

# Nutrition and Health Info Sheet



Produced by:  
Nadia Doria, BS  
Leah Falsetto, BS  
Rebecca Graff, BS  
Taylor Berggren, MS  
Anna Jones, PhD  
Rachel E. Scherr, PhD  
Center for Nutrition in Schools  
Department of Nutrition  
University of California, Davis  
2018

## What is fiber?

Dietary fiber is a type of carbohydrate that our bodies are not able to digest. Fiber plays an important role in the body and can help improve colon health, control blood sugar levels, and lower cholesterol levels. Fiber has also been shown to reduce the risk of certain diseases like those affecting the intestines, heart disease, and some cancers.<sup>1-6</sup> There are two types of fiber: soluble and insoluble.

## What is the difference between soluble and insoluble fiber?

Soluble fiber: dissolves in water and forms a gel

- May help with lowering blood sugar and cholesterol levels.<sup>7</sup>

Insoluble fiber: does not dissolve in water, but rather draws water in.

- Adds bulk to stool mass
- May help with reducing constipation.<sup>7</sup>



## What are good sources of fiber?

*Whole Grains:* Whole grains, like brown rice, whole wheat bread and pasta, are good sources of fiber. They add the most fiber to the diet compared to other food sources. Rye has the most fiber of the whole grains.<sup>8</sup> Some cereals like oatmeal and Bran Cereals (like Raisin Bran) contain whole grains and fiber.

Whole grains are grains that have not been processed to remove the outer layers where fiber and other nutrients are found.<sup>9</sup> The outer layer is referred to as the bran. For refined grains, like white rice or white bread, the outer bran layer is removed so most of the nutrients are lost.<sup>6</sup>



*Vegetables:* Many vegetables are good sources of fiber, such as artichokes and carrots. Legumes (peas, lentils, dried beans) have the highest amount of fiber among the vegetables.<sup>6</sup> Navy beans have the most fiber per serving. Adding vegetables to your diet will help increase your fiber intake and provide many additional nutrients.

*Fruits:* Fruits containing relatively high amounts of fiber include oranges, raspberries, and apples.<sup>6</sup> It is important to eat the peel of fruits like apples to get the most fiber you can!

## Labeling on Food Products

Food labels are good sources of information about the nutrients in the food, including fiber. The Nutrition Facts Label on the back includes dietary fiber; it can be found under total carbohydrates. If a food product says it is high in fiber on the front of the package, it means that it has at least 20% of the recommended daily value for fiber. If a food product says it is a good source of fiber, it has between 10 and 15% of the recommended daily value.<sup>8</sup>

Some common products lacking fiber are meat, milk, eggs, cheese, fish.



## Why eat fiber?

*Fiber and colon health:* Fiber promotes healthy bowel function through many mechanisms. It speeds up stool transit time which reduces the risk of constipation and diverticulosis.<sup>2</sup> Bacteria in our gut can also break down the fiber, releasing compounds that may decrease the risk of colon cancer.<sup>10</sup>

*Fiber and heart disease:* Foods rich in soluble fiber have been shown to help lower blood cholesterol levels. High levels of cholesterol (particularly LDL cholesterol, or “bad cholesterol”) are linked to higher risk for heart disease.<sup>1,5</sup>

*Fiber and obesity:* Eating fiber is associated with preventing obesity since it creates more bulk in the stomach, making you feel fuller. The feeling of fullness can aid in weight loss and maintenance, helping to reduce risk for obesity.<sup>1,11</sup>

*Fiber and cancer:* High fiber intake is linked to a reduction of risk of certain types of cancers, especially stomach and colon cancer.<sup>12</sup>

*Fiber and diabetes:* A diet high in soluble fiber (mainly from whole grains like whole wheat bread and brown rice), can help control blood sugar helping to manage diabetes.<sup>1,6</sup> Fiber also slows absorption of glucose (sugar) into the bloodstream, thereby making the body more sensitive to insulin, which helps to prevent Type II Diabetes.<sup>1,11</sup>



## How much fiber is recommended?

Current Dietary Recommendations for Americans recommends 14 g of fiber for every 1,000 calories consumed.<sup>13</sup> For example, someone that eats 2,000 calories would need 28 grams of fiber to meet the recommendation. However, most people do not consume enough fiber.

## What are some ways to increase fiber intake?

To increase fiber intake, try the following:

- Eat more fruits and vegetables. For example, 2 cups of fruit and 2.5 cups of vegetables are recommended for someone who eats 2,000 calories per day. Use fresh or dried fruits for desserts and snacks.
- Eat a variety of different fruits and vegetables, including different types of legumes and dark green, orange, and starchy vegetables. Leave the skin on fruits, and vegetables. This outer layer is high in fiber.<sup>14</sup>
- Use beans, lentils, and peas. Add cooked beans and peas to soups, stews, casseroles, and salads. Nuts and seeds, although high in fiber, are also high in fat, so use them sparingly.
- Choose whole grain breads and cereals, and check the ingredient label to make sure the food is really whole grain. Try to consume half of your grains every day as whole grains.
- Choose high fiber grains such as buckwheat, brown rice, and bulgur instead of refined grains in side dishes, pilaf, soups, and stews.

## Can too much fiber be harmful?

Eating too much fiber can make it difficult for your body to absorb other vitamins and minerals. Adding more fiber in the diet should be done slowly and with fiber-rich foods. Using fiber supplements or eating too much fiber too quickly can lead to gas, diarrhea, and bloating. It's important to drink enough water for the full health benefits of fiber.<sup>1</sup>

Young children should be careful not to consume too much fiber. Feeling full too quickly can prevent them from getting enough nutrients for proper growth.

Senior citizens should check with their physician before looking to increase their fiber intake due to potential complications with increasing fiber.<sup>1,6</sup>

## Should people take fiber supplements?

It is best to get fiber from foods rather than from supplements. Many foods that are high in fiber, such as fruits, vegetables, and whole grains have many other benefits in addition to fiber.<sup>6</sup> Using too many fiber supplements may increase risk for intestinal problems, especially in individuals who suffer from Irritable Bowel Syndrome, constipation, and diarrhea.<sup>15</sup>

## References:

1. Institute of Medicine; Food and Nutrition Board, Standing Committee. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. The National Academies Press. <https://www.nap.edu/catalog/10490/dietary-reference-intakes-for-energy-carbohydrate-fiber-fat-fatty-acids-cholesterol-protein-and-amino-acids>. Published September 5, 2002. Accessed October 22, 2018.
2. Gallaher DD, Schneeman BO. Dietary fiber. In Ziegler EE and Filer LJ, eds. Present knowledge in nutrition. Washington DC: ILSI Press. 2001. 83–91.
3. Hall J, et al. New paradigms in the management of diverticular disease. *Curr Probl Surg*. 2010; 47(9):680-735.
4. Ye EQ, Chacko SA, Chou EL, Kugizaki M, Liu S. Greater whole-grain intake is associated with lower risk of type 2 diabetes, cardiovascular disease, and weight gain. *J Nutr*. 2012; 142(7):1304-13.
5. Weaver CM. Diet, gut microbiome, and bone health. *Curr Osteoporos Rep*. 2015; 13(2):125-30.
6. Livingston KA, Chung M, Sawicki CM, et al. Development of a Publicly Available, Comprehensive Database of Fiber and Health Outcomes: Rationale and Methods. *PLoS One*. 2016; 11(6):e0156961.
7. Chutkan R, Fahey G, Wright WL, McRorie J. Viscous versus nonviscous soluble fiber supplements: Mechanisms and evidence for fiber-specific health benefits. *J Am Acad Nurse Pract*. 2012; 24(8):476-87.
8. Food Labeling Guide: Appendix B. <https://www.fda.gov/downloads/food/guidancecompliance/regulatoryinformation/guidancedocuments/foodlabelingnutrition/foodlabelingguide/ucm265446.pdf>. Food and Drug Administration, Center of Food Safety and Applied Nutrition. Updated January 2013. Accessed October 22, 2018.
9. Seal C, Brownlee I. Whole-grain foods and chronic disease: evidence from epidemiological and intervention studies. *Proc Nutr Soc*. 2015 Aug;74(3):313-9.
10. Eid N, Osmanova H, Natchez C, et al. Impact of palm date consumption on microbiota growth and large intestinal health: a randomised, controlled, cross-over, human intervention study. *Br J Nutr*. 2015; 114(8):1226-36.
11. 2015-2020 Dietary Guidelines for Americans: Appendix 13. Food Sources of Dietary Fiber. 8th Edition. <http://health.gov/dietaryguidelines/2015/guidelines/>. U.S. Department of Health and Human Services and U.S. Department of Agriculture. Updated December 2015. Accessed October 22, 2018.
12. Zhang Z, Xu G, Ma M, Yang J, Liu X. Dietary fiber intake reduces risk for gastric cancer: a meta-analysis. *Gastroenterology*. 2013; 145(1):113-120.e3.
13. Turner ND, Lupton JR. Dietary fiber. *Adv Nutr*. 2011; 2(2):151-2.
14. 2015-2020 Dietary Guidelines for Americans. 8th Edition. <http://health.gov/dietaryguidelines/2015/guidelines/>. U.S. Department of Health and Human Services and U.S. Department of Agriculture. Updated December 2015. Accessed October 22, 2018.
15. McRorie JW. Evidence-Based Approach to Fiber Supplements and Clinically Meaningful Health Benefits, Part 2: What to Look for and How to Recommend an Effective Fiber Therapy. *Nutr Today*. 2015; 50(2):90-97.

The University of California prohibits discrimination or harassment of any person on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (including childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994: service in the uniformed services includes membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services) in any of its programs or activities.

University policy also prohibits reprisal or retaliation against any person in any of its programs or activities for making a complaint of discrimination or sexual harassment or for using or participating in the investigation or resolution process of any such complaint.

University policy is intended to be consistent with the provisions of applicable State and Federal laws.

Copyright © The Regents of the University of California, Davis campus, 2018. All rights reserved. Inquiries regarding this publication may be directed to [cns@ucdavis.edu](mailto:cns@ucdavis.edu). The information provided in this publication is intended for general consumer understanding, and is not intended to be used for medical diagnosis or treatment, or to substitute for professional medical advice.