

## FIBER

Dietary fiber includes a variety of plant-derived compounds, i.e., non-starch polysaccharides and lignin, that are not digested by intestinal enzymes. Fiber is composed of a variety of materials that are often categorized as insoluble or soluble in boiling water. Insoluble polysaccharides include cellulose and some forms of hemicellulose. Lignin is part of insoluble fiber that is not a polysaccharide but a polymer of phenylpropane molecules. The soluble fibers include pectins, gums, and mucilages.

Fiber is not digested nor absorbed in the small intestine but is fermented by bacteria in the colon. On a typical American diet, about 75% of ingested fiber is fermented. While there is no absolute requirement for dietary fiber, it is almost certainly needed for normal bowel function. Adequate fiber clearly prevents constipation, diverticular disease of the colon, and hemorrhoids.

Diets high in fiber may prevent a variety of conditions including obesity, diabetes, gallstones, coronary artery disease, or colon cancer. Epidemiological studies show fairly clearly that diets high in fruits, vegetables and cereal grains are associated with decreased risk of developing these diseases.

**Diet recommendations:** Current average fiber intake is estimated at about 12 g/day. Many health organizations recommend 20-35 g/day but there is no level set in the current Recommended Dietary Allowances.

**Food sources:** Foods that are rich in dietary fiber include whole grains (particularly the bran portions), legumes, and some fruits and vegetables. Most foods contain mixtures of both insoluble and soluble fiber. Examples of foods rich in insoluble fiber are wheat bran, nuts and barley; soluble fiber is found in oat bran, melons, and dried fruits. Beans are good sources of both fiber types. Cooking does not decrease the amount of fiber in food but changes its three-dimensional structure.

**Potential hazards:** Most side effects have been traced to inadequate fluid intake with consumption of large amounts of fiber, usually in a purified form. This indicates the desirability of obtaining fiber from food sources, rather than from supplements.