

### Dietary Fiber Facts

You've probably heard that eating a fiber-rich diet is good for you. But you may be asking "why?" Read on to learn about dietary fiber, its potential contributions to health and practical ways to add fiber to your healthful eating plan.

#### Dietary Fiber Facts

Simply put, dietary fiber is the part of plant foods that our bodies don't digest or absorb. It is naturally found in grains, vegetables, legumes (e.g., dried peas, beans and lentils), fruits, nuts and seeds; it can also be added to foods. There are two major types of dietary fiber: *insoluble* and *soluble*. Each type is important for health, but each works differently in our bodies.

Because *insoluble fibers* are not digested and don't dissolve in water, they increase stool bulk passing through the intestines. When eaten as part of a healthful diet, insoluble fibers help avoid constipation and promote normal passage of waste products from the body. Foods such as whole wheat breads, cereals and crackers; wheat, oat and corn bran; most fruits and vegetables; and nuts and seeds contain insoluble fibers.

*Soluble fibers* dissolve in water and form gels. These gels pass through the digestive tract, trapping some fatty substances and preventing them from being absorbed and released into the bloodstream. This can help lower blood cholesterol. For example, research has shown that eating 5 to 10 grams of soluble fiber per day can help lower low-density lipoproteins (LDL-cholesterol—the so-called "bad" cholesterol) by about 3% to 5%. Soluble fibers also slow stomach-emptying time so that glucose (the basic building block of simple and complex carbohydrates) is released and absorbed more slowly. Soluble fiber is found in fruits and vegetables (e.g., apples, oranges and carrots), legumes and some cereal grains (e.g., oatmeal and barley).

Both *insoluble* and *soluble* dietary fibers help maintain a healthy digestive system. Fiber in the large intestine serves as an energy source for the naturally-present friendly bacteria that assist with normal digestion. Fermentation of fiber promotes the growth of additional beneficial bacteria, which helps maintain a desirable balance of bacteria within the large intestine.

#### Potential Health Links with Dietary Fiber

The potential benefits of dietary fiber on health have been



studied for many years. While more research is needed, the following mechanisms have been suggested to explain the relationship of dietary fiber to health.

#### Dietary Fiber and Coronary Heart Disease:

In the US, coronary heart disease is the leading cause of death among both men and women. It often results from a build-up of "plaque" (fatty deposits) within the heart's arteries. Studies find that adequate intake of soluble fiber helps lower blood cholesterol levels (specifically LDL-cholesterol) that are linked to plaque formation. This positive effect is also associated with other healthy lifestyle habits, such as regular physical activity, weight-loss, not smoking and eating a healthful diet that is low in saturated fat and cholesterol.

**Dietary Fiber and Colon Cancer:** Overall, research in the US has shown little effect of dietary fiber on colon cancer risk. Possible mechanisms suggested for a protective effect include dilution of potentially harmful bacteria in the large intestines and a shorter transit time of waste products in the intestines. While more research is needed to understand whether or not there is a link between intake of dietary fiber and risk of colon cancer, health experts continue to recommend eating a diet rich in fiber-containing fruits, vegetables and whole grains.

**Dietary Fiber and Diabetes:** Type 2 diabetes is the most common form of the disease. It is characterized by the inability to properly use insulin (a hormone that regulates the body's use of glucose) or by lack of insulin. Viscous or soluble fibers slow digestion, which can benefit blood glucose levels.

**Dietary Fiber and Satiety:** Eating a fiber-rich meal slows digestion, so that nutrient absorption occurs over a longer period of time, and thereby promotes a feeling of satiety (having eaten enough to feel satisfied). Diets with the recommended amounts of fiber-rich plant foods are also usually lower in calories, higher in volume, often lower in fat and more nutrient dense than low-fiber diets. Eating fiber-rich foods such as raw veggies or fresh fruits also often takes longer, allowing time for the body to realize that it's satisfied.

#### How Much Dietary Fiber?

The Institute of Medicine and the 2010 Dietary Guidelines for Americans (DGA) recommend that most healthy people get between 19-38 grams of dietary fiber daily, depending on age and

gender, (or about 14 grams of dietary fiber per 1000 calories). This amount is about twice what a typical American eats in a day. To get the recommended amounts, experts advise eating at least 2-1/2 cups vegetables, 2 cups fruit and 3 servings of whole-grain foods (1 serving = 1 slice whole-grain bread, 1 ounce ready-to-eat whole-grain cereal, 6 whole-grain crackers or 1/2 cup whole wheat pasta or brown rice) each day, as well as choosing legumes several times per week.

The Nutrition Facts Panel on food labels lists how much fiber is in a serving of a product. Look for the term “dietary fiber” and check the number of grams in a serving. Foods that supply between 2.5 grams and 5 grams of dietary fiber per serving are *good sources*; those that supply 5 grams or more are *excellent sources*. You’ll also see the amount of dietary fiber per serving expressed as Percent Daily Value (% DV), which helps you see how a food fits into your overall daily food choices [i.e., whether it supplies a little ( $\leq 5\%$ ) or a lot ( $\geq 20\%$ ) of dietary fiber or other important nutrients].

### Fitting in Fiber

If you’re coming up short on dietary fiber, select a variety of fiber-containing foods to get both insoluble and soluble fibers. Here are ten ways to get started:

1. Break-the-fast with *whole-grain cereal* topped with *blueberries*.
2. Pack an *apple, orange or banana* for a mid-morning snack.
3. Spread *whole-grain crackers* with *hummus* (chickpea spread).
4. Serve a bowl of *lentil or split-pea soup* with a sandwich for a quick main dish.
5. Stir drained *canned beans* or *cooked whole-grain barley* into soups and stews.

6. Make sandwiches on *whole-grain bread* or *rolls*; layer on *roasted red peppers, baby spinach* and *shredded carrots*, too.
7. Add *colorful veggies* to chicken or beef stir-fries and serve over *brown rice*.
8. Enjoy *whole-wheat pasta* with your favorite sauce and a *mixed-green salad*.
9. Double *veggies* at dinner: add a starter of *baby carrots* to your usual fare; serve two *veggies*; offer a *vegetable + salad*; try a main dish salad with a variety of *greens, veggies* and/or *fruits*.
10. Offer *fruit* (fresh, frozen, canned in juice or dried) as a delicious and nutritious dessert.

### Practical Pointers:

When eating a fiber-rich diet, consider these points:

- Drink plenty of fluids (water is best); fiber needs water to do its work in the body.
- Increase intake of fiber gradually to avoid abdominal discomforts like bloating, cramps or diarrhea.
- While not an issue for most people, eating *very* high amounts of dietary fiber can decrease absorption of key nutrients such as calcium, iron and zinc.

Good nutrition is an important part of a healthy lifestyle. But making one dietary change, such as eating more fiber, is just one piece of the healthy eating puzzle. The good news is that eating more whole grains, vegetables, legumes, fruits, nuts and seeds not only helps you get more fiber, but also the important vitamins, minerals and other healthful dietary components these foods supply. Choosing nutrient-rich foods allows you to get the most nutritional benefit for the calories you eat.

### Examples of Amounts of Dietary Fiber in Some Foods

Food	Serving Size	Dietary Fiber (grams)	Calories/Servings
Black beans, lentils, split peas (cooked)	1/2 cup	8	110
Whole-wheat spaghetti (cooked)	1 cup	6	170
Bran flakes	3/4 cup	5	100
Apple (with skin)	1 medium	4	100
Blueberries	1 cup	4	80
Sweet potato (baked in skin)	1 medium	4	110
Whole-wheat crackers	6 crackers	3	120
Carrots (sliced, cooked)	1/2 cup	2	25
Long-grain brown rice (cooked)	1/2 cup	2	110
Whole-wheat bread	1 slice	2	70-90

Source: USDA National Nutrient Database for Standard Reference (Data are rounded.)

