

This article originally appeared in the July-August 1997 *FDA Consumer* and contains revisions made in September 1998.

Bulking Up Fiber's Healthful Reputation

More Benefits of 'Roughage' Are Discovered

by Ruth Papazian

Because it causes gas, bloating, and other uncomfortable side effects, fiber may be the Rodney Dangerfield of food constituents. But with more and more research showing that a high-fiber diet may help prevent cancer, heart disease, and other serious ailments, roughage has started to get some respect.

The problem is that most Americans don't get enough fiber to realize its potential benefits. The typical American eats only about 11 grams of fiber a day, according to the American Dietetic Association. Health experts recommend a minimum of 20 to 30 grams of fiber a day for most people.

The Food and Drug Administration has recognized fiber's importance by requiring it to be listed on the Nutrition Facts panel of food labels along with other key nutrients and calories. And, based on scientific evidence, the agency has approved four claims related to fiber intake and lowered risk of heart disease and cancer.

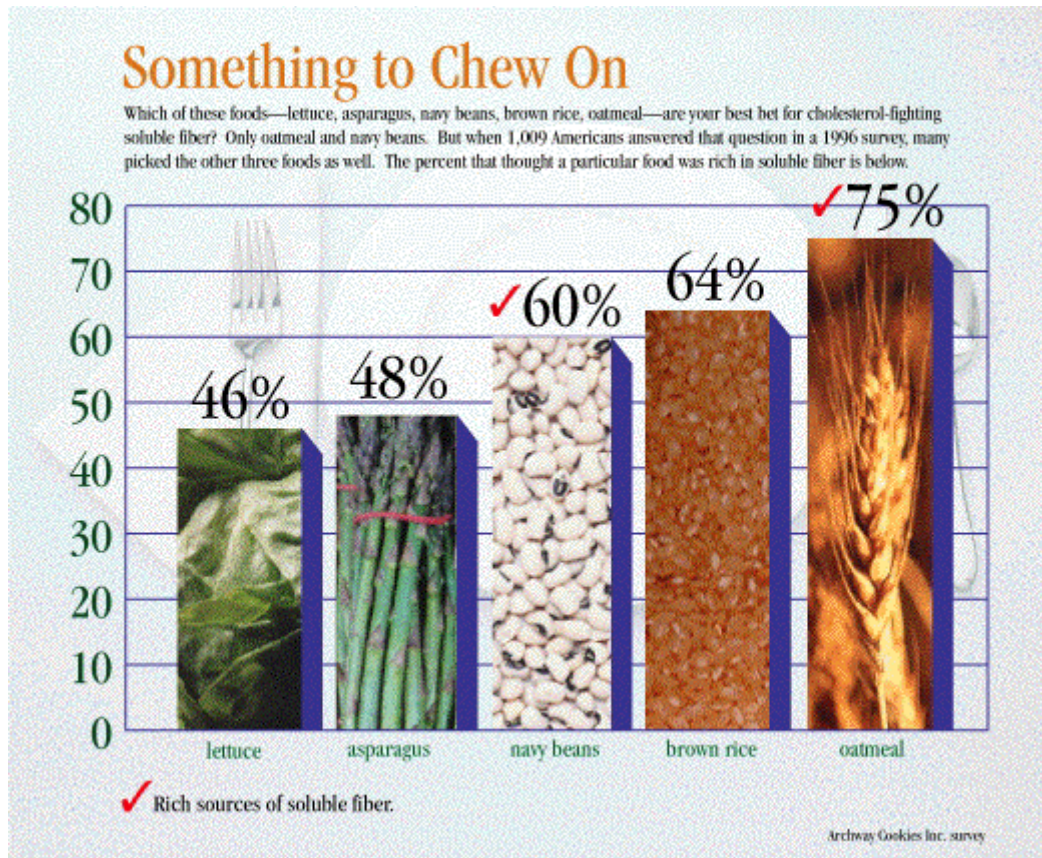
One claim states that dietary soluble fiber, when part of a diet low in saturated fat and cholesterol, may reduce the risk of coronary heart disease. In 1997, FDA approved this claim for certain foods containing whole oats and in 1998, for certain foods containing psyllium seed husk. The other three claims, allowed since 1993, are:

- Diets low in fat and rich in fiber-containing grain products, fruits, and vegetables may reduce the risk of some types of cancer.
- Diets low in saturated fat and cholesterol and rich in fruits, vegetables, and grain products that contain fiber, particularly soluble fiber, may reduce the risk of coronary heart disease.
- Diets low in fat and rich in fruits and vegetables, which are low-fat foods and may contain fiber or vitamin A (as beta-carotene) and vitamin C, may reduce the risk of some cancers.

Found only in plant foods, such as whole grains, fruits, vegetables, beans, nuts, and seeds, fiber is composed of complex carbohydrates. Some fibers are soluble in water and others are insoluble. Most plant foods contain some of each kind.

Some foods containing high levels of soluble fiber are dried beans, oats, barley, and some fruits, notably apples and citrus, and vegetables, such as potatoes. Foods high in insoluble fiber are wheat bran, whole grains, cereals, seeds, and the skins of many fruits and vegetables. In a 1996

survey, however, when 1,009 Americans were asked which of five foods—lettuce, asparagus, navy beans, brown rice, and oatmeal—provided the best source of cholesterol-fighting soluble fiber, many missed the mark. Brown rice was incorrectly chosen by 64 percent, lettuce by 46 percent, and asparagus by 48 percent. In fact, only navy beans (chosen by 60 percent) and oatmeal (chosen by 75 percent) are rich sources of soluble fiber--see graph below.



Fiber's Health Benefits

What can fiber do for you? Numerous epidemiologic (population-based) studies have found that diets low in saturated fat and cholesterol and high in fiber are associated with a reduced risk of certain cancers, diabetes, digestive disorders, and heart disease. However, since high-fiber foods may also contain antioxidant vitamins, phytochemicals, and other substances that may offer protection against these diseases, researchers can't say for certain that fiber alone is responsible for the reduced health risks they observe, notes Joyce Saltsman, a nutritionist with FDA's Office of Food Labeling. "Moreover, no one knows whether one specific type of fiber is more beneficial than another since fiber-rich foods tend to contain various types," she adds.

Recent findings on the health effects of fiber show it may play a role in:

- **Cancer:** Epidemiologic studies have consistently noted an association between low total fat and high fiber intakes and reduced incidence of colon cancer. A 1992 study by researchers at Harvard Medical School found that men who consumed 12 grams of fiber a day were twice as

likely to develop precancerous colon changes as men whose daily fiber intake was about 30 grams. The exact mechanism for reducing the risk is not known, but scientists theorize that insoluble fiber adds bulk to stool, which in turn dilutes carcinogens and speeds their transit through the lower intestines and out of the body.

The evidence that a high-fiber diet can protect against breast cancer is equivocal. Researchers analyzing data from the Nurses' Health Study, which tracked 89,494 women for eight years, concluded in 1992 that fiber intake has no influence on breast cancer risk in middle-aged women. Previously, a review and analysis of 12 studies found a link between high fiber intake and reduced risk.

In the early stages, some breast tumors are stimulated by excess amounts of estrogen circulating in the bloodstream. Some scientists believe that fiber may hamper the growth of such tumors by binding with estrogen in the intestine. This prevents the excess estrogen from being reabsorbed into the bloodstream.

- **Digestive disorders:** Because insoluble fiber aids digestion and adds bulk to stool, it hastens passage of fecal material through the gut, thus helping to prevent or alleviate constipation. Fiber also may help reduce the risk of diverticulosis, a condition in which small pouches form in the colon wall (usually from the pressure of straining during bowel movements). People who already have diverticulosis often find that increased fiber consumption can alleviate symptoms, which include constipation and/or diarrhea, abdominal pain, flatulence, and mucus or blood in the stool.
- **Diabetes:** As with cholesterol, soluble fiber traps carbohydrates to slow their digestion and absorption. In theory, this may help prevent wide swings in blood sugar level throughout the day. Additionally, a new study from the Harvard School of Public Health, published in the Feb. 12 issue of the *Journal of the American Medical Association*, suggests that a high-sugar, low-fiber diet more than doubles women's risk of Type II (non-insulin-dependent) diabetes. In the study, cereal fiber was associated with a 28 percent decreased risk, with fiber from fruits and vegetables having no effect. In comparison, cola beverages, white bread, white rice, and french fries increased the risk.
- **Heart Disease:** Clinical studies show that a heart-healthy diet (low in saturated fat and cholesterol, and high in fruits, vegetables and grain products that contain soluble fiber) can lower blood cholesterol. In these studies, cholesterol levels dropped between 0.5 percent and 2 percent for every gram of soluble fiber eaten per day.

As it passes through the gastrointestinal tract, soluble fiber binds to dietary cholesterol, helping the body to eliminate it. This reduces blood cholesterol levels, which, in turn, reduces cholesterol deposits on arterial walls that eventually choke off the vessel. There also is some evidence that soluble fiber can slow the liver's manufacture of cholesterol, as well as alter low-density lipoprotein (LDL) particles to make them larger and less dense. Researchers believe that small, dense LDL particles pose a bigger health threat.

Recent findings from two long-term large-scale studies of men suggest that high fiber intake can significantly lower the risk of heart attack. Men who ate the most fiber-rich foods (35 grams a

day, on average) suffered one-third fewer heart attacks than those who had the lowest fiber intake (15 grams a day), according to a Finnish study of 21,903 male smokers aged 50 to 69, published in the December 1996 issue of *Circulation*. Earlier in the year, findings from an ongoing U.S. study of 43,757 male health professionals (some of whom were sedentary, overweight or smokers) suggest that those who ate more than 25 grams of fiber per day had a 36 percent lower risk of developing heart disease than those who consumed less than 15 grams daily. In the Finnish study, each 10 grams of fiber added to the diet decreased the risk of dying from heart disease by 17 percent; in the U.S. study, risk was decreased by 29 percent.

These results indicate that high-fiber diets may help blunt the effects of smoking and other risk factors for heart disease.

- **Obesity:** Because insoluble fiber is indigestible and passes through the body virtually intact, it provides few calories. And since the digestive tract can handle only so much bulk at a time, fiber-rich foods are more filling than other foods--so people tend to eat less. Insoluble fiber also may hamper the absorption of calorie-dense dietary fat. So, reaching for an apple instead of a bag of chips is a smart choice for someone trying to lose weight.

But be leery of using fiber supplements for weight loss. In August 1991, FDA banned methylcellulose, along with 110 other ingredients, in over-the-counter diet aids because there was no evidence these ingredients were safe and effective. The agency also recalled one product that contained guar gum after receiving reports of gastric or esophageal obstructions. The manufacturer had claimed the product promoted a feeling of fullness when it expanded in the stomach.

An Apple a Day and More

Recent research suggests that as much as 35 grams of fiber a day is needed to help reduce the risk of chronic disease, including heart disease. A fiber supplement can help make up the shortfall, but should not be a substitute for fiber-rich foods. "Foods that are high in fiber also contain nutrients that may help reduce the risk of chronic disease," Saltsman notes. In addition, eating a variety of such foods provides several types of fiber, whereas some fiber supplements contain only a single type of fiber, such as methylcellulose or psyllium.

To fit more fiber into your day:

- **Read food labels.** The labels of almost all foods will tell you the amount of dietary fiber in each serving, as well as the Percent Daily Value (DV) based on a 2,000-calorie diet. For instance, if a half cup serving of a food provides 10 grams of dietary fiber, one serving provides 40 percent of the recommended DV. The food label can state that a product is "a good source" of fiber if it contributes 10 percent of the DV--2.5 grams of fiber per serving. The package can claim "high in," "rich in" or "excellent source of" fiber if the product provides 20 percent of the DV--5 grams per serving.
- **Use the U.S. Department of Agriculture's food pyramid as a guide.** If you eat 2 to 4 servings of fruit, 3 to 5 servings of vegetables, and 6 to 11 servings of cereal and grain

foods, as recommended by the pyramid, you should have no trouble getting 25 to 30 grams of fiber a day.

- **Start the day with a whole-grain cereal** that contains at least 5 grams of fiber per serving. Top with wheat germ, raisins, bananas, or berries, all of which are good sources of fiber.
- **When appropriate, eat vegetables raw.** Cooking vegetables may reduce fiber content by breaking down some fiber into its carbohydrate components. When you do cook vegetables, microwave or steam only until they are al dente--tender, but still firm to the bite.
- **Avoid peeling fruits and vegetables;** eating the skin and membranes ensures that you get every bit of fiber. But rinse with warm water to remove surface dirt and bacteria before eating. Also, keep in mind that whole fruits and vegetables contain more fiber than juice, which lacks the skin and membranes.
- **Eat liberal amounts of foods that contain unprocessed grains in your diet:** whole-wheat products such as bulgur, couscous or kasha and whole-grain breads, cereals and pasta.
- **Add beans to soups, stews and salads;** a couple of times a week, substitute legume-based dishes (such as lentil soup, bean burritos, or rice and beans) for those made with meat.
- **Keep fresh and dried fruit on hand for snacks.**

"So many foods contain fiber that it's really not that hard to get your intake up where it should be," Saltsman says.

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Slow Going

A word of caution: When increasing the fiber content of your diet, it's best to take it slow. Add just a few grams at a time to allow the intestinal tract to adjust; otherwise, abdominal cramps, gas, bloating, and diarrhea or constipation may result. Other ways to help minimize these effects:

- Drink at least 2 liters (8 cups) of fluid daily.
- Don't cook dried beans in the same water you soaked them in.
- Use enzyme products, such as Beano or Say Yes To Beans, that help digest fiber.

--R.P.

Publication No. (FDA) 98-2313