

References

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Garlic

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Garlic has been celebrated throughout history for its medicinal properties. Claimed to offer cardiovascular protection, boost immunity, and protect against infection and oxidative stress injury, amongst other properties, garlic ranks highly as a health-protecting food.

PREPARATIONS: Available fresh or as dehydrated garlic powder, garlic oil, or aged garlic extract (AGE), in tablets, capsules or topical preparations. AGE undergoes a 20-month ageing and extracting process that produces an odourless product, richer in antioxidants than fresh or other forms of garlic preparations. Variations in processing can yield very different preparations, with variable efficacies.

COMMON NAMES: ‘Stinking rose’, Russian penicillin

LATIN NAME: *Allium sativum*

ACTIVE CONSTITUENTS: The chemistry of garlic is complex. While allicin is widely thought to be responsible for garlic’s health benefits, it is a rather unstable compound that is rapidly converted to a variety of organo-sulphur compounds. S-allylcysteine and S-allyl mercaptocysteine are two water-soluble active compounds in AGE.

MANUFACTURER CLAIMS: Garlic is claimed to fight free radical damage and to reduce symptoms of cold and flu, and other upper res-

piratory tract infections, by supporting immunity and strengthening resistance to infection. Due to its antioxidant activity, garlic is claimed to reduce cardiovascular risk factors by inhibiting platelet aggregation, activating fibrinolysis and lowering blood pressure and lipids.

EVIDENCE FOR EFFICACY: A systematic review revealed a single trial that met inclusion criteria for the use of garlic in the common cold. Josling showed that a 12-week garlic supplement resulted in significantly ($p < 0.001$) fewer colds, and reduced severity and duration of symptoms, compared to placebo. While the Josling review did not reveal what supplement was used, a clinical study using an AGE product supports this finding and suggests that immune cell function may be enhanced through activity on natural killer and gamma delta T cells. Effects on blood pressure and lipids consistently show that garlic causes a reduction in mean supine systolic and diastolic blood pressure, with variable findings on total cholesterol, triglycerides, LDL (low-density lipoprotein) and HDL (high-density lipoprotein) levels. Inconsistencies in the literature are thought, in part, to be related to the components and quality of the garlic preparations.

ADVERSE EFFECTS: There appears to be little risk associated with garlic supplement use, although excessive amounts of raw garlic and garlic powder (>10 g) are known to cause gastrointestinal upset. Garlic odour is largely a social deterrent for most consumers, and allergic

Herbal medicines are a popular health care choice, but few have been tested to contemporary standards. **POTION OR POISON?** summarises the evidence for the potential benefits and possible harms of well-known herbal medicines.

Summary Message

Garlic has consistently been shown to be superior to placebo in reducing blood pressure; however, the effect on lipids is conflicting and further studies are required. The large variation in garlic products commercially available makes it difficult to determine the true effect of garlic on cardiovascular morbidity and mortality. Garlic has been shown to significantly reduce the severity of symptoms associated with the common cold and the duration of illness, but further evidence is required to validate these findings.

reactions are documented. A number of studies on AGE have shown no adverse effects associated with the product. Supplementation should be avoided in pregnancy and breastfeeding because sufficient safety data is not available.

DRUG INTERACTIONS: Garlic interacts with isoniazid, NNRTIs (non-nucleoside reverse transcriptase inhibitors) and saquinavir by reducing their effectiveness, and concomitant use should be avoided. A moderate interaction may exist with oral contraceptives, cyclosporine, CYP2E1 substrates (e.g. paracetamol and theophylline), and CYP3A4 substrates (e.g. ketoconazole and triazolam). Garlic may have an effect on clotting and use with anticoagulant and antiplatelet drugs may increase the risk of bleeding or bruising.

Key references

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