

Dietary fiber is the edible parts of plants or analogous carbohydrates that are resistant to digestion and absorption in the human small intestine with complete or partial fermentation in the large intestine. Dietary fiber includes polysaccharides, oligosaccharides, lignin, and associated plant substances. Dietary fibers promote beneficial physiological effects including laxation, and/or blood cholesterol attenuation, and/or blood glucose attenuation” (Definition Adopted by the American Association of Cereal Chemists 2000).

Natural high level sources of dietary fiber are whole grains, fruits, and vegetables. Many of the dietary recommendations regarding dietary fiber focus on consuming these foods high in dietary fiber, because some nutrition experts believe that other components of the food may be contributing to the health benefits along with, or synergistically with the dietary fiber. Obviously, humans are unable to synthesize dietary fiber internally and must depend on their food for adequate supplies.

### *Dietary Fiber Content of Some Foods*

<b>FOOD</b>	<b>g/100g</b>	<b>FOOD</b>	<b>g/100g</b>
Almond	10-11	Oat Bran	16.5-17.5
Apple (peeled)	1.5-2	Oat Meal	1.5-2.5
Apple (skin on)	2-3	Orange	1.5-2.5
Asparagus	1.5-2	Peanuts	1-2
Banana	1.5-2.5	Potato	1.5-2.5
Broccoli	3-3.5	Spinach	2.0-2.6
Cabbage	1-2.5	Strawberry	1.8-2.3
Cashew	3-4	Tangerine	1.8
Cheerios	3 (30g serv)	Total Raisin Bran	5 (55g serv)
Melon-cantaloupe	0.5-1	Walnuts	10-11

### ASSAY PRINCIPAL AND APPLICABILITY

Dietary fiber in foods is analyzed using AOAC Official Method of Analysis 985.29 (AACC 32-05) or AOAC 991.43 (AACC 32-07). Total, or the component, soluble and insoluble dietary fiber can be determined. Samples are defatted, dispersed in buffer, the starch is gelatinized, then the sample is digested with protease and amyloglucosidase enzymes designed to simulate the digestive process of the small intestine. Ethanol is added to precipitate the soluble dietary fiber. The undigested mass is isolated and weighed. Protein and ash are

determined on the residue and corrections applied if necessary. The method is applicable to all foods. If a food contains polyfructoses (inulin or fructooligosaccharides) or modified starches or dextrans that resist digestion, an improper amount of the digestion resistant mass will be captured in the precipitate, therefore additional procedures will have to be run if these fractions are to be determined. Foods containing ground psyllium husk require special treatment if soluble and insoluble dietary fiber quantities are desired due to its high viscosity in solution.

Lower Detection Limit	0.2g/100g(w/w)
Reporting Units	g/100 g
Information required with sample Special Notes	Estimate level Indicate if the sample contains a special fiber is such as psyllium, inulin, polydextrose, fibersol, Hydroxypropylmethyl cellulose or arabinogalactans.

### RECOMMENDED DAILY ALLOWANCES

Currently, labeling regulations list the Daily Reference Value for Dietary Fiber intake at 25 g of Total Dietary Fiber.

### REFERENCES:

AOAC Official Method of Analysis 985.29 Total Dietary in Foods-Enzymatic-Gravimetric Method-Phosphate Buffer and 991.43 MES-Tris Buffer.

The Definition of Dietary Fiber. Report of the Dietary Fiber Definition Committee to the Board of Directors of the American Association of Cereal Chemists.

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