# High alpha-carotene levels associated with longer life

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High blood levels of the antioxidant alpha-carotene appear to be associated with a reduced risk of dying over a 14-year period, according to a report posted online today that will be published in the March 28 print issue of *Archives of Internal Medicine*.

Oxygen-related damage to DNA, proteins and fats may play a role in the development of chronic diseases like heart disease and cancer, according to background information in the article. Carotenoids—including beta-carotene, alpha-carotene and lycopene—are produced by plants and microorganisms and act as antioxidants, counteracting this damage. Carotenoids in the human body are obtained mainly through eating fruits and vegetables rich in the nutrients, or through antioxidant supplements.

Although studies suggest eating more fruits and vegetables is associated with lower risk of chronic diseases, randomized controlled trials have not shown any benefit for beta-carotene supplements, the authors note. "Therefore, carotenoids other than beta-carotene may contribute to the reduction in disease risk, and their effects on risk of disease merit investigation," the authors write.

Chaoyang Li, M.D., Ph.D., of the Centers for Disease Control and Prevention, Atlanta, and colleagues assessed the relationship between alpha-carotene and the risk of death among 15,318 adults age 20 and older who participated in the Third National Health and Nutrition Examination Survey Follow-up Study. Participants underwent a medical examination and provided blood samples between 1988 and 1994, and

were followed through 2006 to determine whether and how they died.

Over the course of the study, 3,810 participants died; the risk for dying was lower with higher levels of alpha-carotene in the blood. Compared with individuals with blood alpha-carotene levels between 0 and 1 micrograms per deciliter, the risk of death during the study period was 23 percent lower among who had concentrations between 2 and 3 micrograms per deciliter, 27 percent lower with levels between 4 and 5 micrograms per deciliter, 34 percent lower with levels between 6 and 8 micrograms per deciliter and 39 percent lower with levels of 9 micrograms per deciliter or higher.

Higher alpha-carotene concentration also appeared to be associated with lower risk of dying from cardiovascular disease or cancer individually, and of all other causes. "The association between serum alpha-carotene concentrations and risk of death from all causes was significant in most subgroups stratified by demographic characteristics, lifestyle habits and health risk factors," the authors write.

Alpha-carotene is chemically similar to beta-carotene but may be more effective at inhibiting the growth of cancer cells in the brain, liver and skin, they note. "Moreover, results from a population-based case-control study of the association between the consumption of fruits and vegetables and risk of lung cancer suggest that consumption of yellow-orange (carrots, sweet potatoes or pumpkin and winter squash) and dark-green (broccoli, green beans, green peas, spinach, turnips greens, collards and leaf lettuce) vegetables, which have a high alpha-carotene content, was more strongly associated with a decreased risk of lung cancer than was consumption of all other types of vegetables," the authors write.

The results support increasing fruit and vegetable consumption as a way of preventing premature death, and suggest a need for clinical research

into the health benefits of alpha-carotene, they conclude.

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