

# Ground Flaxseed

COMMON NAME: Ground Flaxseed

SCIENTIFIC NAME: *Linum usitatissimum*

## RECOMMENDED WITH CAUTION

### LEVELS OF EVIDENCE



#### Recommended:

Several well-designed studies in humans have shown positive benefit. Our team is confident about its therapeutic potential.



#### Recommended with Caution:

Preliminary studies suggest some benefit. Future trials are needed before we can make a stronger recommendation.



#### Not Recommended - Evidence:

Our team does not recommend this product because clinical trials to date suggest little or no benefit.



#### Not Recommended - High Risk:

Our team recommends against using this product because clinical trials to date suggest substantial risk greater than the benefit.

### Evaluated Benefits

- Lower total and LDL cholesterol
- Reduce cardiovascular risk in patients with abnormal lipid profiles
- Reduce LDL cholesterol in patients unable to tolerate a statin, whether due to history of side effects, planned pregnancy, drug interactions, age, or comorbid conditions
- Reduce statin dose requirement to achieve treatment goals (combined low-dose statin plus psyllium is equivalent to higher-dose statin)

## Source

Flax is one of the oldest domesticated crops (since 7000 BC), and flour from the seed of the plant appears to have been used for bread making as early as 1000 BC. This nutty-flavored seed comes in colors ranging from reddish brown to light yellow. It is commonly consumed as either whole seed, ground powder, or oil. Because ground or milled flaxseed has increased nutrient bioavailability, most research studies prefer to use flaxseed in this form. Flaxseed is composed of 41% fat, 20% protein, 28% dietary fiber, 7.7% moisture, and 4% ash. Most of the fat in flaxseed is omega-3 ALA, generally regarded as a “healthy” fat.

## Indications/Population

Reduction of LDL and total cholesterol  
Patients with mixed hyperlipidemia

## Mechanism of Action

The active components of flaxseed are dietary fiber (cellulose, mucilage, gums, and lignin), phytochemicals, and alpha-linolenic acid (ALA), which is a precursor to long-chain, polyunsaturated, essential omega-3 fatty acids.

The LDL-cholesterol-lowering action of flaxseed is probably due to its high fiber content. In studies of daily doses of 10–40 grams of flaxseed fiber, ground flaxseed increased fecal fat and significantly reduced total and LDL cholesterol. Possible mechanisms include 1) increased bile acid synthesis, and 2) binding of bile acids in the intestine to increase net fecal excretion of bile acid and stimulate hepatic bile acid synthesis. Bile acid synthesis enhances uptake of LDL from circulation, thereby reducing total and LDL circulating cholesterol.

## Side Effects

Gastrointestinal distress, including gassiness, bloating, or altered bowel habits  
May lower HDL cholesterol.

## Dosing

30 grams milled flaxseed daily

## Drug Interactions/Cautions

- No studies have been reported of adverse effects of flaxseed on common cholesterol-lowering medications. Concomitant use has been shown to enhance cholesterol-lowering action.
- Dietary flaxseed may delay the need to initiate a statin or other cholesterol-lowering medication in newly diagnosed patients, and may reduce the dose of cholesterol-lowering medication required to achieve therapeutic goals in ongoing treatment.
- Raw and unripe flaxseed contain potentially toxic cyanogenic glycosides (linustatin, neolinustatin, and linamarin), but these compounds were undetectable in a study of flaxseed baked into muffins.

## Notes

- Whole and milled flaxseed have “Generally Recognized as Safe” (GRAS) status in the United States.
- The most important lignan (fiber component) in flaxseed is secoisolariciresinol diglucoside, which is metabolized in the intestine and converted into phytoestrogens similar to those in soybeans. Some phytoestrogens are considered selective estrogen receptor modulators, which have been shown to reduce LDL-c in both human and rat populations. In one eight-week study, researchers measured a reduction in total and LDL cholesterol of 22% and 24%, respectively, among hypercholesterolemic patients who consumed a daily dose of 600 mg flaxseed-derived lignan as the secoisolariciresinol diglucoside.

## References

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