

What is Dietary fiber?

Dietary fiber is the edible parts of plants or analogous carbohydrates that are resistant to digestion and absorption in the human small intestine with complete or partial fermentation in the large intestine. Dietary fiber includes polysaccharides, oligosaccharides, lignin, and associated plant substances. Dietary fibers promote beneficial physiological effects including laxation (loose and not easily retained or controlled of bowel movements.), and/or blood cholesterol attenuation, and/or blood glucose attenuation.

Benefits of dietary fiber

Laxation is a very important physiological effect that results from increasing the dietary fiber component of one's diet in place of other food components. It is a physiological effect that is almost taken for granted, and imparts positive feelings to the individual consuming the dietary fiber along with other benefits of improved laxation. **Hope Diabetes Center** research over the past decades has shown that increased consumption of dietary fibers and high fiber foods produces a positive adjustment in levels of serum cholesterol, a biomarker related to the risk of coronary disease. An increased consumption of dietary fiber and high fiber foods in place of other foods in a particular meal also produces a measurable reduction in the peak level of serum glucose after eating, an effect generally deemed as beneficial to health, particularly in susceptible individuals. Although not all fibers and high fiber foods in all studies have exhibited these beneficial properties.

Soluble and insoluble fibers

Sources of dietary fiber are divided according to their water solubility - **soluble** and insoluble fibers. Both types of fiber are present in all plant foods, with varying degrees of each according to a plant's characteristics. Insoluble fiber possesses passive water-attracting properties that help to increase bulk, soften stool and shorten transit time through the intestinal tract. **Soluble** fiber undergoes metabolic processing via fermentation, yielding end products with broad, significant health effects. For example, plums (or prunes) have a thick skin covering a juicy pulp. The plum's skin is an example of an insoluble fiber source, whereas soluble fiber sources are inside the pulp. Other sources of insoluble fiber include whole wheat, wheat and corn bran, chia and flax seed lignans (beneficial for both men and women, acts as antioxidants) and vegetables such as celery, green beans and potato skins.

Thus dietary fiber plays an important role in the maintenance of health and prevention of diseases. Consistent intake of fermentable fiber through foods like berries and other fresh fruit, vegetables, whole grains, seeds and nuts is now known to reduce risk of some of the world's most prevalent diseases — obesity, diabetes, high blood cholesterol, cardiovascular disease, and numerous gastrointestinal disorders like constipation, inflammatory bowel disease, ulcerative colitis, hemorrhoids, Crohn's disease, diverticulitis, and colon cancer--all disorders of the intestinal tract where fermentable fiber can provide healthful benefits. Although fiber is largely indigestible, the human digestive system does react with it. Bacteria in the digestive tract attack it, causing methane gas to be released in the process, which can cause bloating and flatulence. In addition, fiber - if eaten in excessive quantities - may interfere with the uptake of minerals and vitamins. Finally, excessive soluble fiber may attract too much water from the cells, thus impeding cell-function. For these reasons, it is best to increase your fiber intake gradually and avoid fiber supplements except in carefully measured doses.

Dietary fiber intake recommendations

American Diabetes Advocates (ADA) recommends a **minimum of 31-35 g/day** for a healthy adult depending on calorie intake (e.g., a 2000 cal/8400 kJ diet should include 31 g of fiber per day). The ADA's recommendation for children is that intake should equal age in years plus 5 g/day (e.g., a 4 year old should consume 9 g/day). No guidelines have yet

been established for the elderly or very ill. Patients with current constipation, vomiting, and abdominal pain should see a physician. Certain bulking agents are not commonly recommended with the prescription of opioids (are a class of drugs derived from the opium poppy) because the slow transit time mixed with larger stools may lead to severe constipation, pain, or obstruction. The British Nutrition Foundation has recommended a minimum fiber intake of 12-24 g/day for healthy adults.

High Fiber Foods

Vegetables:

Vegetables like Carrots, Swiss chard, broccoli, spinach, green peas and other types of dark green leafy vegetables, dried peas and beans such as lima beans, kidney beans, chickpeas and lentils, black-eyed beans. Root vegetables such as potatoes, sweet potatoes, and onions (skins of these vegetables are sources of insoluble fiber), cauliflower, zucchini, and celery psyllium seed husk.

Fruits:

Dried fruits such as apricots, dates, prunes and raisins, berries such as blueberries, blackberries, raspberries and strawberries, apple with skin, oranges, avocado, kiwi, mango and pear, the skins of some fruits, including tomatoes.

Nuts and Seeds:

Nuts and seeds such as almonds, whole flaxseed and soy nuts.

The five most fiber-rich plant foods, according to the ADA, are **legumes** (15-19 grams of fiber per US cup serving, including several types of beans, lentils and peas), **wheat bran** (17 grams per cup), **prunes** (12 grams), **Asian pear** (10 grams each) (3.6% by weight), and **quinoa** (9 grams).

A high-fiber food has 5 grams or more of fiber per serving and a good source of fiber is one that provides 2.5 to 4.9 grams per serving. Here's how some fiber-friendly foods stack up

- 1/2 cup of cooked navy beans (9.5 grams of fiber)
- 1/2 cup of cooked lima beans (6.6 grams)
- 1 medium baked sweet potato with peel (4.8 grams)
- 1/2 cup of cooked green peas (4.4 grams)
- 1 medium raw pear with skin (4 grams)
- 1/2 cup of raw raspberries (4 grams)
- 1 medium baked potato with skin (3.8 grams)
- 1/4 cup of oat bran cereal (3.6 grams)
- 1 ounce of almonds (3.3 grams)
- 1 medium raw apple with skin (3.3 grams)
- 1/2 cup of raisins (3 grams)
- 1 medium orange (3 grams)
- 1 medium banana (3 grams)

