

## Plasma/Serum Lycopene and Disease Risk Ovarian 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: ovarian	Jeong NH	<p>Plasma carotenoids, retinol and tocopherol levels and the risk of ovarian cancer.</p> <p>Jeong NH, Song ES, Lee JM, Lee KB, Kim MK, Cheon JE, Lee JK, Son SK, Lee JP, Kim JH, Hur SY, Kwon YI.</p> <p>Acta Obstet Gynecol Scand. 2009;88(4):457-62.</p>	2009	<p>OBJECTIVE: We investigated the relation between plasma carotenoids, retinol and tocopherol levels and ovarian cancer risk in Korean women. DESIGN: Hospital-based case-control study. SETTING: Six tertiary medical institutes in Korea. POPULATION: Forty-five epithelial ovarian cancers and 135 age-matched controls. METHODS: Preoperative plasma concentrations of beta-carotene, lycopene, zeaxanthin plus lutein, retinol, alpha-tocopherol, and gamma-tocopherol were measured by reverse-phase, gradient high-pressure liquid chromatography. MAIN OUTCOME MEASURES: Odds ratios (OR) and 95% confidence intervals (95%CI) were estimated by tertiles to evaluate the effect of micronutrients on endometrial cancer risk after adjustment for body mass (BMI) index, menopause, parity, oral contraceptive use, smoking status, and alcohol consumption status. RESULTS: Women in the highest tertile for beta-carotene had 0.12-times the risk of ovarian cancer of in the lowest tertile (OR 0.12; 95%CI 0.04-0.36). Women with the highest tertiles of lycopene (OR 0.09; 95%CI 0.03-0.32), zeaxanthin/lutein (OR 0.21; 95%CI 0.09-0.52), retinol (OR 0.45; 95%CI 0.21-0.98), alpha-tocopherol (OR 0.23; 95%CI 0.10-0.53) and gamma-tocopherol (OR 0.28; 95%CI 0.11-0.70) had lower risk of ovarian cancer than women in the lowest tertiles. Results were consistent across strata of socio-epidemiologic factors. CONCLUSIONS: Micronutrients, specifically ss-carotene, lycopene, zeaxanthin, lutein, retinol, alpha-tocopherol, and gamma-tocopherol, may play a role in reducing the risk of ovarian cancer</p>	CC				(-)	
Cancer: ovarian	Helzlsouer KJ	<p>Prospective study of serum micronutrients and ovarian cancer.</p> <p>Helzlsouer KJ, Alberg AJ, Norkus</p>	1996	<p>BACKGROUND: Antioxidant micronutrients, such as alpha-tocopherol (vitamin E), the carotenoids, and selenium, may protect against the development of cancer by preventing free radical damage at the cellular level. PURPOSE: A nested case-control study was conducted among donors to a serum bank to examine the association between levels of serum micronutrients and/or cholesterol and the development of ovarian cancer. METHODS: In 1974, sera were collected from</p>	CC nested				N	

EP, Morris JS,  
Hoffman SC,  
Comstock GW.

J Natl Cancer  
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3;88(1):32-7.

20,305 residents of Washington County, MD, over a 4-month period and stored at -70 °C. Serum micronutrient concentrations of women who developed ovarian cancer (case subjects, n = 35) were compared with those of women who remained free of cancer and who were matched to case subjects on age and menopausal status (control subjects, n = 67). Serum levels of retinol (vitamin A), alpha- and beta-carotene, lycopene, and alpha- and gamma-tocopherol were measured using high-performance liquid chromatography. Serum selenium (Se) was measured by neutron activation analysis. Cholesterol was measured by enzymatic assay. The data were categorized into thirds and conditional logistic regression analyses were performed to determine the association between prediagnostic serum cholesterol and micronutrient levels and the development of ovarian cancer; matched odds ratios (ORs) were determined from these regression analyses. P values for trend and for interaction were calculated with the use of two-sided likelihood ratio tests. RESULTS: Higher serum alpha-tocopherol levels were associated with an increased risk of ovarian cancer (P for trend = .04); however, this association diminished after adjustment for cholesterol. Women with higher serum cholesterol levels had an increased risk of ovarian cancer compared with women in the lowest third of cholesterol levels (OR = 3.2; 95% confidence interval = 0.9-11.3). The association between serum cholesterol levels and the risk of ovarian cancer was examined, stratifying by micronutrient level. The general pattern observed was an increased risk of ovarian cancer associated with cholesterol levels greater than 200 mg/dL, regardless of the micronutrient level. Serum selenium was associated with a decreased risk of ovarian cancer only among case participants diagnosed 4 or more years after blood collections (P for trend = .02). Concentrations of carotenoids and retinol were not associated with the development of ovarian cancer. CONCLUSIONS: Se may have a protective role against the development of ovarian cancer. Higher serum cholesterol levels were associated with an increased risk of developing ovarian cancer, which persisted regardless of serum micronutrient level. IMPLICATIONS: Given the small size of this study and the inconsistency of results among the few prospective studies of ovarian cancer conducted to test these associations, replications of these findings are highly desirable.