

FLAX FOR HEALTH

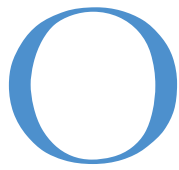
This ancient grain
is a good source
of **essential fat,**
dietary fibre
and **lignans**



Photo: Blair McCann

Ancient records show that the human race has consumed flaxseed since the beginning of civilization. **Before 5,000 BC,** Egyptians carried **flaxseed** in their medicine bags. Much later in history, Hippocrates wrote about using flax for the relief of **abdominal pains.** In 8th century France, King Charlemagne considered flax so important for the health of his subjects that he passed laws and regulations requiring its consumption.

By Artur Klimaszewski, MD



ver the centuries, the growing of flaxseed has spread across Europe, Africa, and, finally, to North

America. Flax was the first oilseed to be widely grown in Western Canada.¹

Today, scientific findings are confirming the nutritional benefits of flaxseed in a balanced diet. Flaxseed offers:

- A high content of Alpha Linolenic Acid (ALA). ALA is an essential fatty acid that is converted in the body to EPA and DHA, two compounds recognized for their benefits in heart health, arthritis, thrombotic disease, and brain function. ALA also has many benefits independent of EPA and DHA. ALA is useful in heart disease, improving immune function, cancer prevention, and male infertility.
- Large quantities of soluble and insoluble dietary fibre, which helps increase laxation.
- The highest plant source of lignans, which are strong antioxidants that could reduce the aging process and protect against some environmental toxins. Lignans may help reduce the risk of certain forms of cancer, particularly cancers of the breast and colon.

Flaxseed as a source of “good” fats

Flaxseed oil is a remarkably good source of Alpha Linolenic Acid (ALA). ALA is an essential fatty acid and is one of the essential nutrients that is necessary for life. ALA must be obtained from the diet — the human body is not able to manufacture it.

Approximately 20% of the ALA we consume is transformed in our bodies into two other fatty acids: EPA and DHA (these are the same beneficial compounds found in fish oil). The benefits of EPA and DHA include:



Photo: Blair McCann

Research has shown that Alpha Linolenic Acid, a “good” fat found in the seed of the flax plant, can help protect against heart diseases, improve immune function, help in cancer prevention and improve male infertility.

protection from fatal heart attack, decreased inflammation and pain in arthritis, and protecting from thrombotic disease.

As well, DHA alone is noted for its effects on brain function, mood and behaviour. DHA is one of the building blocks for brain growth and development. Numerous animal studies show that DHA improves learning, vision processes, memory, and concentration.² In a Rotterdam study with humans, researchers found that elderly men who consumed more DHA were able to better sustain their mental abilities — including memory, concentration, and ability to communicate verbally.³

In a Japanese study, students who took supplemental DHA were able to keep their aggression in much better control than those in the placebo group.⁴

Due to the benefits of EPA and DHA produced from ALA in the diet, flaxseed consumption may be particularly important for vegetarians and people who prefer not to eat fish often.

In the past, most research on ALA has related to its role in producing EPA and DHA. Research in recent years, however, has brought evidence that ALA has other beneficial functions in the human body beyond its conversion to EPA and DHA — ALA is useful in protecting against heart diseases, improving immune function, cancer prevention, and improving male infertility.

Heart diseases

A growing body of research clearly shows that flaxseed is a beneficial dietary supplement for people who want to reduce their risk of heart attack and atherosclerosis and maintain a healthy level of blood cholesterol.

Heart attack: Population studies suggest that a diet rich in ALA protects against heart attack. Animal studies show that ALA can also reduce the occurrence of malignant heart arrhythmia such as ventricular fibrillation or ventricular tachycardia. Furthermore, dietary ALA can prolong the lives of those who have already experienced a heart attack. This was evidenced in a recent North American study of more than 76,000 nurses whose dietary habits were fol-

lowed for more than 10 years.⁵

It was also evident in a seven country study which showed the population on the island of Crete had a longer life span and a lower cardiovascular mortality rate than other populations. Their good health was partly attributed to their diet, which was high in ALA. A study in France found that recent heart-attack victims that followed the Cretan diet saw their mortality rate fall by more than 70%.⁶

Atherosclerosis: Multiple studies have well documented the role of ALA in the prevention of atherosclerosis, which is the underlying cause of many cardiovascular diseases, including heart attacks. It has been found that the addition of ALA to the diets of hypertensive rats significantly extends their life span due to the inhibition of the growth of atherosclerotic plaque in their blood vessels.⁷

Cholesterol: Researchers at the University of Toronto found that total blood cholesterol levels dropped by 9% and LDL decreased by 18% when a group of 9 healthy women added flaxseed to their regular diets. The women ate 50 g of milled flaxseed a day (as milled flaxseed or cooked into bread) for four weeks.⁸ High total cholesterol and LDL-cholesterol (“bad” cholesterol) levels are considered to be risk factors for atherosclerosis.

In another similar study, 10 young, healthy men and women ate flaxseed muffins providing 50 g of flaxseed per day for four weeks. Total plasma cholesterol was reduced 6% and LDL-cholesterol was reduced up to 8%. Plasma HDL-cholesterol and triglycerides did not change.⁸

Lastly, a group of researchers conducted a three-month clinical trial studying the effects of flaxseed consumption on a group of 15 hyperlipemic men and women. The patients, who were on long-term intake of vitamin E, added three slices of flaxseed-

containing bread and 15 g of ground flaxseed to their daily diets. The result was a significant reduction in cholesterol levels — total blood cholesterol was reduced by 7% and LDL cholesterol levels were reduced by 11%. HDL cholesterol levels did not change during flax seed consumption.⁹

Improved immune function

Immunity is the body’s ability to defend itself successfully against foreign substances. Flaxseed contains two components that may improve immune function: Alpha Linolenic Acid and lignans. Recent research suggests that ALA and lignans in flaxseed modulate the immune response and may play a beneficial role in the clinical management of autoimmune diseases.^{10,11}

For example, some researchers believe that flaxseed is a potential treatment for lupus nephritis after the results of a 1995 study of 9 patients. Patients started with 15 g of flaxseed daily for four weeks. The dosage was increased to 30 g daily for the next four weeks and 45 g daily for the last four weeks. The researchers concluded that 30 g flaxseed a day was well tolerated and conferred benefit in terms of kidney function as well as

inflammatory and atherogenic mechanisms important in the pathogenesis of lupus nephritis.¹²

Flaxseed may also be useful in the nutritional management of other disorders in which the immune system becomes overstimulated, such as rheumatoid arthritis, psoriasis, and multiple sclerosis.¹³

Cancer prevention

Flaxseed contains abundant amounts of lignans and the essential fat Alpha Linolenic Acid. These compounds have been shown to have anticancer effects in animals.^{14,15} Flaxseed appears to protect against certain cancers in humans, particularly hormone-sensitive cancers such as those of the breast, endometrium and prostate.^{16,17,18,19} Long-term studies of the effects of flaxseed in women with breast cancer are underway.

Male Infertility

Deficiency of DHA in sperm cells is one of the markers of sub-fertility in men. A Belgian study demonstrated that ALA can pass through the blood-testis barrier and correct the deficiency of DHA in sub-fertile men. Interestingly, fish oil supplementation did not achieve a similar effect, showing

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Adding flax and flaxseed oil to your diet

Flaxseed comes in many forms. It is available whole, milled, or as an oil in bottles or capsules. Whole and milled flaxseeds may be used in cooking and baking, while the oil is useful for daily supplementation. Whole flaxseed cannot be very well digested — flaxseed are hard to crack even with careful chewing — therefore consumption of the whole flaxseed releases only a small percentage of its available nutrients. One to two tablespoons of milled flaxseed a day (approximately 30 g) may provide adequate supplementation of ALA and lignans. Organic flax oil contains some beneficial lignans while refined flaxseed oil does not. The American recommendation for *adequate intake (AI)* of dietary ALA for adults is 2.22 grams/day — approximately 4 grams of flaxseed oil.



again that ALA has its own unique properties not matched by EPA and DHA from fish oil.²⁰

Relief from constipation: flaxseed fibre

Flaxseed, like cereals and legumes, has the potential to increase laxation because it provides dietary fibre. There is about 30 g of dietary fibre in 100 g of dry flaxseed. This can be especially important for the elderly, who often have chronic difficulties with laxation due to inactivity, low-fibre diets, and/or use of medication for other conditions. In a study of seven subjects whose average age was 78 years, the daily frequency of bowel movements and the number of consecutive days with bowel movements increased among subjects who complied with the dietary regimen of eating 50 g of flaxseed daily. The flaxseed was provided in muffins and consumed for a period of four weeks.²¹

Flaxseed as a source of lignans

Flaxseed is the richest plant source of lignans, which are strong antioxidants that could reduce the aging process and protect against some environmental toxins. Several animal studies have shown that lignans from flaxseed reduce cancer tumours. It is likely that lignans also play a role in lowering blood cholesterol.

Since lignans are digested into estrogenic compounds, many of the health benefits of lignans may be attributable to their hormonal effects. Other benefits are derived from their non-hormonal metabolic properties such as influence on enzymes, protein synthesis or cellular transport.

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