

Flaxseed

Latin Name: *Linum usitatissimum*

Also known as: Flax, Common Flax, Linseed, Lint Bells

Scientific Classification

Flax seeds come in two basic varieties, brown and yellow (or golden), with several species having similar nutritional values and equal amounts of short-chain omega-3 fatty acids. The exception is a type of yellow flax called Linola or solin, which has a completely different oil profile and is very low in omega-3's.

Family: Linaceae – flax family

Genus: Linum – flax

Species: *L. usitatissimum* – common flax

Not to be confused with Linum catharticum – Mountain Flax, which has much stronger purgative qualities.

Influence on the Body	(PRINCIPAL ACTIONS are listed in CAPITAL LETTERS)
<i>Blood, Heart and Circulation</i>	CHOLESTEROL • HIGH BLOOD PRESSURE • atherosclerosis
<i>Blood Sugar</i>	diabetes
<i>Cancer</i>	breast cancer • endometrial cancer (inner layer of the uterus) • colon cancer prevention • mouth cancer • skin cancer
<i>Digestive Tract</i>	inflamed digestive MUCOUS MEMBRANES • antacid • CONSTIPATION • GASTRITIS • DIVERTICULITIS (inflammation of out-pouches of the bowel wall) • DYSENTERY (colon inflammation with pain, cramping, and diarrhea) • MILD LAXATIVE (softens stool without purging) • LAXATIVE CORRECTIVE • enemas • hemorrhoids
<i>Infections and Immune System</i>	fevers
<i>Inflammation</i>	INFLAMMATION • rheumatism • gout
<i>Lungs and Respiratory System</i>	inflamed respiratory MUCOUS MEMBRANES • coughs • bronchitis • asthma • pleurisy (inflammation of the chest cavity)
<i>Nervous System</i>	memory

<i>Reproductive System</i>	<i>Female:</i> • menstrual problems • menopausal symptoms
<i>Skin, Tissues & Hair</i>	SKIN IRRITATIONS • EMOLLIENT (softens and soothes) • BOILS • SORES • SCALDS • BURNS
<i>Urinary Tract</i>	inflamed urinary tract MUCOUS MEMBRANES • renal irritation • bladder irritation • bladder infection • KIDNEY STONES
<i>Industrial Uses</i>	animal feed • linen thread and cloth (from stem) • linseed oil (in paints, varnishes, stains, furniture polish, Linoleum flooring product, and concrete preservatives)

Key Properties:

- MILD LAXATIVE – softens stools without purging
- NUTRITIVE – supplies substantial amount of nutrients and aids in building and toning the body
- MUCILAGE – soothes inflammation
- DEMULCENT – soothes inflammation of mucous membranes
- EMOLLIENT – softens and soothes skin externally, and mucous membranes internally

Primarily affecting: DIGESTIVE TRACT • BLOOD VESSELS
• MUCOUS MEMBRANES • lungs

History	<p>Brown flax can be consumed as readily as yellow and has been for thousands of years. Flax seeds produce a vegetable oil known as flaxseed or linseed oil, which is one of the oldest commercial oils.</p> <p>Flaxseed has been cultivated first by the ancient Mesopotamians (about 3,000 BC) and then by the Egyptians. Burial chambers depict flax cultivation and clothing from flax fibers, and the Egyptians wrapped their mummies in linen.</p> <p>Greeks ate roasted flax seeds and baked them in breads. Hippocrates (ancient Greek physician, ca. 460-370 BC) wrote about using flax for the relief of abdominal pains.</p> <p>In the same era, Theophrastus recommended the use of flax mucilage as a cough remedy. Tacitus (Roman senator and historian, ca. 56-117 AD) praised the virtues of flax. Mucilaginous properties of the oil are mentioned by early Roman authors, who reported flaxseed's use for colds,</p>
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urinary tract inflammations, and lung conditions. They were probably responsible for spreading the use of flax as a crop plant throughout Europe. Its slender stalks are a source of strong, supple fibers used for countless centuries to make rope, nets, sacks, bowstrings, sails, and of course, linen fabrics.

Emperor Charlemagne (ca. 742-814 AD) was so convinced of the therapeutic properties of flax that he demanded his subjects eat flaxseed regularly to maintain good health. After Charlemagne, flaxseeds became widely appreciated throughout Europe.

Hildegard von Bingen (German abbess, naturalist, herbalist and poet, ca. 1098-1179 AD) used flax meal in hot compresses for the treatment of both external and internal ailments.

Flax was widely used as poultices (made from the boiled, crushed seeds) applied to swellings, burns, boils, and other skin eruptions, and to ease aches and pains in muscles and joints. A thick, mucilaginous liquid extracted from the seeds was also applied as a poultice to burns and other types of inflammation.

Native Americans used flax for skin and eye problems, stomach disorders, kidney disease, urinary infections, coughs, and diseases of the lungs.

In the American colonies flax was a main source of fabric in the form of homemade 'linsey-woolsey' made from linen and wool.

Later, the coming of two world wars increased the demand for flax as a source of oil for many products in the home and factory, and commercial production in North America expanded substantially.

Throughout the 1950's-60's, flax products were widely used throughout the world. Oil-based coatings enhanced and protected wood and concrete surfaces, and durable linoleum became a popular flooring material. Flax breads and other baked goods were commonplace. Farmers and animal breeders fed flax to their livestock for maintenance of a healthy coat and to improve animal digestion.

Today, the seeds are commonly used as a mild, lubricating

laxative, and to relieve Irritable Bowel Syndrome (IBS), diverticulitis, gastritis, enteritis, joint discomfort, and is a great source of nutrients such as omega 3.

Attributes	<u>Key Components: (including, but not limited to)</u>
<i>Nutrients</i>	<p>Vitamins <u>B1</u> (thiamine) • <u>B2</u> (riboflavin) • <u>B3</u> (niacin) • <u>B5</u> (pantothenic acid) • <u>B6</u> (pyridoxine) • <u>B9</u> (folic acid) • <u>C</u> • <u>E</u> • <u>Calcium</u> • <u>Copper</u> • <u>Iron</u> • <u>Manganese</u> • <u>Magnesium</u> • <u>Phosphorus</u> • <u>Potassium</u> • <u>Selenium</u> • <u>Sodium</u> • <u>Zinc</u></p> <p><u>Sugars</u> • <u>Mucilage</u> • <u>Dietary Fiber</u> • <u>Fat</u> • high in <u>Omega-3 Fatty Acids</u> (an alpha-linolenic acid, ALA) • <u>Lignans</u> (phytoestrogens) • <u>Protein</u></p> <p>Flaxseed is 30-40 percent linseed oil (55 percent of the linseed oil is ALA and about 6 percent is mucilage).</p> <p>Flaxseed is a super food: high in fiber, proteins, omega-3 fatty acids, and good fats (which can help lower cholesterol, reduce swellings and soothe inflammation). Flax is excellent for helping to build muscle and bone tissues, and for losing excess weight.</p>
<i>Digestion</i>	<p>Germany's Commission E authorizes the use of flaxseed for various digestive problems including chronic constipation, irritable bowel syndrome, diverticulitis, and general stomach discomfort.</p> <p>The mucilaginous fiber in the seeds is not digested in the stomach. It absorbs water in the colon and swells to form a soothing gel that softens the stool. Flaxseed stimulates peristalsis (intestinal contractions that propel contents onward) and relieves intestinal irritation and inflamed conditions. The laxative effect produces a bowel movement (may take a few days).</p> <p>This mild laxative is non-habit forming and is used in cases when purgative laxatives have been over-used and bowels are sluggish. Its mucilaginous qualities make it effective for all types of intestinal inflammation, chronic constipation, irritable colon, diverticulitis, gastritis, and enteritis (inflammatory disease of the digestive tract).</p> <p>Flaxseed tea enemas may be used to help loosen a heavy mucous coat of the inner intestinal walls. People with painful bleeding hemorrhoids experience easy bowel movements without irritation when the enema tea is used every day.</p>

In a double-blind study, those taking flaxseed had significantly fewer problems with constipation, abdominal pain, and bloating, than those taking psyllium.

Ground flaxseed is excellent for diets which are low in fiber. A teaspoon of flaxseed in a warm cup of water or juice before meals will stop excessive food cravings and assist the dieter in losing weight.

Blood Sugar

As a high-fiber food, flaxseed slows down glucose absorption, leading to better control of blood sugar levels.

In a study conducted by the University of Toronto, participants who ate flaxseed bread had blood sugar levels 28 percent lower an hour after eating than their counterparts, who ate bread made with wheat flour.

*Omega-3
Health Benefits*

The body cannot make the essential fatty acids Linoleic (omega-6) or Linolenic (omega-3). They must be consumed as part of the daily diet. In proper balance, omega-3 and omega-6 fatty acids work to form the walls of every cell in the body, play a vital role in the active tissues of the brain, and control the way cholesterol works in the body.

The American diet has high levels of omega-6 (found in most of the oils used in food processing, the fat of meat, butter, cheese, egg yolks, etc.), and not enough omega-3's. This has caused health problems resulting in increased incidence of blood clotting (leading to heart attack and stroke), elevated blood pressure, suppressed immune system, and accelerated cancer cell growth.

The richest sources of omega-3 fatty acids are flaxseed oil and fish oil. Flaxseed contains ALA (alpha-linolenic acid), one of the three types of omega-3's, which can be converted in the body into the other two longer-chain omega-3 fatty acids DHA (Docosahexaenoic acid) and EPA (Eicosatetraenoic acid).

Fish oil contains DHA and EPA omega-3's but does not contain sufficient quantities of vitamin E for the diet, if taken alone. Flaxseed is an excellent plant source of omega-3's and a source of vitamin E with its abundant antioxidant properties.

Research shows that omega-3 oils can reduce blood

pressure, decrease the risk of heart attack and disease, lower cholesterol, stimulate the immune system, and protect against inflammation, kidney diseases and some types of cancer.

At the conclusion of a 12-week study, both systolic and diastolic blood pressures were significantly lower in participants using omega-3-rich flaxseed oil.

Research has shown that flaxseed reduces cholesterol, platelet aggregation (which may lead to blood clots, heart attack and stroke), and inflammation. It also protects against degenerative diseases.

In a study comparing daily consumption of ground flaxseed with the use of statin medications (cholesterol lowering drugs), participants receiving flaxseed did just as well as those given statin drugs. Significant reductions were seen in total cholesterol, LDL (Low Density Lipoprotein, the bad cholesterol), triglycerides, and the ratio of total cholesterol to HDL (High Density Lipoprotein, the good cholesterol) in both groups.

<i>Brain Function</i>	Research notes that a diet rich in omega-3 fatty acids is important for brain development. DHA also acts as a mood boosting agent that is essential for the proper function of brain cells. Participants in one study saw a decreased risk of Alzheimer's from eating a diet high in omega-3 fatty acids. Flax is the richest source of omega-3's in the plant kingdom.
<i>Urinary Tract</i>	Preliminary research indicates potential benefits in treating kidney and bladder congestion, inflammation and diseases with a flaxseed decoction (strong infusion).
<i>Respiratory System</i>	An old poultice recipe uses a thick flaxseed paste to relieve pain and congestion in peritonitis (inflammation of the tissues lining the inner wall of the abdomen and pelvis), pneumonia, pleurisy, and so forth. The tea taken internally is also good for coughs, asthma and pleurisy.
<i>Skin</i>	Mixed in poultices, ground flaxseed is one of the best remedies for sores, boils, carbuncles, inflammations and tumors of the skin. Adding slippery elm bark and comfrey to the poultice adds to the benefits and is particularly effective for boils, pimples, and oozing sores and burns.
<i>Eyes</i>	An old folk remedy for removing foreign bodies from the eye is to take a single moistened flaxseed and place it under the

	eyelid. The foreign body will stick to the mucous secretion of the seed.
<i>Women</i>	<p>Lignans, found abundantly in flaxseed, act as phytoestrogens (compounds from plants that mimic estrogen in the body) and help balance a woman's hormone levels. Flaxseed can promote normal ovulation (improving fertility) and extend the second, progesterone-dominant half of the cycle (restoring hormone balance). This lowers the risk of suffering from estrogen-dominant imbalances including irregular menstrual cycles, breast cysts, headaches, sleep difficulties, fluid retention, anxiety, irritability, mood swings, weight gain, lowered sex drive, brain fog, fibroid tumors, heavy bleeding, peri-menopausal, menopausal symptoms, and estrogen-dominant cancers.</p> <p>One study showed a 50 percent decrease in frequency of hot flashes after subjects took 1.4 ounces crushed flaxseed every day for 6 weeks. Flax is one of the most concentrated known sources of plant lignans. The seeds contain 100-800 times the amount found in other plants.</p>
<i>Cancer</i>	<p>Observational studies suggest that people who eat more lignan-containing foods have a lower incidence of breast, and perhaps colon cancer. Preliminary research indicates that flaxseed lignans may also fight cancer by acting as an antioxidant. Flaxseed can offer protection against breast cancer without interfering with estrogen's role in normal bone maintenance.</p> <p>The lignans in flaxseed can hook onto the same receptor sites as estrogen. When estrogen is abundant, lignans may reduce the hormone's effects by displacing it from cells. In this manner, they may help prevent estrogen dependent cancers from starting and developing. This is how soy is believed to work in breast cancer prevention (although soy uses isoflavones as phytoestrogens, instead of lignans).</p>
<i>Industrial Uses</i>	Linen cloth is made from fibers found in the sturdy flax stalk. Linseed oil (from flax seeds) rapidly absorbs oxygen from the air and forms (when laid in thin layers) a hard, transparent varnish. This has been used in the manufacture of paints, varnishes, stains, furniture polish, Linoleum flooring products, and concrete preservatives.
Herb Parts Used	Seed and its oil

Oil Extraction:

The oil is obtained by expressing the seeds which contain about 30-40 percent oil. On a large scale, seeds are usually roasted before being pressed to destroy the gummy matter contained in their coating. This frees the oil from the mucilage, but results in a darker colored, acrid oil. Flaxseed oil to be used for health food purposes should be processed by cold expression, without heat. It is a yellowish, oily liquid having a peculiar odor and a bland, slightly nutty taste. When exposed to air, it gradually thickens, darkens in color and acquires a strong odor and taste. It becomes rancid quickly and should be used as soon after expression as possible and always refrigerated.

Do not use boiled flaxseed oil for medicinal or nutritional purposes. Heat produces undesirable by-products in the oil. When flaxseed oil is heated and processed, it is used as a paint binder and wood finishing product and is then called linseed oil.

Preparations and Remedies

Quality Testing:

When ground flaxseed is carelessly preserved, it is subject to insect infestation and rancidity. Flaxseed should be free of parasites and unpleasant odor.

Storage

Flax seeds are stable while whole. Milled or ground flaxseed can be stored for four months at room temperature with minimal to no change of taste, smell or rancidity. Storing sealed containers of flaxseed in the refrigerator or freezer will keep ground flax from becoming rancid for even longer.

Flaxseed oil is especially perishable and should be purchased in opaque bottles that have been kept refrigerated. Flaxseed oil should have a sweet nutty flavor. Never use flaxseed oil in cooking. Add it to foods only after taking from heat.

Nutritional Food

Drink a cup of water when taking flaxseed. The fiber needs the water to swell and form the mucilage which soothes the intestinal tract and stimulates peristalsis.

Grind flaxseeds in a coffee or seed grinder in order to enhance their digestibility and nutritional value. If adding ground flaxseeds to a cooked cereal or grain dish, do so at the end of cooking, since the soluble fiber in the flaxseeds will thicken liquids if left too long.

	<p>Sprinkle flaxseed meal on cereals or mix it with oatmeal, yogurt, water (similar to Metamucil), or any other food item where a nutty flavor is appropriate. Flaxseed sprouts are edible and have a slightly spicy flavor.</p>
<i>Egg Substitute</i>	<p>Use one tablespoon ground flaxseeds and three tablespoons water to serve as a replacement for one egg in baking. However, it may somewhat alter the texture of the finished product.</p>
<i>Flax Paste</i>	<p>Seeds can be soaked overnight and then blended into a thick paste for eating. Add garlic, cayenne, olive oil, apple cider vinegar, or any herbs or spices to taste. Flax paste can heal a severe case of diarrhea or intestinal upset just by going on a bland-diet of it for a day until the problem resolves.</p>
<i>Flaxseed Oil</i>	<p><i>Laxative Oil:</i> Taken internally, flaxseed oil is sometimes given as a laxative. It is excellent for kidney stones and has been used for pleurisy with great success.</p>
<i>Infusions</i>	<p><i>Flaxseed Tea:</i> A teaspoon of the ground seed mixed in a cup of hot water or juice, taken three times a day, can help ease ulcers and inflammations. The tea is also good for coughs, asthma and pleurisy.</p>
<i>Syrup</i>	<p><i>Cough Syrup:</i> (see LICORICE preparations)</p>
External Applications	<p>Flax is an excellent pulling herb to draw out pain, swelling, splinters, infection, and poisons. To retain freshness, grind seeds only as needed.</p>
<i>Poultices</i>	<p><i>Ground Flaxseed Poultice:</i> Grind one or two tablespoons of flaxseeds to a powder in a seed grinder or blender and stir into two to four ounces hot water. Let soak until a slimy gel forms. At this point, you may add other herbs to enhance healing such as goldenseal root or comfrey. Spread the gel onto a small piece of cloth and apply to boils and sores -or- spread the paste directly on the injured area, cover with a piece of clean cloth, then a layer of plastic and finally, with a towel.</p> <p>An old poultice recipe uses a thick flaxseed paste, spread at least half an inch in thickness upon muslin or flannel, and applied as hot as possible (without burning) in order to relieve pain and congestion in peritonitis (inflammation of the</p>

tissues lining the inner wall of the abdomen and pelvis), pneumonia, pleurisy, and so forth, every two or three hours.

Inflammation Wrap:

To help ease the pain of inflammation, simmer flaxseeds (one teaspoon to a cup of water) for five minutes. Spread the seed and some of the tea on a cloth. Wrap it around swollen joints. Cover with a towel and keep it on all night.

Skin Irritations:

1 oz. Goldenseal
9 oz. Flaxseed oil

Mix thoroughly. Apply freely to the skin as needed for itching, burning or rashes of the skin (also used topically for the rash that accompanies smallpox, measles and scarlet fever).

Burns:

Pulverize a raw potato and mix with powdered flaxseed or slippery elm and aloe vera gel. Spread mixture on unbleached muslin cloth and apply to burns.

Boils and Abscess Poultice: (see ECHINACEA preparations)

Safety

Like other sources of fiber, flaxseed should be taken with plenty of fluids. No health hazards or adverse side effects are known.

Plant Profile

Natural Habitat:

Thought to be a native of Europe and Asia, flax is cultivated worldwide in temperate and tropical regions, including North America.

Description

Flax is pretty in the garden, with the added advantage of yielding a valuable seed crop. Homegrown organic flaxseed is very tasty as an addition to breads and cereals. Since rancidity can be a problem after it is ground, it is nice to grow and have a fresh supply close at hand.

Flax is a slender annual (plant that must be grown from new seed each year) that grows quickly up to one or two feet. The plant has an erect stalk with narrow, gray-green leaves and branches at the top, terminating with five petaled, sky-blue to white flowers (June and July). Seed capsules follow (in August) that contain small, glossy, flattened, brown (or golden) seeds. Inside the seed is olive-green with a mildly odorous oil which has a nutty flavor and is very mucilaginous (sticky and viscous).

In addition to referring to the plant itself, the word 'flax' can refer to the unspun fibers used to make linen thread and cloth. For extracting the flax fibers contained in the durable stalk, the plant is cut when it is mature. Seeds are collected when they are ripe and sold whole or pressed to extract their oil. Crude flaxseed oil is called linseed oil, and it is used for a wide variety of industrial uses (a component of paints and the original Linoleum tiles) or prepared for sale in health food stores.

Growing Flax

Flax is easy to grow. To plant an area of good soil in the spring, strew seeds on the surface and work them into the soil with the fingers, pat down soil surface, and water. The plant grows best in a self-supporting patch, not in carefully defined rows. The distinctive sprouts appear quickly and tend to out-distance weeds. Within 6 weeks of sowing, the plant will reach 4-6 inches in height. It continues growing an inch or more a day (under optimal growth conditions), reaching its full height within another 15 days.