

ISSN 0017 - 8861

Estd 1923

# Health

A JOURNAL DEVOTED TO HEALTHFUL LIVING

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Vol. 102 • No. 07

JULY 2024

₹ 20



**Discover the Power of Dietary Fiber : Take  
the First Step to a Healthier You!**



# DISCOVER THE POWER OF DIETARY FIBER : TAKE THE FIRST STEP TO A HEALTHIER YOU!



There are various fiber products available in the market today, containing either a natural fiber, such as inulin, psyllium or  $\beta$ -glucan. Some are synthetically created products such as polydextrose (synthetic polymer of glucose and sorbitol), wheat dextrin (heat/acid treated wheat starch), or methylcellulose.

There is a significant difference between what is called dietary fiber (the non digestible carbohydrates and lignin that are intrinsic and intact in plants) and functional fiber (the isolated, non digestible carbohydrate). A fiber to be considered functional fiber, should be isolated from a non digestible carbohydrate found in a fiber supplement and must have clinical evidence of a therapeutic physiologic effect.

When stating the term “fiber supplement” it implies that the product helps make up for the shortfall in fiber consumption from the foods such as fruits, vegetables, and whole grains, this article helps us to understand the importance of fiber supplements which actually have clinical evidence of a beneficial physiologic effect and are qualified as functional fibers.

## **Background and significance**

The data that we have today about the health benefits of high dietary fiber due to consumption from fruits, vegetables, and whole grains comes mainly from population-based (epidemiologic) studies.

Dietary fiber which is supposed to be found mainly in fruits, vegetables, whole grains and legumes — is probably best known for its ability to prevent and relieve constipation. Foods containing fiber can provide other health benefits as well, like helping to maintain a healthy weight and lowering the risk of diabetes and cardiovascular disease.

## What is dietary fiber?

Food components, such as fats, proteins or carbohydrates are broken down and absorbed by the body. But fiber isn't digested by the body. Dietary fiber, known popularly as roughage diet or bulk diet, includes mainly the parts of plant foods that our body can't digest or absorb. Hence, it passes relatively intact through our stomach, small intestine and colon and out of the body.

Fiber is commonly classified based on the solubility as soluble, which dissolves in water, or insoluble, which doesn't dissolve.

- **Soluble fiber:** This type of fiber gets dissolved in water and forms a gel-like material. It can help lower blood cholesterol and also glucose levels. Soluble fiber is found in oats, peas, beans, apples, citrus fruits, carrots, barley and psyllium.
- **Insoluble fiber:** This type of fiber helps the movement of food through the digestive system thereby increasing stool bulk. This kind is therefore beneficial to those who struggle with constipation or irregular stools. Whole-wheat flour, wheat bran, nuts, beans and vegetables, such as cauliflower,

green beans and potatoes, are considered good sources of insoluble fiber.

Some plant-based foods, such as oatmeal and beans, contain both soluble and insoluble fiber. However, the amount of each type of fiber varies significantly in different plant foods.

## How much fiber do you need?

The guidelines for adequate intake of daily dietary fiber are based on the significant association between a high-fiber diet and a reduced risk for cardiovascular disease. The Institute of Medicine recommends a fiber intake of about 25 g/day for women and 38 g/day for men (adults aged 21–50). Older adults tend to consume fewer calories, so the recommendation for women and men over 50 is 21 and 30 g/day, respectively. Only about 5% of the population achieves the recommended level of dietary fiber consumption. On an average, adults tend to consume only about 15 g of fiber per day, and those who are on a low carbohydrate diet consume less than 10 g per day.

The Institute of Medicine, which provides science-based advice on matters of medicine and health, gives the following daily fiber recommendations for adults.

## **:Fiber: Daily recommendations for adults**

Meeting your daily dietary fiber needs is essential for maintaining optimal health, no matter your age. For individuals aged 50 or younger, the recommended intake of fiber differs slightly between genders. Men in this age group should aim for a daily intake of 38 grams, while women should target 25 grams. Fiber plays a crucial role in digestive health, heart health, and maintaining a healthy weight, making it vital to prioritize fiber-rich foods in your diet.

As individuals age past 51, their dietary fiber requirements may change. For those aged 51 or older, the recommended fiber intake decreases slightly for both men and women. Men in this age group should aim for 30 grams of fiber daily, while women should target 21 grams. Despite the slight decrease in recommended intake, fiber remains an essential nutrient for supporting overall health and well-being, particularly as age-related health concerns may arise.

Regardless of age, incorporating fiber-rich foods such as fruits, vegetables, whole grains, legumes, nuts, and seeds into your daily diet is key to meeting your dietary fiber goals. These foods not only provide essential nutrients but also

contribute to feelings of fullness and satiety, making it easier to maintain a balanced diet and manage weight. By prioritizing fiber-rich foods and staying mindful of your individual dietary needs, you can ensure that you're giving your body the nutrients it needs to thrive at any age.

### **Foods containing high fiber include:**

- Whole-grain products
- Fruits
- Vegetables
- Beans, peas and other legumes
- Nuts and seeds

The grain-refining process of refined foods removes the outer coat (bran) from the grain, which lowers its fiber content. Enriched foods have some of the B vitamins and iron back after processing, but not the fiber. Refined or processed foods such as canned fruits and vegetables, pulp-free juices, white breads and pastas, and non-whole-grain cereals are therefore lower in fiber content,

### **Benefits of a high-fiber diet**

A high-fiber diet has many benefits, which include:

- **Normalizes bowel movements of both large and small intestine**

Dietary fiber is supposed to increase the weight and size of the stool and softens it. It makes the stool bulky which is easier to pass, decreasing the chance of constipation. In case of loose, watery stools, fiber also helps to solidify the stool because it absorbs water and hence adds bulk to stool.

- **Maintains bowel health**

A high-fiber diet always slows the risk of developing hemorrhoids and small pouches in the colon (diverticular disease). Some fiber is fermented in the colon.

- **Lowering cholesterol levels**

Soluble fiber found in beans, oats, flaxseed and oat bran helps lower total blood cholesterol levels by lowering low-density lipoprotein, or "bad," cholesterol levels. Studies also have shown that high-fiber foods have other heart-health benefits, such as reducing blood pressure as well as inflammation.

- **Helps control blood sugar levels**

In people with diabetes, fiber — mainly soluble fiber — slows the absorption of sugar which in turn would help improve blood sugar levels. A diet that includes

insoluble fiber may also reduce the risk of developing type 2 diabetes.

- **Aids in achieving healthy weight.**

High-fiber foods tend to be more filling compared to low-fiber foods, hence people are likely to eat less and stay satisfied longer and high-fiber foods tend to take longer to eat and to be less "energy dense," which means they have fewer calories for the same volume of food.

Another benefit attributed to dietary fiber is prevention of colorectal cancer. However, the evidence that fiber reduces colorectal cancer is mixed

### **Evidence Based Studies**

What we believe today about the health benefits of dietary fiber is derived from population-based epidemiologic studies, which can assess statistical associations, but lack the control necessary to establish causation.

In contrast, the isolated fibers in fiber supplements are readily assessed for a direct health effect in well-controlled clinical studies. In the small intestine, clinical evidence supports that viscous, gel-forming fiber (e.g., psyllium,  $\beta$ -glucan) effectively lowers elevated serum cholesterol, and improves glycemic control in patients with metabolic syndrome and type 2 diabetes.

Low viscosity/non viscous soluble fibers (e.g., inulin, wheat dextrin) and insoluble fiber (e.g., wheat bran) are not providing these viscosity-dependent health benefits. In the large intestine, fiber must resist fermentation to remain intact in stool and significantly increase stool water content, in order to provide a laxative effect. Large/coarse particles of insoluble wheat bran can mechanically cause an irritating effect, stimulating the mucosa to secrete water and mucus.

Non fermented gel-forming psyllium retains its high water-holding capacity to provide a dichotomous stool normalizing effect. It softens hard stool in constipation, firms' loose/liquid stool in diarrhea, and normalizes stool form in patients with IBS.

## **Understanding Dietary Fiber Requirements**

In today's health-conscious world, understanding the importance of dietary fiber is paramount. Whether you're a growing child, an adult aiming for a balanced diet, or someone managing specific health conditions, knowing the right amount of fiber your body needs can significantly impact your overall well-being.

## **Fiber Requirements Across Different Age Groups**

Children, as they grow and

develop, require varying amounts of fiber to support their active lifestyles and overall health. From the tender ages of 1 to 3 years, a daily intake of 19g of fiber is recommended. As they progress to 4 to 8 years, this requirement increases to 25g.

For boys aged 9 to 13 years, a daily intake of 31g is advised, while those aged 14 to 18 years should aim for 38g. Girls, on the other hand, require slightly less fiber, with 9 to 13-year-olds needing 26g daily and 14 to 18-year-olds needing 26g as well.

## **Fiber Needs for Adults and Special Populations**

Adult men aged 19 to 50 years should aim for 38g of fiber daily, while those over 51 years can maintain a slightly lower intake of 30g. Women, too, have specific requirements; those aged 19 to 50 years need 25g daily, while those over 51 years should aim for 21g.

For pregnant women, the daily fiber recommendation increases to 28g, and for breastfeeding mothers, it's 29g, ensuring they meet their increased nutritional needs during these phases.

Individuals managing certain health conditions, such as diabetes or cardiac problems, may require tailored fiber intakes. For diabetics, a range of 25 to 50g is suggested,

while those with cardiac issues should aim for 25 to 35g, as part of their overall dietary management.

## Exploring Fiber-Rich Food Sources

Incorporating fiber-rich foods into your daily diet is essential for meeting these recommended intake levels. A variety of fruits, legumes, nuts, seeds, grains, cereals, and vegetables can help you achieve your fiber goals.

**Fruits: Raspberries,** pears, apples, bananas, oranges, strawberries, figs, and raisins are excellent sources of dietary fiber. For instance, one cup of raspberries provides a whopping 8.0 grams of fiber, making it a delicious and nutritious addition to your diet.

**Legumes, Nuts, and Seeds:** Split peas, lentils, black beans, kidney beans, almonds, and pistachio nuts are among the top sources of fiber in this category. Just one cup of boiled split peas contains approximately 16.3 grams of fiber, offering a substantial portion of your daily requirement.


**Grains and Cereals:** Barley, oat bran muffins, oatmeal, popcorn, brown rice, and whole-wheat bread are popular fiber-rich options. Incorporating these into your meals can boost your fiber intake significantly.

**Vegetables:** Broccoli, turnip greens, potatoes with skin, tomato paste, and raw carrots are excellent

vegetable sources of fiber. Adding these to your salads, stir-fries, or side dishes can contribute to a well-rounded and nutritious diet.

By understanding your specific fiber requirements and incorporating a diverse range of fiber-rich foods into your meals, you can optimize your health and well-being, ensuring your body receives the essential nutrients it needs to thrive.

## Conclusion

Understanding the power of dietary fiber is essential for unlocking its numerous health benefits. By increasing awareness and promoting the consumption of fiber-rich foods, we can mitigate health risks and enhance overall well-being. Embracing a diet abundant in high-fiber products not only reduces health-related concerns but also elevates the quality of life for individuals. Let's take the first step towards a healthier future by prioritizing dietary fiber and reaping its remarkable rewards. 

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