

Women With Higher Carotenoid Levels Have Reduced Risk of Breast Cancer

Women with higher circulating carotenoid levels are at a reduced risk of breast cancer according to a study published December 6 in the *Journal of the National Cancer Institute*.

Carotenoids, which are micronutrients found in fruits and vegetables, have been found to have anticarcinogenic properties. Previous experimental studies have shown that carotenoids inhibit the tumor progression and reduce proliferation of estrogen receptor–positive (ER+) and estrogen receptor–negative (ER-) breast cancers. Despite the inverse association between carotenoids and breast cancer in prior studies, the specific carotenoid has differed across multiple studies.

In order to determine the associations that specific carotenoids have with breast cancer, A. Heather Eliassen, Channing Division of Network Medicine, Department of Medicine, Brigham & Women's Hospital and Harvard Medical School, and colleagues, conducted a pooled analysis of eight cohort studies, which gathered over 80% of the world's published prospective data on plasma or serum carotenoids and breast cancer. The analysis included 3,055 case subjects and 3,956 matched control subjects. Participant carotenoid levels were recalibrated to a common standard to explain laboratory differences as well as to examine the differences across populations.

The researchers found that in over 3,000 case subjects, there were statistically significantly inverse associations between circulating levels of individual and total carotenoids and breast cancer risk, with a stronger finding in ER- breast cancers. "The inverse associations we observed among ER- tumors highlight carotenoids as one of the first modifiable risk factors for this poor prognosis tumor type," the authors write, adding that while some evidence has shown that carotenoids inhibit the growth of ER+ breast cancers as well, it's possible that its effect is hidden by hormone related associations which over-power other risk factors. Still, the researchers feel that, "A diet high in carotenoid-rich fruits and vegetables offers many health benefits, including a possible reduced risk of breast cancer."

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