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Vitamin E and prostate cancer

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NUTRITION RESEARCH REVIEW

Study one: Epidemiology

Subjects: 2,974 men from Basle, Switzerland.

Method: Prospective study in which plasma levels of vitamins C, E, retinol, and carotene were measured and subjects who were then followed up 17 years later.

Results: Excluding mortality in the first two years of follow-up, low vitamin E levels in smokers were related to an increased risk for prostate cancer, but there was no significant effect related to vitamin C.

Ref: Prostate 1999;38:189-98

Study two: Intervention trial

Subjects: 29,133 male smokers aged 50-69 years from southwestern Finland.

Method: The ATBC trial, where subjects were randomly assigned to receive either alpha-tocopherol (50 mg/day), beta-carotene (20mg/day), both or placebo for a median of 6.1 years.

Results: The incidence of prostate cancer in those subjects given vitamin E supplementation was 32%

lower (95% CI = -47% to -12%) and mortality was 41% lower (95% CI = -65% to -1%), compared to those not given vitamin E.

Ref: JNCI 1998;90:440-446

Studies three/four: Laboratory data

The effect of vitamin E was examined on the growth of two different human prostate carcinoma cell lines, when given together with lycopene. The simultaneous addition of physiological concentrations of alpha-tocopherol and lycopene inhibited prostate carcinoma cell proliferation by nearly 90%. This effect was not seen with beta-tocopherol.

Ref: Biochem Biophys Res Commun 1998;250:582-5

The inhibitory effect of gamma-tocopherol on human prostate cancer cell lines was compared with the effect of alpha-tocopherol in recent American study. Cell inhibition was seen with both isomers, but was greater with the gamma-tocopherol.

Ref: Semin Urol Oncol 1999;17:85-90

Comments

The idea that vitamin E lowers prostate cancer risk looks quite good so far. These recent results confirm epidemiological evidence from previous years that suggested the same conclusion.

However, as the two in vitro studies show, not all forms of vitamin E will necessarily have the same impact, and the combination of lycopene and vitamin E was particularly potent.

One of the crucial issues that relates to this is whether we are talking about food or pharmacology. Food

has a rich mixture of the many forms of the various antioxidant nutrients, including isomeric forms.

The evidence regarding vitamin E and protection against heart disease seems at present to point more to a benefit of pharmacological (i.e. supplemental) doses. However, we are a long way from reaching a similar conclusion in the case of vitamin E and prostate cancer. However, there are certainly enough interesting initial results to warrant further and larger investigations.

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