



International Journal of Home Science

ISSN: 2395-7476
IJHS 2021; 7(3): 100-102
© 2021 IJHS
www.homesciencejournal.com
Received: 22-07-2021
Accepted: 25-08-2021

Tara Desai
Associate Prof
Department of Home Science,
Shri PK Chaudhari Mahila Arts
College Sector 7, Gandhinagar,
Gujarat, India

Role of fiber in our daily diet

Tara Desai

Abstract

Dietary fiber, also known as roughage, is the indigestible part of plant foods. Fiber has a host of health benefits, including reducing the risk of heart disease and type 2 diabetes. Dietary fiber is defined to be plant components that are not broken down by human digestive enzymes. In the late 20th century, only lignin and some polysaccharides were known to satisfy this definition, but in the early 21st century, resistant starch and oligosaccharides were included as dietary fiber components. Lignin, a major dietary insoluble fiber source, may alter the rate and metabolism of soluble fibers. Other types of insoluble fiber, notably resistant starch, are fermented to produce short-chain fatty acids, which are sources of energy for colonocytes. A diet rich in dietary fiber and whole grains may lower rates of coronary heart disease, colon cancer, and type 2 diabetes.

Dietary fiber is an essential part of a healthful diet. It is crucial for keeping the gut healthy and reducing the risk of chronic health conditions. Most people in the United States do not get enough fiber from their diets. According to some estimates, only 5% of the population meet the adequate intake recommendations. This means that most people in the U.S. could get health benefits from increasing their daily fiber intake.

Keywords: Dietary Fiber, Disease Health, Plant foods, soluble fiber

Introduction

Several studies over the past several decades have examined dietary fiber's effect on heart health, including preventing cardiovascular disease and reducing blood pressure.

A 2017 review of studies Trusted Source found that people eating high fiber diets had significantly reduced risk of cardiovascular disease and lower mortality from these conditions. The authors say that these heart protective effects could be because fiber reduces total cholesterol and low-density lipoprotein (LDL) cholesterol, also called 'bad cholesterol,' which is a major risk for heart conditions.

Better gut Health

Fiber is important for keeping the gut healthy. Eating enough fiber can prevent or relieve constipation, helping waste to move smoothly through the body. It also encourages healthy gut microbiotic.

According to a 2015 review, dietary fiber increases the bulk of stool, helps promote regular bowel movements, and reduces the time that waste spends inside the intestines.

According to a 2009 review, dietary fiber has a positive impact on gastrointestinal disorders, including:

- Colorectal ulcer
- Herniated hernias
- Gastro esophageal reflux disease
- Diverticular disease
- Hemorrhoids

A 2019 review reports that fiber intake may reduce a person's risk of colorectal cancer.

Reduced diabetes risk

Adding more fiber to the diet may also have benefits for diabetes. Fiber can help slow down the body's absorption of sugar, helping to prevent blood sugar spikes after meals.

A 2018 review Trusted Source reports that people who ate high fiber diets, especially cereal

Corresponding Author:

Tara Desai
Associate Prof
Department of Home Science,
Shri PK Chaudhari Mahila Arts
College Sector 7, Gandhinagar,
Gujarat, India

fiber, had a lower risk of developing type 2 diabetes. These individuals also reported a small reduction in blood glucose levels.

Weight management

For people aiming to lose weight, a diet high in dietary fiber can help regulate weight loss. High fiber foods help a person feel fuller for longer and may help people adhere to a diet.

In a 2019 study Trusted Source, researchers concluded that people who increased their dietary fiber intake increased their weight loss and adherence to their dietary caloric restriction.

Types of dietary fiber

Fiber includes non-starch polysaccharides, such as cellulose, dextrin, insulin, lignin, chitins, pectins, beta-glucans, waxes, and oligosaccharides.

There are two types of Dietary fiber: Fiber is mostly in vegetables, fruits, whole grains, and legumes. There are two types of fiber — soluble and insoluble — and both play important roles in health:

- Insoluble fiber does not dissolve in water and adds bulk to the stool, preventing constipation.
- Soluble fiber absorbs water, forming a gel-like substance in the digestive system. Soluble fiber may help lower cholesterol levels and help regulate blood sugar levels.

Most high fiber containing foods have both insoluble and soluble fiber, so people do not need to think much about the difference. Instead, they can focus on overall fiber intake.

Soluble fiber

Soluble fiber dissolves in water and forms a gel-like substance in the stomach. Bacteria later break the gel down in the large intestine. Soluble fiber provides some calories to the individual.

Soluble fiber provides the following benefits:

- Lowering LDL cholesterol in the blood by affecting how the body absorbs dietary fat and cholesterol
- Slowing absorption of other carbohydrates through digestion, which can help regulate blood sugar levels.

Good sources of soluble fiber include:

- Beans
- Fruits
- Oats
- Nuts
- Vegetables

Insoluble fiber

Insoluble fiber does not dissolve in water and passes through the gastrointestinal tract, mostly intact. It does not provide calories.

Insoluble fiber helps build bulk in the stool, helping a person pass stool more quickly. It can also help prevent constipation.

Good sources of insoluble fiber include:

- Fruits
- Nuts
- Vegetables
- Whole grain foods

For more science-backed resources on nutrition, visit our dedicated hub.

Recommended intake

According to the Academy of Nutrition and Dietetics, the recommended intake for dietary fiber in a 2,000 calorie diet is:

- 25 grams (g) per day for adult females
- 38 g per day for adult males

People need less fiber after 50 years of age at around 21 g for women and 30 g for men. During pregnancy or breastfeeding, women should aim for at least 28 g per day.

Dietary sources

Plant-based foods are an excellent source of dietary fiber. Some types have more fiber than others. Read about 38 high fiber foods here.

The following are some examples with their fiber contents, according to the dietary guidelines for Americans 2015–2020 Trusted Source:

Food	Serving size	Calories	Dietary fiber in g
High fiber bran (ready-to-eat cereal)	½–¾ of a cup	60–81	9.1–14.3
Chickpeas, canned	½ a cup	176	8.1
Lentils, cooked	½ a cup	115	7.8
Pinto beans, cooked	½ a cup	122	7.7
Black beans, cooked	½ a cup	114	7.5
Lima beans, cooked	½ a cup	108	6.6
White beans, canned	½ a cup	149	6.3
Kidney beans	½ a cup	112	5.7
Wheat bran flakes (ready-to-eat cereal)	¾ of a cup	90–98	4.9–5.5
Raw pear	1 medium fruit	101	5.5
Baked beans, canned, plain	½ a cup	119	5.2
Avocado	½ a cup	120	5.0
Mixed vegetables, cooked from frozen	½ a cup	59	4.0
Raspberries	½ a cup	32	4.0
Blackberries	½ a cup	31	3.8
Collards, cooked	½ a cup	32	3.8
Sweet potato, baked in skin	1 medium vegetable	103	3.8
Popcorn, air-popped	3 cups	93	3.5
Almonds	1 ounce (oz)	164	3.5
Whole wheat spaghetti, cooked	½ a cup	87	3.2
Orange	1 medium fruit	69	3.1
Banana	1 medium fruit	105	3.1
Oat bran muffin	1 small muffin	178	3.0

Pistachios, dry roasted	1 oz	161	2.8
Pecans, oil roasted	1 oz	203	2.7
Quinoa, cooked	half a cup	111	2.6

Fiber supplements and food allergies

People who are allergic to high fiber foods can find it difficult to get enough fiber. They should speak to their doctor about finding sources of fiber that will not cause an allergic reactions

In some cases, a person may want to talk to their doctor about fiber supplements. A doctor may recommend these if the individual has constipation or trouble passing stool. Pharmacies sell fiber supplements, such as Metamucil, Citrucel, and Fiber Con.

These products do not provide the same levels of vitamins and nutrients as natural, high fiber foods, but they are beneficial when someone cannot get enough fiber from their diet.

Tips for increasing fiber

People can boost their daily fiber intake by making a variety of small changes:

- Eat fruits and vegetables with the skins on, as the skins contain lots of fiber.
- Add beans or lentils to salads, soups, and side dishes.
- Replace white breads and pastas for whole wheat versions.
- Aim to eat 4.5 cups of vegetables and 4.5 cups of fruit each day, as the American Heart Association suggest.
- If unable to meet the daily requirements, consider using fiber supplements.

Summary

Dietary fiber is an essential component of a healthful diet, with research linking a high fiber diet with reduced risks of many health conditions, including cardiovascular disease, type 2 diabetes, and certain cancers.

References

1. "Dietary fibre". British Nutrition Foundation. Archived from the original on 26 July 2018. Retrieved 26 July 2018, 2018.
2. ^ Jump up to: ^{a b c d e f g h i j k l m} "Fiber". Linus Pauling Institute, Oregon State University March 2019, Retrieved 3 February 2021.
3. ^ Jump up to: ^{a b c d e f} Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids (2005), Chapter 7: Dietary, functional and total Fiber, US Department of agriculture, national agricultural library and national academy of Sciences, Institute of Medicine, Food and Nutrition Board., 2005. DOI: 10.17226/10490., ISBN 978-0-309-08525-0.
4. ^ Jump up to: ^{a b c} Veronese N, Solmi M, Caruso MG, Giannelli G, Osella AR, Evangelou E, *et al.* "Dietary fiber and health outcomes: an umbrella review of systematic reviews and meta-analyses", *The American Journal of Clinical Nutrition*. 2018;107(3):436–444. DOI: 10.1093/ajcn/nqx082.PMID 29566200.
5. Kim Y. Dietary fibre intake and mortality from cardiovascular disease and all cancers: A meta-analysis of prospective cohort studies, *Archives of Cardiovascular Disease*. 2016;109:39.
6. Duyff RL. Carbs: Sugars, starches, and fiber. In: *Academy of Nutrition and Dietetics Complete Food and Nutrition Guide*, 5th Ed, New York, N.Y.: Houghton

Mifflin Harcourt, 2017.

7. Nutrition facts label: Dietary fiber. U.S. Food and Drug Administration. <https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/#intro>. Accessed Oct. 1, 2018.
8. Veronese N, *et al.* Dietary fiber and health outcomes: An umbrella review of systematic reviews and meta-analyses, *American Journal of Clinical Nutrition*. 2018;107:436.
9. Diriba Taye, Monenus Etefa. Review on improving nutritive value of forage by applying exogenous enzymes. *Int J Vet Sci Anim Husbandry* 2020;5(6):72-79.
10. Song M, *et al.* Fiber intake and survival after colorectal cancer diagnosis, *Journal of the American Medical Association: Oncology*. 2018;41:71.
11. Colditz GA. Healthy diet in adults. <https://www.uptodate.com/contents/search>. Accessed Oct. 1, 2018.
12. Dietary reference intakes (DRIs): Recommended dietary allowances and adequate intakes, total water and macronutrients. Institute of Medicine. <http://www.nap.edu/>. Accessed Oct. 4, 2018.