

Breast Cancer May Be Thwarted By Carotenoids
A DGRReview of : "Prospective Study of Carotenoids, Tocopherols, and Retinoid Concentrations and the Risk of Breast Cancer"
Cancer Epidemiology, Biomarkers & Prevention

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By Anne MacLennan

Carotenoids may well protect women against breast cancer, a study from Johns Hopkins University, Baltimore, Maryland and Our Lady of Mercy Medical Center, Bronx, New York, United States, has concluded.

This suggestion adds weight to those of earlier studies that the antioxidant properties of carotenoids and vitamin E (g-tocopherol) and the role of vitamin A in cellular differentiation may be linked with a reduced risk of subsequent breast cancer.

Reiko Sato and colleagues compared 295 women who gave blood for a serum bank in 1974 or 1989 with 295 controls matched on a range of factors. The investigators were looking for the association between serum and plasma concentrations of retinol, retinyl palmitate, α -carotene, β -carotene, β -cryptoxanthin, lutein, lycopene, total-carotenoids, α -tocopherol and g-tocopherol with subsequent development of breast cancer.

Median concentrations of β -carotene, lycopene and total carotene were found to be significantly lower in the cases versus controls in the 1974 cohort and for lutein in the 1989 cohort.

In the highest fifth of the women, risk of developing breast cancer was approximately half of that of the women in the lowest fifth for β -carotene, lycopene and total carotene in the 1974 group.

There was also generally a protective link for other micronutrients in both the 1974 and the 1989 groups although none proved to be statistically significant.

These results suggest carotenoids may protect against development of breast cancer, these authors conclude.

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"Prospective Study of Carotenoids, Tocopherols, and Retinoid Concentrations and the Risk of Breast Cancer"

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Prospective Study of Carotenoids, Tocopherols, and Retinoid Concentrations
and the Risk of Breast Cancer¹
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Previous prospective studies have raised the possibility that the antioxidant properties of carotenoids and vitamin E (α -tocopherol) and the role of vitamin A (retinol) in cellular differentiation may be associated with a reduced risk of subsequent breast cancer. To investigate the association between serum and plasma concentrations of retinol, retinyl palmitate, α -carotene, β -carotene, β -cryptoxanthin, lutein, lycopene, total-carotenoids, α -tocopherol, and γ -tocopherol with subsequent development of breast cancer, a nested case control study was conducted among female residents of Washington County, Maryland, who had donated blood for a serum bank in 1974 or 1989. Cases ($n = 295$) and controls ($n = 295$) were matched on age, race, menopausal status, and date of blood donation, and the analyses were stratified by cohort participation. Median concentrations of β -carotene, lycopene, and total carotene were significantly lower in cases compared with controls in the 1974 cohort (13.1, 12.5, and 7.9% difference; $P = 0.01$, 0.04, and 0.04, respectively) and for lutein in the 1989 cohort (6.7% difference; $P = 0.02$). The risk of developing breast cancer in the highest fifth was approximately half of that of women in the lowest fifth for β -carotene [odds ratio (OR) = 0.41; 95% confidence interval (CI) 0.22–0.79; P trend = 0.007], lycopene (OR = 0.55; 95% CI 0.29–1.06; P trend = 0.04), and total carotene (OR = 0.55; 95% CI 0.29–1.03; P trend = 0.02) in the 1974 cohort. There was generally a protective association for other micronutrients in both cohorts, although none reached statistical significance. The results suggest that carotenoids may protect against the development of breast cancer.