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REPORT

Garlic

A recent study on garlic questioned its ability to lower cholesterol. That isn't at all surprising...considering

During the week of June 15, 1998, the major news networks as well as newspapers throughout the world reported on a German study, published in the *Journal of the American Medical Association* (1998; 279:1900-1902), showing that 10 milligrams a day of garlic oil failed to lower cholesterol levels. The news media's conclusion was that taking garlic supplements is a "waste of money."

The Life Extension Foundation's initial response is that garlic has never been considered a significant cholesterol lowering therapy. The mechanisms by which garlic has been shown to protect against cardiovascular disease include:

- Preventing abnormal blood clot formation inside of blood vessels;
- Protecting LDL cholesterol against oxidation; and
- Protecting the endothelial lining of the arterial system against oxidation.

Garlic is so effective in preventing abnormal arterial blood clotting (thrombosis), that some surgeons advise their patients to avoid garlic one week prior to surgery because garlic can cause excessive bleeding during surgery.

A mechanism by which atherosclerotic plaque accumulates on the walls of arteries is the oxidation of LDL cholesterol. Garlic has been shown in repeated studies to protect against LDL cholesterol oxidation and oxidation in the linings of the arteries themselves. True, the Life Extension Foundation has previously published that doses of garlic powder in the range of 6,000 to 8,000 mg a day have been shown to lower cholesterol, but many people find this much garlic can cause gastrointestinal discomfort. The fact that 10 mg a day of garlic oil failed to lower cholesterol is no surprise, despite the researchers' assertion that garlic oil is more concentrated than garlic powder.

What the mainstream media failed to analyze in response to the study published in *JAMA* is the different components in garlic oil compared with garlic powder. Garlic oil is seldom used by supplement users because it contains some of the more foul-smelling sulfide compounds. Garlic powders, on the other hand, contain water-soluble components such as allicin and s-allyl-cysteine that have shown a wide range of health benefits, including cholesterol reduction.

A study published in the journal *Nutrition Research* (Vol 7, 1987 139-149) showed that a liquid garlic extract made by Kyolic caused a 12 to 31 percent reduction in cholesterol levels in the majority of test subjects after six months. The study showed that 73 percent of the subjects given the Kyolic garlic experienced greater than 10-percent reduction in cholesterol, compared with only 17 percent in the placebo group showing the same improvement.

What made this study interesting is that, after initiating garlic therapy, many people actually showed a modest increase in serum cholesterol readings. The scientists attributed this to the effect of garlic mobilizing cholesterol from fat deposits.

The German study that used 10 mg of garlic oil a day-in two doses of 5 mg a day for 12 weeks, followed by four weeks on placebo, followed by 12 additional weeks on the garlic-showed that there was no reduction in serum cholesterol after each of the 12-week periods. The six-month Kyolic garlic study also showed little in the way of serum cholesterol reduction after three months. However, it was from months three to six that the greatest reduction in serum cholesterol occurred in those receiving Kyolic garlic.

The German study, in effect, consisted of two 12-week (three-month) studies, with the four-week "washout" period on placebo in between. If the Kyolic study had stopped at three months, it, too, would have reported virtually no benefit.

In a negative garlic study that was published almost simultaneously with the *JAMA* study in June, but which did not receive news



media attention, 900 mg a day of Kwai-brand garlic was tested for three months. In this study, there was no reduction in serum cholesterol compared with placebo (*Archives of Internal Medicine*, June 8, 1998). This again confirms the Foundation's position that high doses (6,000 to 8,000 mg) of allicin-rich garlic are required to lower cholesterol.

We should point out that in other studies, lower doses of garlic powder have shown reductions in serum cholesterol after only three months (*American Journal of Clinical Nutrition* 1997, 65/2 [445-450] and *Zeitschrift fur Phytotherapie* [Germany], 1996, 17/1 [13-25]).

In a recent study published in the *American Journal of Clinical Nutrition* (1996;64:866-70), the daily administration of 7.2 grams of Kyolic garlic powder for six months produced a modest reduction (of between 6.1 and 7 percent) in total cholesterol, compared with the placebo group. The more dangerous LDL cholesterol was reduced 4 to 4.6 percent in the Kyolic group.

This is not an impressive percentage reduction, and again helps validate the Life Extension Foundation's position that allicin-rich garlic extract in very high doses may be needed to obtain significant cholesterol reduction. The problem with high-allicin garlic powders is that they still produce garlic odor and stomach discomfort in many people. Kyolic garlic does not contain allicin, but does contain other important components.

A logical conclusion to all of this is that garlic should be taken to treat and prevent a number of medical conditions, but not specifically to lower cholesterol.

If you have high LDL cholesterol levels, garlic supplementation is especially important because LDL cholesterol oxidation causes atherosclerosis, and garlic specifically inhibits LDL oxidation. And, as noted, garlic helps protect the arterial lining against oxidation. And, most importantly, garlic prevents abnormal platelet aggregation (thrombosis) via several different mechanisms. The formation of arterial blood clots is the primary cause of most heart attacks and strokes.

Some of the other health benefits attributed to garlic intake are enhanced immune function, protection against brain atrophy, inhibition of free radicals, and neutralization of cellular mutagens that can lead to the development of cancer.

Kyolic garlic is the best-documented garlic supplement in the world, and it causes few unpleasant side effects. The drawback to Kyolic garlic is its high cost-per-milligram. A company called Pure-Gar makes an allicin-rich garlic supplement that is far less costly than Kyolic, but it does cause many people to complain of garlic after-taste.

Those seeking natural cholesterol-lowering therapies should refer to the Foundation's Cholesterol Reduction Protocol, in our Disease Prevention and Treatment Protocols.

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