

# SOUTHWESTERN NEWS

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## STUDY DETERMINES LOWEST VITAMIN E DOSE FOR EFFECT ON LDL OXIDATION

DALLAS — February 10, 1995 — A dose of at least 400 International Units per day of vitamin E is necessary to reduce the risk of atherosclerosis and heart disease, according to researchers at UT Southwestern Medical Center at Dallas. The results of their study are in the February issue of Arteriosclerosis, Thrombosis, and Vascular Biology, an American Heart Association journal.

"This is the first study to show clearly, using different doses, that the minimum dose you need to decrease oxidation of LDL is 400 IU a day," said Dr. Ishwarlal Jialal, the study's lead author. Jialal is a senior investigator in UT Southwestern's Center for Human Nutrition and an associate professor of pathology and internal medicine. Dr. Cindy Fuller, instructor of clinical nutrition, and Beverly Huet, biostatistician, also contributed to the study.

The oxidation of low-density lipoprotein (LDL) cholesterol (the so-called "bad" cholesterol) is believed to lead to atherosclerosis, a condition in which the arteries become clogged with fatty deposits. Atherosclerosis is a leading cause of heart attacks and strokes. Low vitamin E levels in the blood are related to higher frequencies of heart disease while vitamin E supplementation appears to protect against heart disease, Jialal said.

A possible mechanism for this relationship between vitamin E and heart disease could be the antioxidant effect of vitamin E on LDL oxidation. Therefore, Jialal tested vitamin E in doses of 60, 200, 400, 800 and 1,200 IU per day on 48 healthy men in a placebo-controlled, randomized study. Blood tests done after two months of vitamin E supplementation found that only the men who had received doses of at least 400 IU per day had a significant decrease in LDL oxidation. The benefit was related to the increased vitamin E levels in plasma and LDL.

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"The threshold dose was 400 IU, but we saw an added benefit at 1,200 IU," Jialal said. The volunteers did not experience any side effects.

The results of this study may help explain the findings of a widely publicized study released last year. In that study, smokers were given antioxidant supplements (vitamin E and beta-carotene) but had no reduction in the incidence of cancer nor in cardiovascular disease with vitamin E at a dose of 50 IU per day. This dose of vitamin E has not been shown to have an antioxidant effect in humans.

The Recommended Dietary Allowance for vitamin E is 8 to 10 IU per day. (One IU of vitamin E is roughly equivalent to 1 milligram of vitamin E.) If the oxidation hypothesis is proven in clinical trials, Jialal said vitamin supplementation would be necessary to achieve doses high enough to have a beneficial antioxidant effect because vitamin E is generally found in high-fat foods like nuts and oils. "We don't want to increase obesity or serum cholesterol by increasing fat in the diet," Jialal said.

The authors hesitate to recommend high-dose vitamin E supplementation to the population in general. "What we've shown is that if people are conducting clinical trials, they should use at least 400 IU a day to see benefits," Jialal said. Supplementation is recommended for high-risk patients — those who have had a heart attack at a young age and who don't have other modifiable risk factors.

Clinical trials to see if vitamin E supplementation has an actual effect on heart disease are being conducted at several centers around the world. Jialal said those results may be available within the next two or three years.

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