

Garlic

COMMON NAME: Garlic

SCIENTIFIC NAME: Allium sativum

NOT RECOMMENDED - EVIDENCE

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

No evidence of efficacy or not indicated

Source

Native to central Asia and cultivated around the world, garlic (*Allium sativum*) has been used for thousands of years for medicinal purposes. Sanskrit records show its medicinal use about 5,000 years ago, and it has been used for at least 3,000 years in Chinese medicine. The Egyptians, Babylonians, Greeks, and Romans used garlic for healing purposes.

Indications/Population

Lowering of LDL and total cholesterol.

Patients at risk for cardiovascular disease with modest elevation of LDL and total cholesterol

Mechanism of Action

Garlic has a high concentration of sulfur-containing compounds. The thiosulfinates, including allicin, appear to be the active substances in garlic. Allicin is formed when alliin, a sulfur-containing amino acid, comes into contact with the enzyme alliinase when raw garlic is chopped, crushed, or chewed. Dried garlic preparations containing alliin and alliinase must be enteric coated to be effective because stomach acid inhibits alliinase. Because alliinase also is deactivated by heat, cooked garlic is less powerful medicinally.

In patients with hyperlipidemia, garlic might lower cholesterol levels by acting as a weak HMG-CoA reductase inhibitor (statin). There is some evidence the constituent S-allyl-L-cysteine may be a potent inhibitor of hepatic cholesterol synthesis.

Ajoene could inactivate human gastric lipase (HGL), the important enzyme for the digestion and absorption of dietary fats.

Fresh garlic could suppress the assembly and secretion of chylomicrons from intestine to the blood circulation.

Side Effects

- Excessive consumption of garlic can cause burning sensations from the GI tract (mouth, esophagus, etc.) and diarrhea.
- Garlic odor on the breath and skin.
- Occasional allergic reactions (such as itching, sneezing, etc.) may occur.
- Raw-garlic preparations containing allicin can cause chemical burns on the skin.

Dosing

- 4 grams oil daily
- Adults 4 grams (one to two cloves) of raw garlic per day
- One 300-mg dried garlic powder tablet (standardized to 1.3% alliin or 0.6% allicin yield) 2–3 per day
- 7.2 grams of aged garlic extract per day

Drug Interactions/Cautions

Garlic extraction results in greater and more consistent efficacy and safety compared with raw garlic, dehydrated garlic powder, or other preparations.

Physicians and patients need to be mindful, however, of a potentially harmful interaction of garlic with protease inhibitors in antiretroviral therapy.

Since garlic might “thin” the blood, it is probably imprudent to not take garlic pills immediately prior to or after surgery or labor and delivery, because of the risk of excessive bleeding. Similarly, garlic should not be combined with blood-thinning drugs, such as warfarin (Coumadin), heparin, aspirin, clopidogrel (Plavix), ticlopidine (Ticlid), or pentoxifylline (Trental).

Notes

Because of the complex chemistry in *Allium* plants, variations in processing yield quite different preparations. There are four groups: garlic essential oil, garlic oil macerate, garlic powder, and garlic extract. The manufacturing process is an important consideration when choosing a garlic supplement. As described earlier, the chemistry of garlic is quite complicated, and different types of processing produce products that are more than just preparations in different forms. The various forms also differ in their ingredients, effects, and toxicities.

Subgroup analysis by single type of garlic preparation suggested a greater cholesterol-lowering effect for aged garlic extract than for garlic powder, and a borderline effect for garlic oil, while subgroup analysis with two studies using raw garlic is less meaningful.

Trials of subjects with normal mean baseline TC levels (200 mg/dl) revealed no significant effect of garlic compared with placebo.

Some patients may find a benefit from some preparation, but in general, no benefit is found.

As a commonly used food, garlic has “Generally Recognized as Safe” (GRAS) status in the U.S.

References

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