



INTRODUCTION TO FIBER

DIETARY FIBER AND HEALTH

Not so long ago, your grandmother might have said, “You need your roughage every day to stay healthy.” Medical interest in “roughage,” or dietary fiber, was piqued when physicians working in Africa found that certain societies appeared to be free from many of the chronic health challenges that afflict Western cultures. They found that people in these societies were living on high-fiber diets of unrefined, unprocessed foods. These doctors determined that the lack of fiber in modern Western diets may be one of the root causes of many common health problems.

An essential “non-nutrient,” dietary fiber is a complex of indigestible carbohydrates that provide cellular structure to the plant foods we eat. Fiber occurs in the skin and pulp of fruits and vegetables, plus seeds, nuts, grains, and legumes. Soluble fiber is delivered as gums and pectins. Insoluble fiber is provided as cellulose, hemicellulose, and lignin.

HOW A HIGH-FIBER DIET HELPS KEEP YOU HEALTHY

Scientific research has linked diets low in fiber with increased risk of disease, including cancer of the colon, cardiovascular disease, and diabetes. Fiber sufficiency, on the other hand, has been shown to reduce the risk of those same diseases. Many scientists believe that by increasing fiber in our diets, we can decrease the incidence of a wide range of conditions and diseases.

■ Heart Health

Elevated blood cholesterol is a major challenge to long-term heart health. Recent studies have shown that water-soluble dietary fibers, commonly found in beans and oat bran, can help reduce blood cholesterol levels. Scientists think the soluble fibers may bind dietary and bile acid cholesterol in the gastrointestinal (GI) tract, thus preventing cholesterol from being absorbed into the bloodstream.

■ Gastrointestinal Health

The presence of ample fiber in the GI tract increases fecal bulk, which may dilute the concentration of cancer-causing substances in some foods. In addition, these fibers actually reduce the amount of time fecal bulk is present in the GI tract, which reduces the length of time the GI tract is exposed to harmful substances. In addition, fiber-rich diets can reduce intestinal pressure which can lead to diverticulosis, a condition marked by small inflammations within the gastrointestinal tract. Between 30 and 40% of adults suffer from diverticulosis.

■ Blood Sugar Balance

Dietary fiber slows the rate of sugar absorption from the intestines into the bloodstream, which helps regulate blood levels of glucose and insulin.

■ Weight Gain and Obesity

In the U.S., about 60% of the adult population meets the current definition of clinical obesity. Fiber plays an integral role in weight control because it provides the bulk that makes you feel full, without the calories. Additionally, fiber-rich foods like fruits, vegetables, and whole grains tend to have a naturally high nutrient content, more crucial than ever while you’re eating less to lose weight.

■ Regularity

Fiber is also helpful in preventing constipation. Because fiber attracts and holds water in the gastrointestinal tract, fecal bulk increases and, as a result, keeps you “regular.” The beneficial effects of fiber in preventing and treating constipation are not new. Since the time of the ancient Greek physician Hippocrates, wheat bran has been known to act as a laxative. Marked differences exist, however, in the activity of different dietary fibers in this regard. Insoluble cereal grains and vegetable fibers, such as those from peas and carrots, have marked laxative activity, whereas other dietary fibers, such as pectin and other soluble fruit fibers, have little if any impact on regularity.

WE DON’T GET ENOUGH FIBER

The National Cancer Institute recommends a dietary intake of 20 to 30 grams of fiber per day for adults (with an upper limit of 35 grams). However, the average American consumes only 10 to 20 grams per day — about half of the recommended amount. Considering the importance of dietary fiber, this appears to be a critical weakness in the American diet, and may be an underlying cause of many health problems.

Adding to the challenge is the fact that modern, sedentary lifestyles may not comfortably accommodate the increased calorie intake needed to increase fiber intake. To add 15 to 20 grams of fiber to your daily diet, you would have to eat:

- 10 servings of beets, *or*
- 12 bananas, *or*
- 7 slices of whole wheat bread, *or*
- 200 peanuts.

MORE THAN JUST BRAN

For decades, “fiber” has been considered synonymous with “bran.” However, as explained above, fiber is not a single substance, but rather a complex group of several dietary factors, each delivered in different forms from a variety of foods.

■ Cellulose and Hemicellulose

Cellulose is the most abundant fiber in our foods. It is cellulose which forms the cell walls of plants. Hemicellulose is another complex carbohydrate which combines with pectin to create the matrix, or intercellular substance, in which the cellulose fibers are enmeshed. Cellulose and hemicellulose



contribute to regularity and help to relieve and prevent constipation. They may also help protect against diverticulosis, colon cancer, and digestive disorders. Cellulose and hemicellulose remain virtually unchanged as they pass through the digestive system, adding bulk and absorbing water along the way. The additional volume increases the speed at which food moves through the GI tract.

■ Gums and Pectins

Gums are the soluble portion of fiber, part of the pulp of plants. Pectin is the gel-like constituent which acts as a binding agent for the fiber structures of plants. Gums and pectins may act to lower blood lipids, including cholesterol. These kinds of fiber can bind to cholesterol-containing bile acids in the intestine, thereby decreasing the efficiency of fat digestion and reducing the amount of fat absorbed. The bile acids are eliminated, and the body then draws upon available cholesterol supplies to make a new supply of bile. Moreover, research suggests that adding fiber to the diet can reduce the amount of insulin needed by diabetics. It is suggested that the gums and pectins slow absorption of certain nutrients, making it easier for the body to keep pace with the influx of carbohydrates after a meal.

■ Lignin

Lignin is a woody substance that helps support the walls of plant cells. It helps move food through the gastrointestinal system more quickly.

Fruits, vegetables, and grains vary considerably in the quantity and types of fiber they contain. For example, leafy cabbage, young peas, and other immature plants provide a good deal of cellulose, but very little lignin. Bran supplies high levels of cellulose, hemicellulose, and lignin — but contains no pectin or gums. Therefore, obtaining both the density and diversity of fiber needed in the diet can present a difficult challenge.

GNLD SUPPLIES CONCENTRATED FIBER IN TWO CONVENIENT FORMS

GNLD's Vitality Multi-Fiber Blend and All-Natural Fiber Food and Drink Mix provide easy and versatile options for adding the 10-20 grams of fiber missing from most Americans' daily diets.

Both products offer a unique mixture of both soluble and insoluble fibers derived from a variety of whole-food sources — supplying complete fiber, just as nature intended.