

Dietary Fiber

Linda Boeckner, Extension Nutrition Specialist
Karen Schledewitz, Extension Assistant

Defining Fiber and Its Role

Food fibers are the part of plant foods that remain undigested. Consumers and researchers are increasingly interested in the role that dietary fibers play in maintaining the body's health.

Fiber-rich foods help with constipation, hemorrhoids and diverticular disease. Some types of fiber may have a cholesterol-lowering effect that could help reduce risk of heart disease. In addition, fiber may reduce the incidence of certain types of cancer, particularly those associated with the digestive tract, and may help control diabetes. Recent studies also suggest that eating the recommended amount of dietary fiber aids in weight management and helps prevent obesity, especially in women.

Soluble and insoluble fibers make up the two basic categories of dietary fiber. Insoluble fibers — cellulose, hemicellulose and lignin — are not soluble in water. Foods that contain insoluble fibers are wheat bran, whole grain products and vegetables. Insoluble fibers are responsible for increased stool bulk and help to regulate bowel movements.

Soluble fibers — gums, pectins and mucilages — become gummy in water. When eaten, these fiber sources actually slow the passage of food through the digestive system. Some researchers believe this action helps to regulate cholesterol and glucose (sugar) levels in the blood by affecting absorption rates. Food sources of soluble fibers are dried beans, oats, barley and some fruits and vegetables.

Fiber Ground Rules

Placing too much emphasis on one type of fiber or fiber-rich food is risky. Achieving balance in eating dietary sources of fiber is a key concept. Eating too much insoluble fiber such as wheat bran and leaving out soluble fibers will result in a bulky diet but few benefits from soluble fiber. Furthermore, too much fiber intake without adequate fluid intake can result in abdominal pain and discomfort.

How Much Should You Eat?

Healthy adults should eat between 20-35 grams of dietary fiber each day. According to current studies,

American men and women eat about half this amount. To add more fiber to the diet, follow these steps:

1. Start slowly by adding one fiber-rich food daily for one week, then increase to two until recommended levels are reached.
2. Add high-fiber foods gradually, since too much fiber at once produces discomfort.
3. Eat a variety of fiber-rich foods such as whole grain bread, oatmeal, fruits and vegetables

MyPyramid — the food guidance system from United States Department of Agriculture — provides individuals with recommended food amounts based on age, sex and activity level. Dietary fiber will come from eating recommended amounts from the grains, fruits and vegetables groups. Go to www.MyPyramid.gov to find the amounts of foods from these groups that are right for you. Remember these points to increase fiber intake:



- Foods are considered whole-grain if a whole grain (brown rice, graham flour, whole oats, whole rye, whole wheat, wild rice, bulgur, oatmeal or whole grain corn) is listed first on the ingredients label.
- To increase fiber from fruit, eat more whole fruits rather than fruit juice. Whole fruits have more fiber than fruit juices.
- Select from all five vegetable subgroups (dark green, orange, dry beans, starchy and others) several times a week. Dry beans are an especially rich source of fiber.

Fiber Supplements?

Get dietary fiber from foods, not pills or supplements. Food sources are more efficient and will supply additional nutrients. Excessive use of fiber supplements can lead to acute digestive problems and blockages. When the diet is fiber-rich, drink plenty of fluids each day. This will help reduce the risk of abdominal discomfort and intestinal

blockage caused by too much fiber. The American Dietetic Association advises that fiber intakes greater than 50-60 grams a day also can block the absorption of some nutrients.

References

ADA Reports. Position of The American Dietetic Association: Health implications of dietary fiber. Journal of the American Dietetic Association 102:993-1000, 2002.

Howarth, N, Huang T, Roberts S, McCrogy M. Dietary fiber and fat are associated with excess weight in young and middle aged adults. Journal of the American Dietetic Association 105:1365-72, 2005.

Lanza E, Jone DY, Block G, Kessler L. Dietary fiber intake in the U.S. population. American Journal of Clinical Nutrition 46:790-797, 1987.

United States Department of Health and Human Services and U.S. Department of Agriculture. *Dietary Guidelines for Americans 2005*. 6th edition, Washington DC: U.S. Government Printing Office, January 2005.

Dietary Fiber in Foods*

	<i>Serving size</i>	<i>Total Fiber (grams)</i>	<i>Soluble Fiber (grams)</i>	<i>Insoluble Fiber (grams)</i>
BREAKFAST CEREALS				
All-Bran	1/3 c (28 gm)	8.43	.59	7.84
Cornflakes	1 1/4 c (28 gm)	1.20	.14	1.06
40% Bran-type	3/4 c (28 gm)	5.46	.56	4.90
Oatmeal, regular, cooked	1 c (234 gm)	4.45	1.64	2.81
Puffed rice	1 c (28 gm)	.53	.14	.39
Shredded wheat	2/3 c (28 gm)	3.16	.31	2.86
Wheat germ	1/4 c (56 gm)	7.84	.62	7.22
FRUITS				
Apple, no skin	1 med (138 gm)	2.07	.28	1.79
Apple, with skin	1 med (138 gm)	2.76	.28	2.48
Banana	1 med (114 gm)	1.94	.57	1.37
Cantaloupe	1/4 (133 gm)	.93	.13	.80
Grapes	20 (100 gm)	1.00	.10	.90
Orange	1 med (131 gm)	2.49	.79	1.70
Pineapple, canned	1/2 c (125 gm)	.88	.13	.75
Raisins	1/4 c (36 gm)	1.51	.22	1.30
Strawberries	1 c (149 gm)	2.68	.60	2.09
VEGETABLES				
Beans, green	1/2 c (67 gm)	1.27	.34	.94
Broccoli, raw	1/2 c (78 gm)	2.57	.23	2.34
Cabbage, raw	1 c (70 gm)	1.19	.07	1.12
Carrots, raw	1 med (72 gm)	1.80	.14	1.66
Corn, frozen, cooked	1/2 c (83 gm)	1.74	.08	1.66
Potato, no skin	1 med (156 gm)	2.03	.47	1.56
Potato, with skin	1 med (202 gm)	5.05	1.21	3.84
Turnip greens, frozen	1/2 c (82 gm)	2.05	.08	1.97
LEGUMES				
Kidney beans, canned	1/2 c (128 gm)	6.66	1.41	5.25
Pork and beans, canned	1/2 c (128 gm)	5.63	1.79	3.84
Peas, green, frozen	1/2 c (80 gm)	2.80	.24	2.56
BREADS, PASTA				
Bread, white	1 sl (25 gm)	.65	.15	.50
Bread, whole wheat**	1 sl (28 gm)	2.59	.57	2.02
Rice, regular, cooked	1/2 c (102 gm)	.41	.10	.31
Spaghetti, cooked	1 c (140 gm)	2.10	.56	1.54

*Most values in this table were adapted from Marlett, JA. Content and composition of dietary fiber. Journal of the American Dietetic Association 92:175-186, 1992.

**Adapted from Anderson, JA and Bridges, SR. Dietary fiber content of selected foods. American Journal of Clinical Nutrition 47:440-447, 1988.