

Lycopene Supplementation and Disease Risk

Breast Cancer Critical Findings

Disease type	First Author	Study Title and Complete Citation	Date	Abstract	Study Type	G.Tom +, N, -	P.Tom +, N, -	F.Tom +, N, -	Lyco +, N, -	Other +, N, -
Cancer: breast	Voskuil DW	Effects of lycopene on the insulin-like growth factor (IGF) system in premenopausal breast cancer survivors and women at high familial breast cancer risk. Voskuil DW, Vrieling A, Korse CM, Beijnen JH, Bonfrer JM, van Doorn J, Kaas R, Oldenburg HS, Russell NS, Rutgers EJ, Verhoef S, van Leeuwen FE, van't Veer LJ, Rookus MA. Nutr Cancer. 2008;60(3):342-53.	2008	Insulin-like growth factor-I (IGF-I) is an important growth factor associated with increased risk of premenopausal breast cancer. We conducted a randomized, placebo-controlled, double-blind, crossover trial to evaluate whether tomato-derived lycopene supplementation (30 mg/day for 2 mo) decreases serum levels of total IGF-I in premenopausal women with 1) a history of breast cancer (n=24) or 2) a high familial breast cancer risk (n=36). Also, IGF binding protein (IGFBP) increasing effects were evaluated. Lycopene supplementation did not significantly alter serum total IGF-I and other IGF system components in the 2 study populations combined. However, statistically significant discordant results were observed between the 2 study populations (i.e., P<0.05 for total IGF-I, free IGF-I, and IGFBP-3). Total IGF-I and IGFBP-3 were increased in the breast cancer survivor population [total IGF-I=7.0%, 95% confidence interval (CI)= -0.2 to 14.3%; IGFBP-3=3.3%, 95% CI=0.7-6.0%], and free IGF-I was decreased in the family history population (-7.6%, 95% CI= -14.6 to -0.6%). This randomized controlled trial shows that 2 mo of lycopene supplementation has no effect on serum total IGF-I in the overall study population. However, lycopene effects were discordant between the 2 study populations showing beneficial effects in high-risk healthy women but not in breast cancer survivors.	RCT				N/(-) N in survivors IGF-1 ~~~~~ (-) may provide beneficial effects in high-risk healthy	
Cancer: breast	Pan SY	Antioxidants and breast cancer risk - a population-based case-control study in Canada. Pan SY, Zhou J, Gibbons L, Morrison H, Wen SW, Ccreg TC.	2011	BACKGROUND: The effect of antioxidants on breast cancer is still controversial. Our objective was to assess the association between antioxidants and breast cancer risk in a large population-based case-control study. METHODS: The study population included 2,362 cases with pathologically confirmed incident breast cancer (866 premenopausal and 1,496 postmenopausal) and 2,462 controls in Canada. Intakes of antioxidants from diet and from	CC				N supple N diet	

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supplementation as well as other potential risk factors for breast cancer were collected by a self-reported questionnaire.

RESULTS: Compared with subjects with no supplementation, 10 years or longer supplementation of zinc had multivariable-adjusted odds ratios (OR) and 95% confidence intervals (CI) of 0.46 (0.25-0.85) for premenopausal women, while supplementation of 10 years or longer of multiple vitamin, beta-carotene, vitamin C, vitamin E and zinc had multivariable-adjusted ORs (95% CIs) of 0.74 (0.59, 0.92), 0.58 (0.36, 0.95), 0.79 (0.63-0.99), 0.75 (0.58, 0.97), and 0.47 (0.28-0.78), respectively, for postmenopausal women. No significant effect of antioxidants from dietary sources (including beta-carotene, alpha-carotene, lycopene, lutein and zeaxanthin, vitamin C, vitamin E, selenium and zinc) or from supplementation less than 10 years was observed.

CONCLUSIONS: This study suggests that supplementation of zinc in premenopausal women, and supplementation of multiple vitamin, beta-carotene, vitamin C, vitamin E and zinc in postmenopausal women for 10 or more years may protect women from developing breast cancer. However, we were unable to determine the overall effect of total dose or intake from both diet and supplement.