

Plasma/Serum Lycopene and Disease Risk

Head and Neck 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: head and neck	Djuric Z	Levels of fat-soluble micronutrients and 2,6-cyclolycopene-1,5-diol in head and neck cancer patients. Djuric Z, Ronis DL, Fowler KE, Ren J, Duffy SA. Int J Vitam Nutr Res. 2007 Nov;77(6):382-8	2007	Smoking negatively affects serum carotenoid levels, and it is a negative prognostic factor for head and neck cancer. In this study, micronutrient levels were examined in 60 smoking and non-smoking head and neck cancer patients. The goal was to determine if oxidation of the carotenoid lycopene would occur to a greater extent in smokers. Subjects were drawn from a prospective cohort study and matched on seven demographic factors. Serum levels of alpha-carotene, zeaxanthin, and 2,6-cyclolycopene-1,5-diol A, an oxidation product of lycopene, were all lower in smokers versus non-smokers (18%, 22%, and 8%, respectively) while beta-carotene, beta-cryptoxanthin, and lutein were about the same in the two groups. Levels of lycopene, gamma-tocopherol, and alpha-tocopherol were higher in smokers, and notably serum alpha-tocopherol was 48% higher in smokers. The majority of vitamin E intake was from supplements. The higher levels of alpha-tocopherol in smokers were interesting in that higher alpha-tocopherol levels have been associated with higher mortality in head and neck cancer. Although this was a pilot investigation, there was no evidence that 2,6-cyclolycopene-1,5-diol A formation was appreciably affected by smoking status, but alpha-tocopherol levels were higher in smokers.	CS nested				↓ in smokers	Lower in smokers Smokers vs non-smokers
Cancer: head and neck	Hughes KJ	Plasma Carotenoids and Biomarkers of Oxidative Stress in Patients with prior Head and Neck Cancer. Hughes KJ, Mayne ST, Blumberg JB,	2009	Diets high in fruits and vegetables are generally believed protective against several chronic diseases. One suggested mechanism is a reduction in oxidative stress. The carotenoids, nutrients found in colored fruits and vegetables, possess antioxidant properties in vitro, but their role in humans is less well documented. The aim of this cross-sectional study was to explore the relationships between the most abundant plasma carotenoids (alpha-carotene, beta-carotene, lycopene, lutein, zeaxanthin and beta-cryptoxanthin), as well as grouped	CS				N Ox stress markers: F(2)-isoP and 8-iso-PGF(2alpha)	

		<p>Ribaya-Mercado JD, Johnson EJ, Cartmel B.</p> <p>Biomark Insights. 2009 Mar 23;4:17-26.</p>	<p>carotenoids (total xanthophylls, carotenes and carotenoids), and urinary excretion of the F(2)-isoprostanes (F(2)-IsoPs), stable and specific biomarkers of oxidative damage to lipids. Two F(2)-IsoP measures were utilized: total F(2)-IsoPs and 8-iso-PGF(2alpha). The study population (N = 52) was drawn from a study among patients curatively treated for early-stage head and neck cancer. Unadjusted linear regression analyses revealed significant inverse associations between plasma lutein, total xanthophylls and both F(2)-IsoP measures at baseline. After control for potential confounders, all individual and grouped xanthophylls remained inversely associated with the F(2)-IsoP measures, but none of these associations achieved significance. The carotenes were not inversely associated with total F(2)-IsoPs or 8-iso-PGF(2a) concentrations. The finding of consistent inverse associations between individual and grouped xanthophylls, but not individual and grouped carotenes, and F(2)-IsoPs is intriguing and warrants further investigation.</p>						
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