

A prospective study of carotenoid intake and risk of cataract extraction in US men

Lisa Brown, Eric B Rimm, Johanna M Seddon, Edward L Giovannucci, Lisa Chasan-Taber, Donna Spiegelman, Walter C Willett and Susan E Hankinson

¹ From the Departments of Epidemiology, Nutrition, and Biostatistics, Harvard School of Public Health, Boston; the Channing Laboratory, Brigham and Women's Hospital and Harvard Medical School, Boston; the Department of Ophthalmology, Harvard Medical School and Massachusetts Eye and Ear Infirmary, Boston; and the Department of Biostatistics and Epidemiology, School of Public Health and Health Sciences, University of Massachusetts, Amherst.

ABSTRACT

Background: Dietary antioxidants, including carotenoids, are hypothesized to decrease the risk of age-related cataracts by preventing oxidation of proteins or lipids within the lens. However, prospective epidemiologic data concerning this phenomenon are limited.

Objective: Our objective was to examine prospectively the association between carotenoid and vitamin A intakes and cataract extraction in men.

Design: US male health professionals ($n = 36644$) who were 45–75 y of age in 1986 were included in this prospective cohort study. Others were subsequently included as they became 45 y of age. A detailed dietary questionnaire was used to assess intake of carotenoids and other nutrients. During 8 y of follow-up, 840 cases of senile cataract extraction were documented.

Results: We observed a modestly lower risk of cataract extraction in men with higher intakes of lutein and zeaxanthin but not of other carotenoids (α -carotene, β -carotene, lycopene, and β -cryptoxanthin) or vitamin A after other potential risk factors, including age and smoking, were controlled for. Men in the highest fifth of lutein and zeaxanthin intake had a 19% lower risk of cataract relative to men in the lowest fifth (relative risk: 0.81; 95% CI: 0.65, 1.01; P for trend = 0.03). Among specific foods high in carotenoids, broccoli and spinach were most consistently associated with a lower risk of cataract.

Conclusions: Lutein and zeaxanthin may decrease the risk of cataracts severe enough to require extraction, although this relation appears modest in magnitude. The present findings add support for recommendations to consume vegetables and fruit high in carotenoids daily.

American Journal of Clinical Nutrition, Vol. 70, No. 4, 517-524, October 1999