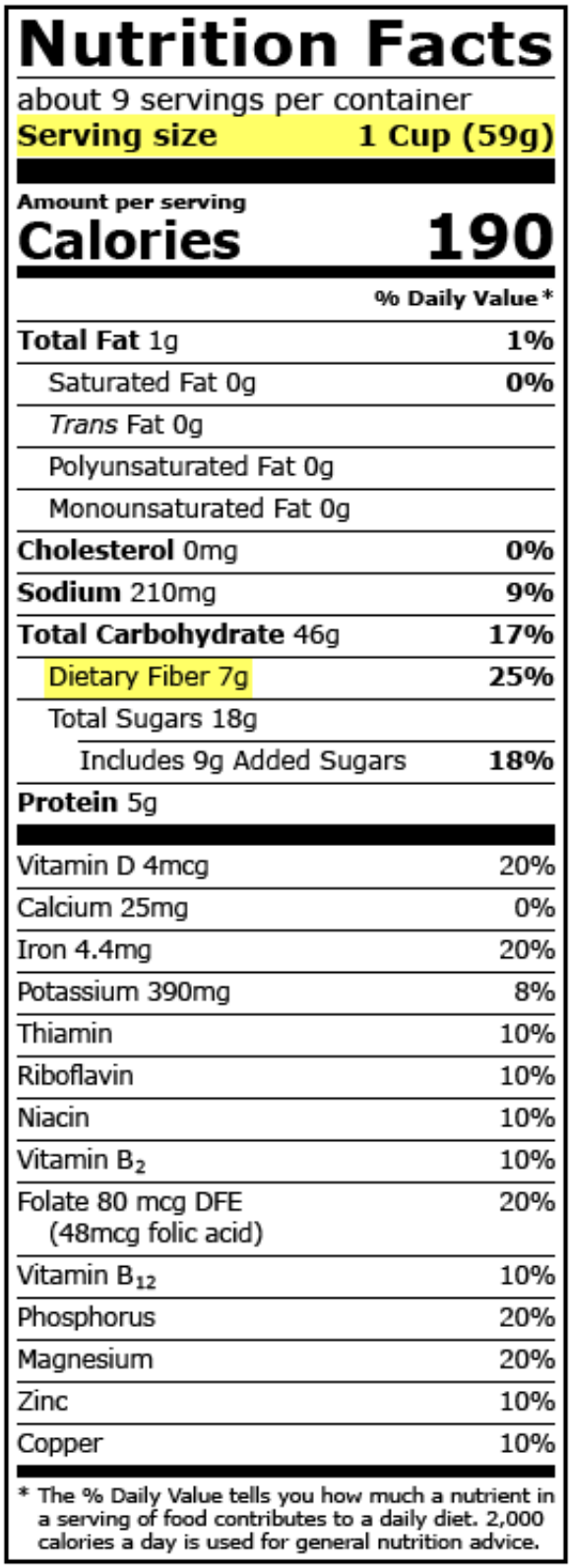
Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

Patient education: High-fiber diet (The Basics)
Patient education: Managing loss of appetite and weight loss with cancer (The Basics)
Patient education: Diet and health (The Basics)
Patient education: Fecal incontinence (The Basics)
Patient education: Diabetes and diet (The Basics)
Patient education: Rectal prolapse in adults (The Basics)
Patient education: Colostomy care (The Basics)



Nutrition Facts

about 9 servings per container

Serving size **1 Cup (59g)**

Amount per serving

Calories **190**

	% Daily Value*
Total Fat 1g	**1%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Polyunsaturated Fat 0g	
Monounsaturated Fat 0g	
Cholesterol 0mg	**0%**
Sodium 210mg	**9%**
Total Carbohydrate 46g	**17%**
Dietary Fiber 7g	**25%**
Total Sugars 18g	
Includes 9g Added Sugars	**18%**
Protein 5g	
Vitamin D 4mcg	20%
Calcium 25mg	0%
Iron 4.4mg	20%
Potassium 390mg	8%
Thiamin	10%
Riboflavin	10%
Niacin	10%
Vitamin B_2	10%
Folate 80 mcg DFE (48mcg folic acid)	20%
Vitamin B_{12}	10%
Phosphorus	20%
Magnesium	20%
Zinc	10%
Copper	10%

* The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

This is an example of a nutrition label. To figure out how much fiber is in a food, look for the line that says "Dietary Fiber." It's also important to look at the serving size. This food has 7 grams of fiber

Amount of fiber in different foods

Food	Serving	Grams of fiber
Fruits		
Apple (with skin)	1 medium apple	4.4
Banana	1 medium banana	3.1
Oranges	1 orange	3.1
Prunes	1 cup, pitted	12.4
Juices		
Apple, unsweetened, with added ascorbic acid	1 cup	0.5
Grapefruit, white, canned, sweetened	1 cup	0.2
Grape, unsweetened, with added ascorbic acid	1 cup	0.5
Orange	1 cup	0.7
Vegetables		
Cooked		
▪ Green beans	1 cup	4.0
▪ Carrots	1/2 cup sliced	2.3
▪ Peas	1 cup	8.8
▪ Potato (baked, with skin)	1 medium potato	3.8
Raw		
▪ Cucumber (with peel)	1 cucumber	1.5
▪ Lettuce	1 cup shredded	0.5
▪ Tomato	1 medium tomato	1.5
▪ Spinach	1 cup	0.7
Legumes		
▪ Baked beans, canned, no salt added	1 cup	13.9

▪ Kidney beans, canned	1 cup	13.6
▪ Lima beans, canned	1 cup	11.6
▪ Lentils, boiled	1 cup	15.6
Breads, pastas, flours		
Bran muffins	1 medium muffin	5.2
Oatmeal, cooked	1 cup	4.0
White bread	1 slice	0.6
Whole-wheat bread	1 slice	1.9
Pasta and rice, cooked		
▪ Macaroni	1 cup	2.5
▪ Rice, brown	1 cup	3.5
▪ Rice, white	1 cup	0.6
▪ Spaghetti (regular)	1 cup	2.5
Nuts		
Almonds	1/2 cup	8.7
Peanuts	1/2 cup	7.9

To learn how much fiber and other nutrients are in different foods, visit the United States Department of Agriculture (USDA) FoodData Central website.

Data from: USDA FoodData Central. Available at: https://fdc.nal.usda.gov/ (Accessed on October 11, 2019).

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