KNOW the Facts of Fiber
It’s been linked to better health for literally thousands of years, but only in recent times have people begun to understand why we need it – and how much we need. From digestive health to associated reduction of serious health risks like heart attacks, strokes, and certain cancers, scientific studies continue to reveal more reasons everyone should add fiber to their diets. However, a full nine out of ten Americans - both children and adults - still fall below recommended levels, prompting the Dietary Guidelines for Americans to call our inadequate consumption a “significant public health concern.” [1,2]

Bridging this gap means educating consumers about what fiber is, where to find it, and which types we need. As a health professional, you can be a key part of meeting this challenge, and this comprehensive resource on fiber can help. From refreshing your knowledge to researching guidelines, sources, and specific quantities, you’ll find answers to “most of” your fiber questions here.
History

Over the past 20,000 years, the human diet has changed from one based on a coarse, plant-based regimen of greens, seeds, stalks, roots, flowers, pollen, and small amounts of animal products, to a more limited, often monotypic diet in which the plant foods are primarily a few cereal grains, tubers, and legumes. Early nutrition advocates, food reformers, “healers” and “medicine men” have all prescribed and written about the benefits of fiber and cereal grains.

Noble Origins of the Word “Cereal”

In ancient Rome, Ceres was the kind and benevolent goddess of agriculture, grain crops, fertility and motherly relationships. She was beloved for giving humans the gift of the harvest. According to mythology, Ceres was one of the only goddesses involved in the lives of the “common folk,” and she was credited with teaching people how to grow, preserve and prepare grain. Festivals during spring planting and fall harvest honored Ceres as a provider of nourishment. Today, her name and the idea of nourishment are linked to our word “cereal.”

A Brief History of Fiber

A. 4th Century B.C. Hippocrates comments on the laxative action of outer layers of cereal grains.
B. 9th Century A.D. The Persian physician Hakim notes the same phenomenon.
C. 1610 Shakespeare refers to the action of cereal bran in his play Coriolanus.
D. Early 19th Century In the U.S., Graham and Burne praise whole grains as an aid in regulating digestion.
E. Late 19th–Early 20th Century in Great Britain, Allinson describes whole grains’ role in improving health by combating constipation.
F. 1920s McCormick draws attention to the good health of tribesmen in North India, which he attributes to eating unaltered whole grains.
G. 1915-1916 Kellogg’s introduces Bran Flakes® and All-Bran®, both of which were high in fiber and ready-to-eat.
H. 1930s Cowgill and Anderson publish well-controlled research proving that “fiber” is responsible for the laxative action of wheat bran.
I. 1940s Walker of South Africa is one of the first to scientifically study the properties of plant fiber.
J. 1956-1966 In Great Britain, Cleave attributes protective effects to unrefined carbohydrates and “bulky” foods, and in Africa, Trowell does the same.
K. 1970s & 1980s A series of books authored by Burkitt, Trowell, and others helps clarify the role of dietary fiber.
L. Late 1980s - 1990s Dietary fiber becomes accepted as an important factor in human nutrition and medicine.
Defining Fiber

In the nutrition science realm, we use two slightly different definitions for fiber: one physiological, and the other analytical. The Institute of Medicine (IOM) and the Food and Drug Administration (FDA) each offer differing definitions to arrive at what is called “total fiber.”

Physiological (IOM)

- **Dietary Fiber**: Non-digestible carbohydrates and lignins that are intrinsic and intact in plants.
- **Functional Fiber**: Isolated, non-digestible carbohydrates that have beneficial physiological effects in humans.
- **Total Fiber**: The measurement of all types of fiber in any food

Analytical (FDA)

- **Dietary Fiber**: The measurement of all types of fiber in any food
- **Functional Fiber**: As defined by IOM
- **Total Fiber**: As defined by FDA

The FDA’s analytical definition is important in terms of food labeling while IOM’s definition references fibers’ role in health and well-being. In this guide, we’ll use “fiber” as the general term for all sources of fiber, both dietary and functional. However, since all fibers have unique characteristics that may confer specific health benefits, we will speak to those individually.

Fiber Sources

The first step in helping people consume more fiber is teaching them which foods provide it.

**Intrinsic Fiber Sources**

- Legumes 13%
- Fruit 11%
- Miscellaneous 15%
- 25% Vegetables
- 36% Grain Products

**Other Fiber Sources**

Fiber can be isolated from foods where it occurs naturally and added to other foods. Intrinsic fiber and added fiber are both good for our health, and eating foods from both categories can help increase our daily fiber intake. By choosing foods with both intrinsic and added fiber sources and looking for creative ways to incorporate them into meals, it’s possible to reach recommended daily levels of fiber without sacrificing taste or consuming too many calories.
Types of Grains

Grains are the largest contributor of fiber in the American diet. Scientists classify them into two groups: cereal grains and non-cereal grains (sometimes called pseudo-cereal grains). These terms are acknowledged by AACC International (formerly, American Association of Cereal Chemists), the world’s foremost authorities on cereal grains.

Cereal Grains
- Edible seeds from plants in the grass family.
- Contain macronutrients: carbohydrates, including fiber, protein, and fat, as well as vitamins and minerals.
- Contain important phytonutrients including phenolic compounds, flavonoids, condensed tannins, lignans, and others. These phytonutrients and their human health benefits represent an emerging field of scientific study.
- Examples: wheat, maize, oats, rye, corn, barley, triticale, millet, sorghum, rice.

Pseudo-Cereal Grains
- Edible fruits or seeds from plants outside the grass family.
- Contain macronutrients: carbohydrates, including fiber, protein, and fat, as well as vitamins and minerals.
- Contain important phytonutrients including phenolic compounds, flavonoids, condensed tannins, lignans, and others. These phytonutrients and their human health benefits represent an emerging field of scientific study.
- Can be cooked and eaten like other grains.
- Examples: quinoa, amaranth, chia, buckwheat.

Properties of Fiber

One of the ways scientists evaluate fibers is by noting their physical and chemical properties, including solubility, viscosity, fermentability, and water-holding capacity.

<table>
<thead>
<tr>
<th>Property</th>
<th>Ability</th>
<th>Effect on Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility</td>
<td>Ability to dissolve in water</td>
<td>While it was once thought that solubility could predict physiological function, research has found that this is not the case. Both soluble and insoluble fibers may provide the same type of benefits but to varying degrees.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Ability to thicken when mixed with fluids (including intestinal fluids)</td>
<td>Thought to aid certain fibers in modulating blood lipids.</td>
</tr>
<tr>
<td>Fermentability</td>
<td>Ability to be fermented by microflora in the large intestine to produce carbon dioxide, methane, hydrogen and short chain fatty acids (SCFA)</td>
<td>SCFAs serve as the primary energy source for colonic cells to help support a healthy colonic environment.</td>
</tr>
<tr>
<td>Water-holding Capacity</td>
<td>Ability of the fiber to bind with and hold water in the small and large intestine</td>
<td>Helps to increase fecal bulk, possibly shortening transit time through the bowels.</td>
</tr>
</tbody>
</table>
### Properties of Different Fibers

<table>
<thead>
<tr>
<th>More</th>
<th>Solubility</th>
<th>Less</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polydextrose, Inulin, Soluble Corn Fiber, Beta-Glucan</td>
<td>Bran, Cellulose, Resistant Starch</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>More</th>
<th>Viscosity</th>
<th>Less</th>
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<tbody>
<tr>
<td>Psyllium, Beta-Glucan, Guar Gum</td>
<td>Inulin, Soluble Corn Fiber, Polydextrose, Bran</td>
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</table>

<table>
<thead>
<tr>
<th>More</th>
<th>Fermentability</th>
<th>Less</th>
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</thead>
<tbody>
<tr>
<td>Inulin, Oligosaccharides, Soluble Corn Fiber</td>
<td>Cellulose, Bran, Psyllium</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>More</th>
<th>Water Holding Capacity</th>
<th>Less</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pectin, Guar Gum, Xanthan Gum</td>
<td>Oligosaccharides, Resistant Starches</td>
<td></td>
</tr>
</tbody>
</table>

Different fibers display each of these properties but to varying degrees. The potential for health benefit is dependent on the degree to which fibers demonstrate these properties.
Benefits of Fiber

Fiber is a unique nutrient. Unlike other nutrients that our bodies need, fiber is not digested and absorbed. This uniqueness confers the health benefits that are associated with fiber. Eating enough fiber has been linked to a positive impact on many important health issues. The following pages feature some of the latest findings on fiber’s relationship to topics including:

- Digestive Health
- Weight Management
- Cardiovascular Health
- Diabetes
- Metabolic Syndrome
- Cancer
- The Immune System

These findings are from both interventional and observational trials. While observational trials typically study the associations of fiber benefits from all fiber sources, interventional fiber trials may look at singular, isolated fibers in order to study the health benefits.

All Fibers Fit

Different types of fiber offer different benefits, which is why it is important to eat a variety of fibers from many sources, including intrinsic, added and/or functional fibers.

<table>
<thead>
<tr>
<th>Types and Effects of Fiber Ingredients</th>
<th>Examples of Types of Fiber in Food</th>
<th>Potential Physiological Effects</th>
<th>Primary Source</th>
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</thead>
<tbody>
<tr>
<td>Beta-glucan (β-glucan) and oat bran</td>
<td>Blood lipid lowering</td>
<td>Oats and barley</td>
<td></td>
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<tr>
<td>Cellulose</td>
<td>Laxation</td>
<td>Plant foods</td>
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<tr>
<td>Psyllium</td>
<td>Laxation</td>
<td>Psyllium husk (plant)</td>
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<tr>
<td>Resistant starches</td>
<td>Laxation</td>
<td>Plant foods</td>
<td></td>
</tr>
<tr>
<td>Wheat bran</td>
<td>Laxation</td>
<td>Wheat</td>
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</table>
Fiber and Digestive Health

Its benefits go beyond healthy laxation to providing important fuel to the colonic cells and to the gut’s microbiota.

Healthy Laxation

Dietary fiber affects bowel function by increasing fecal volume and weight, improving stool consistency, decreasing transit time, and increasing stool frequency. By binding with fluid in the GI tract, it creates the “bulking effect,” increasing stool weight. The Academy of Nutrition and Dietetics position paper on health implications of dietary fiber includes statements encouraging the consumption of fiber to promote healthy laxation.

While various types of fibers have been found to improve laxation, not all fibers offer that benefit. Wheat Bran has the largest body of evidence demonstrating a beneficial effect on laxation. However, flax, psyllium, pectin, soluble maize fiber and resistant starches have all demonstrated increases in fecal weight in healthy individuals in various studies.

Fermentation

By definition, fibers are not digested by human digestive enzymes and pass into the large intestine relatively intact. The large intestine contains a complex population of microbiota consisting of many hundreds of different bacterial species. These microbiota can ferment fiber into carbon dioxide, methane, hydrogen and short-chain fatty acids (SCFAs), particularly acetate, propionate, and butyrate. Butyrate is the primary energy source for intestinal epithelial cells and plays an important role in maintaining colonic health. While this natural process may create some intestinal discomfort due to gas formation, it is an indication that these fibers are doing their job to help maintain gut health.

Different fibers offer different degrees of fermentability by the intestinal microbiota. Hemicelluloses and pectins found in fruits and vegetables provide fiber that is more completely fermentable than foods rich in celluloses, such as cereal grains. Some resistant starches are highly fermentable and have been shown to increase fecal butyrate when fed at certain levels or added to other types of fibers. Inulin consumption also increases serum SCFA concentrations indicating an increased production of colonic SCFAs.
Prebiotic Effects

Some fibers are classified as prebiotics, which some scientists have proposed can provide health benefits. While most prebiotics are fiber, not all fibers are prebiotics.

Prebiotics are selectively fermented ingredients that result in specific changes in the composition and/or activity of the gastrointestinal microbiota, thus conferring benefit(s) upon host health.\(^1\)

Understanding Prebiotics

Characteristics

- Resistant to digestion and absorption in the GI tract.
- Fermentable by intestinal microbiota.
- Able to selectively stimulate the growth and/or activity of intestinal bacteria (namely bifidobacteria and lactobacilli) potentially associated with health/well being.\(^2\)

Types

Confirmed

- Inulin, which naturally occurs in varying amounts in foods such as leeks, asparagus, chicory, Jerusalem artichokes, garlic, onions, wheats, oats and soybeans\(^3-10\) may be extracted to add to foods as a “functional” fiber.\(^2\)
- Short-chain fructooligosaccharides (FOS), soybean oligosaccharides, and galactooligosaccharides (GOS)\(^6-9\) These are also naturally-occurring in foods or extracted to add to foods.\(^2\)

Potential

- Soluble corn fiber\(^9,10\)
- Polydextrose\(^9,10\)

Proposed Health Benefits\(^2\)

(based on evidence, consensus, and emerging science)

- Reduced prevalence and duration of infectious and antibiotic-associated diarrhea.
- Reduced symptoms associated with inflammatory bowel disease.
- Enhanced bioavailability of minerals, including calcium, magnesium and possibly iron.
- Reduced risk factors for cardiovascular disease.
- Promotion of satiety and weight management.
Fiber and GI Disorders

 Constipation

Fiber’s ability to help maintain healthy gastrointestinal function is fairly well established. Its role in helping to manage gastrointestinal disorders is not as clear. Increased fiber from the diet is often used as a first strategy for occasional irregularity. And fiber’s role in maintaining healthy laxation is well established. Constipation is one of the most common disorders seen in primary care clinics, particularly in the pediatric population. Because it is multifactorial in nature, it is difficult to study in clinical trials. However, a recent review reported that several studies have shown a positive impact of dietary fiber intake for the treatment of constipation in children. Successful treatment of constipation in children has been reported for both total fiber and wheat bran. The cutoff amounts of daily dietary fiber intake in the relief of constipation in children have been reported to be 10 grams for children 3 to 7 years old and 14.5 grams for children 8 to 14.

 Diverticular Disease and Irritable Bowel Syndrome

Fiber has also been looked at as a management strategy for diverticular disease and irritable bowel syndrome. While observational data suggest an association between higher fiber intakes and decreased incidence for diverticular disease, a recent systematic review to assess whether a high-fiber diet improves symptoms or prevents complications of diverticular disease reported that high-quality evidence for a high fiber diet in the treatment of diverticular disease is lacking.

 Irritable bowel syndrome (IBS) is a common chronic GI disorder with an unclear etiology. Both high fiber dietary advice and the prescription of fiber as a bulking agent are common in management of IBS. Evidence is mixed for the role of fiber in IBS and it appears that effectiveness may be dependent on fiber type and individual symptomology. Several review articles including two Cochrane database reviews of the efficacy of dietary fiber in the treatment of IBS have been published. Overall the reviews report fiber is marginally beneficial in treating symptoms of IBS.

 Inflammatory Bowel Disease

Crohn’s disease and ulcerative colitis represent two distinct forms of inflammatory bowel disease (IBD). The incidence of IBD is increasing, and it is a common cause of morbidity that negatively impacts quality of life. Despite the intense research efforts and considerable progress, the understanding of the pathophysiological mechanisms of IBD remains unclear. The intestinal microbiota and the intestinal mucosa are thought to play a crucial role in IBD. There is limited documentation of efficacy of dietary fiber to decrease risk of or treat the symptoms of IBD.
Fiber and Cardiovascular Health

Observational and interventional research have helped to establish the important role fiber plays in cardiovascular health.

Cardiovascular diseases (CVD), including coronary heart disease (CHD), stroke, and hypertension affect more than 80 million people and are the leading causes of morbidity and mortality in the United States. Increased intake of fiber has been shown to be associated with lower risk for CHD, stroke, and peripheral vascular disease. In addition, high fiber intakes are also inversely associated with major risk factors for CVD, including hypertension, diabetes, obesity, and dyslipidemia. Compared to those with the lowest fiber intake, people with the highest fiber intake have a 29% reduction in prevalence of CHD and a 26% reduction in prevalence of ischemic stroke (see Table 1 on page 27).

Similar reductions associated with CHD risk have been reported with increased consumption of total dietary fiber, cereal fiber, and whole grains in prospective epidemiological studies. However, to demonstrate a cause and effect relationship randomized clinical trials are needed.

Blood Pressure

Increased dietary fiber consumption is often associated with decreases in systolic and diastolic blood pressure. Over the past 10 years, a small number of clinical and prospective studies have reported a modest-to-moderate reduction in systolic and diastolic blood pressure with increased fiber or bran intake.

In a 2008 position paper, The Academy of Nutrition and Dietetics concluded there is fair evidence (Grade II) that “dietary fiber from whole foods or supplements may lower blood pressure, improve serum lipids, and reduce indicators of inflammation. Benefits may occur with intakes of 12 to 33g fiber per day from whole foods or up to 42.5g fiber per day from supplements.”

Lipoproteins

The effect of certain fibers on blood lipids, specifically total and low-density lipoprotein (LDL) cholesterol, has been well documented over several decades. The effect is so well established that both the United States and Europe allow health claims on food products that contain a minimum amount of certain soluble fiber, citing the reduction in CVD risk associated with high consumption of these soluble fibers.

One of the most studied soluble fiber is β-glucan, mainly from oats and/or barley. Meta-analyses have been conducted over the past 10 years on the role of β-glucan and CVD risk reduction confirming that consumption of 3g/day of oat or barley β-glucan leads to significant reductions in blood total and LDL cholesterol. Additional meta-analyses have also reported a reduced CHD risk with increased whole grain and total dietary fiber consumption, and reductions in total and LDL cholesterol with psyllium fiber.
Fiber and Weight Management

Approximately 66% of US adults are overweight or obese, resulting in an increased risk for serious chronic health conditions including diabetes, cardiovascular disease, and certain types of cancer. Due to the tremendous health burden of these chronic illnesses, researchers are studying ways to help people manage their weight, and thereby help them lower their risk for obesity and chronic illness.

Diets high in fiber, particularly whole grain and cereal fibers, have been associated with lower body weights in both cross-sectional and prospective cohort studies. Consequently, people who consume high fiber diets are also less likely to be obese compared to those who consume low fiber diets. According to the Academy of Nutrition and Dietetics’ fiber position paper, high-fiber diets help people manage their weight due to the bulking effect of fiber which emerging science indicates may be more satiating. Increasing dietary fiber consumption may decrease energy absorption by diluting a diet’s energy availability while maintaining other important nutrients. Several large cohort studies and reviews have been published in the past 10 years examining the role of fiber in body weight management; however, there is a lack of human interventional studies specifically testing the role of fiber in weight management.

Clinical research is needed to determine the specific role of fiber in body weight management, including defining type of fiber/combinations of fibers and optimal daily intakes. Future clinical research should also examine the role of dietary fiber on weight loss.

Fiber and Diabetes

Investigation into fiber to help manage glucose response is leading health authorities to make recommendations for increased fiber in the diet.

With the increasing prevalence of obesity and type 2 diabetes mellitus (T2DM), public health officials and scientists are actively researching dietary factors that may help the public manage their blood glucose and insulin levels. It is thought that healthy dietary and lifestyle practices may help keep blood glucose and insulin levels within normal ranges and decrease risk for developing obesity and type 2 diabetes.

Dietary fiber is one of the key nutrients shown to help manage blood glucose and insulin responses and ultimately decrease risk for T2DM. The recommended dietary fiber intake from the American Diabetes Association matches the recommendation from the Institute of Medicine’s DRI Report for US adults, primarily based upon reducing risk of heart disease. The IOM also states that there is evidence that total fiber intake reduces the risk of diabetes.

Of the different fibers investigated for glucose control, β-glucan from oats and barley are among the most researched. The majority of studies suggest a beneficial role for β-glucan in helping to maintain or lower glucose responses. While the majority of studies have focused on β-glucan, other fibers have been shown to also help manage blood glucose including rye, guar gum, psyllium, and certain modified fibers. Future studies are needed to determine the optimal dose and timing of these different fibers on their ability to modulate the glucose response.
Fiber and Metabolic Syndrome

Individuals with MetS have a two-fold increase in risk for heart attack or stroke and a five-fold increased risk for developing diabetes compared to individuals who do not have metabolic syndrome. MetS is considered a "wake-up call" for people because it can be controlled by maintaining a healthy weight, eating a healthy diet, and getting adequate physical activity which will help reduce a person’s risk for developing CVD and diabetes. As part of a healthy diet, both the AHA and American Diabetes Association recommend consuming a diet high in whole grains, fruits and vegetables, lean meats and fish, and low-fat or fat-free dairy products.

Studies have suggested that dietary fiber intake is inversely associated with MetS. While most research has focused on the effects of dietary fiber in CVD and diabetes risk, a smaller number of studies have highlighted the inverse association between dietary fiber and MetS. These later findings are particularly significant given that changes in diet and lifestyle can help ameliorate risk factors for MetS, and consequently lower risk for CVD and diabetes. More research, including randomized, controlled trials, is warranted to determine the role that fiber plays in the etiology of MetS and consequently CVD and diabetes in both children/adolescents and adults.
Fiber and Cancer

Risk factors, prevention and treatments for various cancers are multi-factorial. Fiber’s role is but one tool that can help support a dietary approach.

Research has suggested that dietary fiber may decrease the prevalence of several gastrointestinal disorders that may include colorectal cancer. These studies have proposed that fiber favorably interacts with the gastrointestinal tract through a variety of mechanisms, thereby decreasing the prevalence of these disorders. While fiber has known mechanisms that exert a positive effect on gastrointestinal health, it is most likely just one component of many that together help lower risk for disease.

With this holistic approach, the American Cancer Society recommends that people get enough fiber in their diet by filling their plate two-thirds full with plant foods such as fruits, vegetables, whole grains, legumes and nuts. In addition to fiber, the fruits, vegetables, and grains also contain a wealth of micronutrients and phytochemicals that may play an important role in health.1

Research, primarily from prospective studies, has suggested an inverse association between dietary fiber intake and cancer risk, particularly colorectal cancer and other gastrointestinal cancers. More studies are needed to further determine the specific role of fiber in cancer etiology, as well as the role that fiber plays as part of a complex, multi-factorial diet in cancer risk.1-4

Fiber and the Immune System

Immune health is complicated but more information is being uncovered about fiber’s impact on immune markers.

The GI tract is the largest immune organ for humans. The gut-associated lymphoid tissue (GALT) contains about 60% of all lymphocytes in the body. Dietary constituents, including dietary fiber and prebiotics, impact the function of the GI immune system.1 Prebiotic fibers may impact the GI immune system indirectly as a result of fermentation and the growth of certain intestinal microbiota.2 An inverse association between dietary fiber and C-reactive protein (CRP), a marker of inflammation, has been reported in cohort and cross-sectional human studies. A small number of clinical trials have reported lower CRP concentrations with a wide range of fiber intakes. Whole grain and cereal fiber intakes have also been associated with lower concentrations of pro-inflammatory biomarkers. The impact of dietary fibers on measures of inflammation and clinical disease outcomes are an area for future research.

Survey data and observational and prospective data have all reported inverse associations between either total fiber intake or cereal grain fiber intake and inflammatory markers such as CRP, interleukin-6 (IL-6) and tumor necrosis factor-alpha receptor-2 (TNF-alpha-R2).3-18 Emerging science provides conflicting data on reduction of inflammatory markers associated with intake of certain fibers.15

Evidence for the role of prebiotic fibers in infant nutrition is overall insufficient to draw conclusions.16-21 Research with healthy university students supplemented with GOS has shown reduced GI symptoms and duration of cold or flu symptoms.22
Recommended Amounts

How much fiber do human beings need for optimum health? Across the board, the answer is more than most of us are consuming. Since 2005, the Dietary Guidelines for Americans has noted fiber as a “nutrient of concern.” With an estimated nine out of 10 Americans failing to get enough fiber, this inadequate under-consumption represents a “significant public health concern.”

Daily dietary fiber intake recommendations are based on the Institute of Medicine’s report, shown in Table 1. The Adequate Intake (AI) for fiber is 14g/1000 kcal of intake per day.

Table 1: Institute of Medicine Recommended Daily Intake for Fiber

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age (years)</th>
<th>Dietary Fiber DRI (g/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>01–03</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>04–08</td>
<td>25</td>
</tr>
<tr>
<td>Female</td>
<td>09–13</td>
<td>26</td>
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<tr>
<td></td>
<td>14–18</td>
<td>26</td>
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<td>19–50</td>
<td>25</td>
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<td>21</td>
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<td>Male</td>
<td>09–13</td>
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<td>14–18</td>
<td>38</td>
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<td></td>
<td>19–50</td>
<td>38</td>
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<tr>
<td></td>
<td>50+</td>
<td>30</td>
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</tbody>
</table>

The Daily Value (DV) is used on the Nutrition Facts Panel of food labels and is overseen by the Food and Drug Administration (FDA). The DV is a single number based on a 2000 calorie/day diet so that the label reader will have a point of reference for how the labeled amount of a nutrient stacks up to this one particular number. The DV for fiber is 25g/day.
Filling the Fiber Gap

Why is there such a large gap between actual fiber intake and the recommended amount? There are likely many reasons.

- There is a lack of consumer understanding about dietary fiber and why it is important in the diet. One study reported consumers consider fiber an important health “gauge” when making food selections.¹
  - Still nearly 70% of consumers in International Food Information Council Foundation’s 2013 Food and Health Survey indicate fiber and whole grains are strong considerations for making purchase decisions.²
  - Emphasis on whole grains could be confounding consumer’s perceptions of fiber intake as noted in a 2009 consumer survey indicating that 85% of consumers expected whole grain foods to provide a good or excellent source of fiber, which is not always the case.³

- Intake of fiber-rich fruits, vegetables and whole grains remain below recommended levels, despite dietary recommendations and nutrition education campaigns.
- Most foods in typical American diets deliver only one to three grams of fiber per serving. While they are eaten often enough to supply some fiber, it is not enough to reach recommended levels.

Simple Steps to Eating More Fiber

As a health professional, you can help more people enjoy the benefits of eating enough fiber. The educational tools and recipes on our website will support you in discussing these issues. With the help of nutrition professionals, consuming enough dietary fiber can become much more common throughout the population.

Find sample meal plans, client-friendly handouts and presentations, recent studies on fiber, and more, all at kelloggnutrition.com.
References

Forward, History, and Defining Fiber


Fiber Sources, Types of Grains, and Properties of Fiber


Fiber and Digestive Health


Fiber and Cardiovascular Health


Fiber and Metabolic Syndrome


Fiber and Cancer


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