

Nutritional Benefits

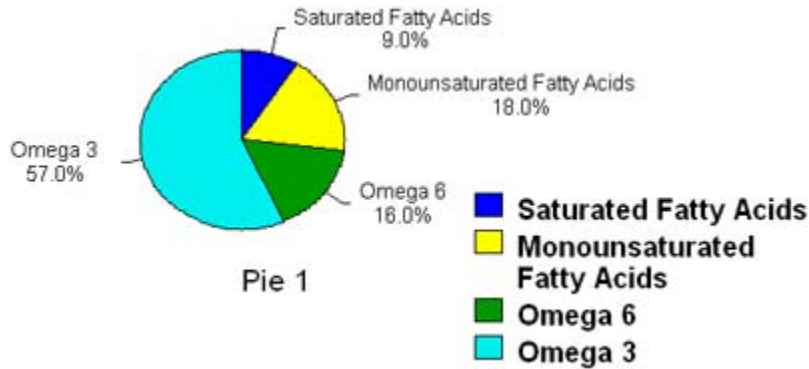
Flaxseed is one of nature's most nutrient rich grains and is the object of considerable medical and nutritional research exploring its nutritional and nutraceutical benefits for a wide range of human health conditions and disorders.

Health Benefits of Flaxseed Components				
	Omega-3	Lignans	Soluble Fiber	Other Phytonutrients
Cardiovascular Health	•	•	•	•
Diabetes	•		•	
Renal Disease	•	•		
Immune System	•	•		•
Anti-Oxidant		•		•
Anti-Cancer	•	•	•	•
Bone Health	•			
Women's Health		•		•
Prostate Health		•		
Glycemic Index			•	

Healthy Omega-3s

In 2004, the U.S. Food & Drug Administration recognized the importance of omega-3s to the American diet when it issued "Nutrient Content" label claims regulations permitting food manufacturers to designate their products as "high, rich, excellent" or "good" sources of omega-3s according to certain criteria. The FDA action was premised on an Institute of Medicine /National Academy of Science (IOM/NAS) report that concluded that the average American diet was seriously deficient in omega-3s.

Flaxseed is one of Nature's richest available sources of omega-3 oils. Even a relatively small amount of flaxseed per serving will transform a product into a "rich" source of omega-3. Virtually all oils found in flaxseed are healthy mono- and polyunsaturated oils that are encapsulated and protected within the seed's natural, antioxidant-rich grain matrix.

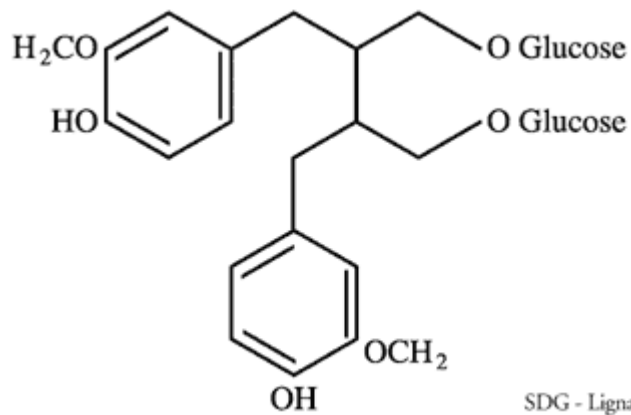


Slightly more-than half the oil in flaxseed is in the form of alpha-linolenic acid (ALA), an "omega-3" oil essential to good health that is also deficient in the average American diet. A mounting body of nutritional and medical research has been documenting the long-term damage to health incurred by chronic dietary omega3 deficiencies. The FDA has recognized the importance of omega-3 to public health through its issuance of qualified health claims for omega-3 and its importance with regard to coronary vascular health. Flaxseed contains only trace amounts of unhealthy saturated fats - and it is trans-fat free!

It is not just the amount of omega-3 consumed but the amount of omega-3 in relation to the amount of omega-6 oils consumed that is important. Flaxseed provides one of the only non-animal sources of omega-3 that contains significantly more omega-3 than omega-6. To improve omega-3 status, therefore, it is critically important to consume foods that contain significantly higher levels of omega-3 than omega-6. There are very few foods that do that - primarily, it's a choice between fish and flaxseed.

ALA is converted by the body into the same "long-chain" omega-3s that are found in fish oils, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). , which are also essential fatty acids. A diet rich in flaxseed, therefore, will provide all three omega-3 oils that are essential to healthy human and animal nutrition.

Lignans



SDG - Lignan

Lignans are complex polyphenolic antioxidants that exhibit "phytoestrogenic" properties. Phytoestrogens are natural, plant-based compounds that mimic and interfere with some of the negative consequences of estrogenic hormones in human metabolism. The principle lignan found in flaxseed is seicoisolariciresinol diglycoside...or "SDG", for short. Flaxseed contains about 10-times the quantity of lignan found in other lignan-rich plant sources, such as sesame and rye.

Carbohydrates

Dietary fiber helps support gastrointestinal health and is the subject of several FDA Health Claims that suggest that the consumption of dietary fiber may help protect against certain cancers and coronary heart disease. Because soluble dietary fiber slows the absorption of sugars from the intestinal tract, consumption of high-soluble fiber products will also reduce a meal's glycemic index.

Net Carbohydrates in Grains			
	Total Carbs ¹	Typical TDF ²	Net Carbs ³
Rice Flour (Brown)	77%	5%	72%
Corn Flour (Mesa)	76%	10%	66%
Whole Wheat Flour	73%	12%	61%
Whole Oat Flour	66%	14%	52%
Flaxseed (Whole Milled)	30%	27%	3%
Oat Bran	66%	24%	42%
Rice Bran	50%	21%	29%
Wheat Bran	65%	43%	22%
Flaxseed Bran	64%	55%	9%
Corn Bran	86%	86%	0%

¹ Sources: Cho, S. et al; "Complex Carbohydrates in Foods", 1999, Marcel-Dekker, Inc., New York
 Nelson, A.; "High-Fiber Ingredients", 2001, Eagan Press, St. Paul, Minnesota
 Pizzey's Milling; Angusville, Manitoba, Canada

² TDF: Total Dietary Fiber

³ Formula: Total Carbohydrates - Typical TDF = Net Carbohydrates

Flaxseed provides one of the highest dietary fiber contents found in any whole-grain ingredient (27%), contains virtually zero net (i.e., digestible) carbohydrates and exhibits a documented ability to reduce a food's glycemic index value.

Flaxseed's dietary fiber contains a good balance between soluble (7 - 10%) and insoluble dietary (16 - 19%) fibers. This is important because, although both these types of dietary fibers are nutritionally important, they function in very different ways. The soluble fiber in flaxseed consists of "mucilaginous" fibers, which absorb large quantities of water and become "slippery" textured. The ability of flaxseed fiber to absorb high quantities of water and develop its slippery texture provides unique supporting benefits to intestinal health (as bulking agents, for example), this quality allows them to be used as a fat replacement in breads and other food-product applications.

Virtually all of the carbohydrates in flaxseed consist of non-digestible dietary fiber. Although flaxseed's composition will vary from region-to-region and crop-to-crop, laboratory analyses consistently indicate that the amount of digestible carbohydrates (i.e., "net carbs") ranges only between 0% and 3% of the total flaxseed. Flaxseed, therefore, makes an ideal high-fiber, low-net carb ingredient.

Protein

Flaxseed is a significant source of high-quality protein. In fact, pound-for-pound, whole-grain flaxseed contains just about as much protein as beef, chicken, pork or fish. It's not just protein content that is important, however. It is protein quality, as measured by the type and quantity of amino acids that the protein contains, and, even more important, its proportion of those amino acids that human metabolism can't create on its own. In fact, the amino-acid quality of flaxseed protein is very similar to that of soybean protein, recognized to be one of the most nutritious plant-based proteins in existence. Flaxseed is gluten-free.

Antioxidants

Natural Antioxidants in Grains

Food Source:	TE/100g*
Whole, Milled Flaxseed	8,000
High-Bran RTE Cereal	5,300
Wheat & Corn Bran Biscuit	3,900
Blueberries	3,300
Whole-Grain Puffed Oat	2600
100% Whole-Grain Bread	2000

*TE: Trolox Equivalents

Note: all values, except Pizzey's flaxseed, adapted from:

Miller, H.E. et al. *Cereal Foods World*, 45 (2): 2000, pg. 59-63.

Whole-milled flaxseed contains very high levels of antioxidants. Presumably, this reflects Nature's way of protecting the healthy polyunsaturated oils that are distributed within the seed matrix. Using the Trolox Equivalence method (an analysis that uses vitamin-E as its benchmark), flaxseed contains roughly twice the antioxidant value of blueberries or blackberries, berries which are celebrated for their antioxidant value. The antioxidant content of flaxseed bran is even higher.

Flaxseed's antioxidants include about 1% by weight of lignans (complex polyphenolics) and an additional 1% of simple polyphenolics. In addition, flaxseed contains significant concentrations of tocopherols, tocotrienols and phytic acid.