Abstract


Serum {alpha}-Carotene Concentrations and Risk of Death Among US Adults: The Third National Health and Nutrition Examination Survey Follow-up Study.

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BACKGROUND: Much research has been conducted relating total carotenoids-and β-carotene in particular-to risk of cancer and cardiovascular disease (CVD). Limited data are emerging to implicate the important role of α-carotene in the development of CVD or cancer.

METHODS: We assessed the direct relationship between α-carotene concentrations and risk of death among 15 318 US adults 20 years and older who participated in the Third National Health and Nutrition Examination Survey Follow-up Study. We used Cox proportional hazard regression analyses to estimate the relative risk for death from all causes and selected causes associated with serum α-carotene concentrations.

RESULTS: Compared with participants with serum α-carotene concentrations of 0 to 1 μg/dL (to convert to micromoles per liter, multiply by 0.01863), those with higher serum levels had a lower risk of death from all causes (P < .001 for linear trend): the relative risk for death was 0.77 (95% confidence interval, 0.68-0.87) among those with α-carotene concentrations of 2 to 3 μg/dL, 0.73 (0.65-0.83) among those with concentrations of 4 to 5 μg/dL, 0.66 (0.55-0.79) among those with concentrations of 6 to 8 μg/dL, and 0.61 (0.51-0.73) among those with concentrations of 9 μg/dL or higher after adjustment for potential confounding variables. We also found significant associations between serum α-carotene concentrations and risk of death from CVD (P = .007), cancer (P = .02), and all other causes (P < .001). The association between serum α-carotene concentrations and risk of death from all causes was significant in most subgroups stratified by demographic characteristics, lifestyle habits, and health risk factors.

CONCLUSIONS: Serum α-carotene concentrations were inversely associated with risk of death from all causes, CVD, cancer, and all other causes. These findings support increasing fruit and vegetable consumption as a means of preventing premature death.

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