



flax

An Excellent Source of Omega-3 and Fiber

Flax is an ideal functional food ingredient that adds flavor and nutrition to foods. Consumers like the mild, nutty flavor of flax. While it is generally known that flax enriches foods through generous amounts of the essential omega-3 fatty acid, alpha-linolenic (ALA), the high fiber content of flax is less known. Yet, whole and milled flax provide all the dietary fiber of whole grain.

Composition of flax as a food

Fat ^a	41%
Total dietary fiber	28%
Protein	20%
Moisture	7%
Ash	4%

Flax — Its omega-3 content

Because more than half the oil (57%) in flax is the omega-3 fatty acid, ALA, flax is an excellent source of this essential fatty acid. In fact, flax contains the most ALA of all the plant seeds and oils in the North American diet. In comparison to other vegetable oils, 100 g of flax oil contains approximately five times more ALA than 100 g of canola or soybean oil. In the United States, foods such as flax oil and flax seeds qualify for a nutrient content label claim as a “high” source of ALA omega-3 fatty acid, according to 2004 regulations of the U.S. Food and Drug Administration.

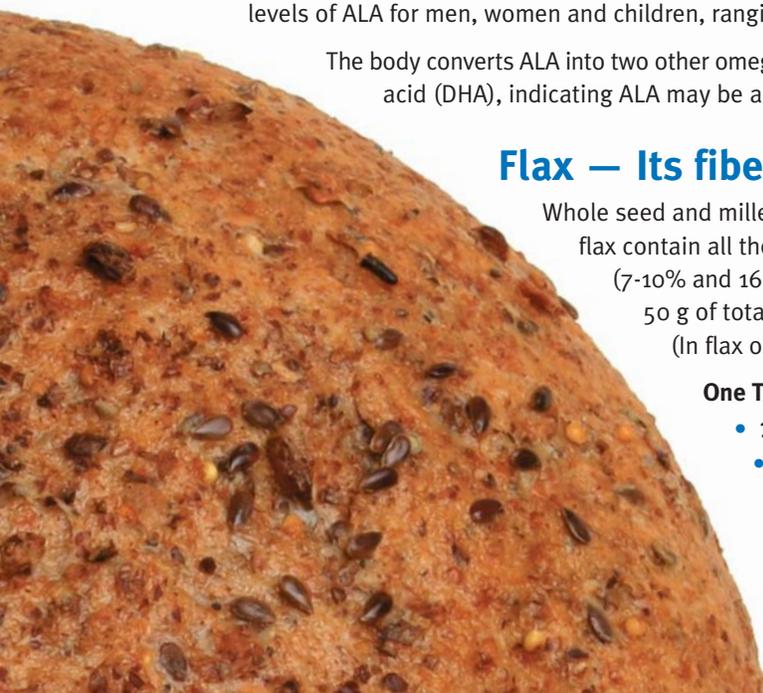
The omega-3 fatty acid, ALA, is essential to human health because ALA must be taken in through foods; the body cannot make it. Recognizing this essential nature, in 2003, the U.S. Institute of Medicine set daily Adequate Intake levels of ALA for men, women and children, ranging from .7 g to 1.6 g /day.

The body converts ALA into two other omega-3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), indicating ALA may be an alternative to fish oil as a source of EPA and DHA.

Flax — Its fiber content

Whole seed and milled flax also provide ample dietary fiber. Whole seed and milled flax contain all the fiber of whole grains — both insoluble and soluble fiber (7-10% and 16-19%, respectively). One cup (180 g) of whole flax seed contains 50 g of total dietary fiber, and one cup of milled flax (130 g) contains 36 g. (In flax oil, the fiber is stripped away during the oil extraction process.)

One Tbsp of milled flax contains as much total dietary fiber as:

- 1 slice of whole wheat bread
 - 1/2 cup of cooked brown rice
 - 1/4 cup of cooked oat bran
 - 1/3 cup of cooked, chopped broccoli
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Flax promotes cardiovascular health

The ALA, fiber and lignans found in flax help the body function well. In the U.S., flax-enriched foods can qualify for several structure/function claims because of the omega-3 fatty acid found in them. Some examples of allowable claims include: “Promotes cardiovascular health,” “Supports the immune system,” and “Promotes general health.”

Many studies link flax nutrients and cardiovascular health. For example, findings of large population studies, such as the Health Professionals Follow-Up Study and the Family Heart Study, support a specific effect of ALA in preventing heart disease. ALA protects against heart disease and stroke by:

- Helping to reduce blood lipids
- Enhancing the elasticity of blood vessels
- Having an anti-inflammatory effect

Other health benefits

Flax contributes to health in other ways. Foods rich in insoluble fiber, like flax, also improve laxation. Flax shortens the transit time of food through the digestive system and can, therefore, be a boon to those who suffer from constipation. Adding milled flax to the diets of elderly residents in an institutional setting has been found to increase the frequency of bowel movements, reducing the residents’ reliance on laxatives.

Research into the health benefits of high-fiber diets is quite well-established, but flax has not traditionally been considered in this way. Including high-fiber flax in subsequent nutrition studies will be the next step in establishing its place in the whole-grain category of foods. Meanwhile, research results identifying the health benefits of plant-derived ALA continue to mount. As an excellent source of both an omega-3 fat and fiber, tasty flax enriches foods in many ways.



^aAnalysed by the American Oil Chemists’ Society’s (AOCS) Official Method Am 2-93, which is based on the Federation of Oils, Seeds and Fats Associations Ltd. (FOSFA) Official Method. The American Organization of Analytical Chemists (AOAC) Method 996.06 will produce a lower fat content.