Dietary Lycopene and Disease Risk
Renal Cancer, Uterine Cancer, and Mortality

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: renal	Bosetti C	Micronutrients and the risk of renal cell cancer: a case-control study from Italy. Bosetti C, Scotti L, Maso LD, Talamini R, Montella M, Negri E, Ramazzotti V, Franceschi S, La Vecchia C. Int J Cancer. 2007 Feb 15;120(4):892-6.	2007	The role of various micronutrients on the risk of renal cell cancer (RCC) was examined in a multicentric case-control study from Italy, in which information on dietary habits were collected using a validated food-frequency questionnaire. Cases were 767 patients (494 men and 273 women) with incident, histologically confirmed RCC; controls were 1,534 subjects (988 men and 546 women) admitted to the same hospitals as cases for a wide spectrum of acute, nonneoplastic conditions. After allowing for energy and other major covariates, a significant inverse association was found for vitamin E (odds ratio, OR, for the highest quintile of intake versus the lowest one 0.56, 95% confidence interval, CI 0.41-0.75), and vitamin C (OR = 0.72, 95% CI = 0.54-0.96), although the trend in risk for vitamin C was of borderline significance. No significant trend of decreasing risk was found for other micronutrients analyzed, although for most of them the risk estimates were below unity for intakes above the lowest. The ORs for the upper quintile of intake when compared with the lowest one were 0.80 (95% confidence interval, CI = 0.59-1.08) for retinol, 0.82 (95% CI = 0.61-1.10) for alpha-carotene, 0.90 (95% CI = 0.68-1.20) for beta-carotene, 0.94 (95% CI = 0.73-1.21) for beta-criptoxanthin, 0.85 (95% CI = 0.63-1.14) for lutein/zeaxanthin, 0.76 (95% CI = 0.57-1.01) for vitamin D, 0.75 (95% CI = 0.55-1.01) for thiamine, 0.88 (95% CI = 0.66-1.19) for riboflavin, 0.85 for vitamin B6 (95% CI = 0.64-1.13), 0.85 (95% CI = 0.64-1.12) for folate and 0.80 (95% CI = 0.60-1.07) for niacin. No meaningful associations emerged for lycopene (OR = 1.11). The present findings support a possible beneficial effect of vitamin E and C on RCC.	CC				N	
Cancer: renal	Hu J	Dietary vitamin C, E, and carotenoid intake and risk of renal cell carcinoma. Hu J, La Vecchia C, Negri E, DesMeules M, Mery L;	2009	OBJECT: The study examines the association between dietary intake of vitamin C, E, and carotenoids and the risk of renal cell carcinoma (RCC). METHODS: Between 1994 and 1997 in 8 Canadian provinces, mailed questionnaires were completed by 1,138 incident, histologically confirmed cases of RCC and 5,039 population controls, including information on socio-economic status, lifestyle habits and diet. A 69-item food frequency questionnaire provided data on eating habits 2 years before data collection. Odds ratios (OR) and 95% confidence	CC				N	

		Canadian Cancer Registries Epidemiology Research Group. Cancer Causes Control. 2009 Oct;20(8):1451-8. Epub 2009 Jun 17		intervals (CI) were computed using unconditional logistic regression. RESULTS: Dietary intake of beta-carotene and lutein/zeaxanthin was inversely associated with the risk of RCC. The ORs for the highest versus the lowest quartile were 0.74 (95% CI, 0.59-0.92) and 0.77 (95% CI, 0.62-0.95), respectively. The significant inverse association with beta-carotene and lutein/zeaxanthin was more pronounced in women, and in overweight or obese subjects. The relation of lutein/zeaxanthin to RCC was stronger in ever smokers. No clear association was observed with vitamin C and E, beta-cryptozanthin, and lycopene. CONCLUSION: The findings provide evidence that a diet rich in beta-carotene and lutein/zeaxanthin may play a role in RCC prevention.						
Cancer: renal	Lee JE	Intakes of fruit, vegetables, and carotenoids and renal cell cancer risk: a pooled analysis of 13 prospective studies. Lee JE, Mannisto S, Spiegelman D, Hunter DJ, Bernstein L, van den Brandt PA, Buring JE, Cho E, English DR, Flood A, Freudenheim JL, Giles GG, Giovannucci E, Hakansson N, Horn-Ross PL, Jacobs EJ, Leitzmann MF, Marshall JR, McCullough ML, Miller AB, Rohan TE, Ross JA, Schatzkin A, Schouten LJ, Virtamo J, Wolk A, Zhang SM, Smith-Warner SA.	2009	Fruit and vegetable consumption has been hypothesized to reduce the risk of renal cell cancer. We conducted a pooled analysis of 13 prospective studies, including 1,478 incident cases of renal cell cancer (709 women and 769 men) among 530,469 women and 244,483 men followed for up to 7 to 20 years. Participants completed a validated food-frequency questionnaire at baseline. Using the primary data from each study, the study-specific relative risks (RR) were calculated using the Cox proportional hazards model and then pooled using a random effects model. We found that fruit and vegetable consumption was associated with a reduced risk of renal cell cancer. Compared with <200 g/d of fruit and vegetable intake, the pooled multivariate RR for >or=600 g/d was 0.68 [95% confidence interval (95% CI) = 0.54-0.87; P for between-studies heterogeneity = 0.86; P for trend = 0.001]. Compared with <100 g/d, the pooled multivariate RRs (95% CI) for >or=400 g/d were 0.79 (0.63-0.99; P for trend = 0.03) for total fruit and 0.72 (0.48-1.08; P for trend = 0.07) for total vegetables. For specific carotenoids, the pooled multivariate RRs (95% CIs) comparing the highest and lowest quintiles were 0.87 (0.73-1.03) for alpha-carotene, 0.82 (0.69-0.98) for beta-carotene, 0.86 (0.73-1.01) for beta-cryptoxanthin, 0.82 (0.64-1.06) for lutein/zeaxanthin, and 1.13 (0.95-1.34) for lycopene. In conclusion, increasing fruit and vegetable consumption is associated with decreasing risk of renal cell cancer; carotenoids present in fruit and vegetables may partly contribute to this protection.	PC pooled				N	

		Cancer Epidemiol Biomarkers Prev. 2009 Jun;18(6):1730-9.								
Cancer: uterine	Terry KL	Lycopene and other carotenoid intake in relation to risk of uterine leiomyomata. Terry KL, Missmer SA, Hankinson SE, Willett WC, De Vivo I. Am J Obstet Gynecol. 2008 Jan;198(1):37.e1-8. Epub 2007 Nov 5.	2008	OBJECTIVE: Carotenoids have antioxidant properties and have been associated with reduced risks of some cancers. We hypothesized that carotenoid intake may reduce the risk of diagnosed uterine leiomyoma (UL). STUDY DESIGN: We evaluated the associations between dietary carotenoids and risk of diagnosed UL in 82,512 premenopausal women aged 26-46 years in 1991 in the Nurses' Health Study II over 10 years of follow-up. Diet was assessed every 4 years with a validated food frequency questionnaire, and incidence of UL was assessed biennially by questionnaire. RESULTS: Total lycopene intake was not associated with diagnosed UL risk. Intake of beta-carotene was associated with slightly increased risks of diagnosed UL; this association was restricted to current smokers (for highest vs lowest quintile, relative risk = 1.36, 95% confidence interval 1.05 to 1.76; P(trend) = .003). CONCLUSION: Overall, our findings do not suggest that carotenoids reduce the risk of diagnosed UL. Among current smokers, high intake of beta-carotene may slightly increase risk of diagnosed UL.	PC				N	
Cancer: Mortality	Agudo A	Fruit and vegetable intakes, dietary antioxidant nutrients, and total mortality in Spanish adults: findings from the Spanish cohort of the European Prospective Investigation into Cancer and Nutrition (EPIC-Spain). Agudo A, Cabrera L, Amiano P, Ardanaz E, Barricarte A, Berenguer T, Chirlaque MD,	2008	BACKGROUND: Epidemiologic data suggest that persons with diets rich in fruit and vegetables are at a lower risk of several chronic diseases and mortality than are persons with diets poor in fruit and vegetables. Often, this effect is attributed to antioxidant micronutrients found in plant foods. OBJECTIVE: We aimed to assess the relation of mortality to the consumption of fruit, vegetables, and other plant foods and to the dietary intake of vitamin C, vitamin E, and carotenoids. DESIGN: The study was a prospective study in the Spanish cohort of the European Prospective Investigation into Cancer and Nutrition. During 6.5 y of follow-up, 562 deaths occurred in 41 358 subjects aged 30-69 y. Proportional hazards regression analysis was used to assess the relation between dietary factors and total mortality. RESULTS: After adjustment for age, sex, and several potential confounders, the hazard ratio for the highest versus the lowest quartile of consumption was 0.79 (95% CI: 0.62, 1.00; P for trend = 0.029) for fresh fruit, 0.72 (0.56, 0.91; P for trend = 0.006) for root vegetables, and 0.77 (0.60, 0.98; P for trend = 0.015) for fruiting vegetables (ie, vegetables that contain the	PC				(-) ↓ mortality	

		Dorronsoro M, Jakszyn P, Larranaga N, Martinez C, Navarro C, Quiras JR, Sanchez MJ, Tormo MJ, Gonzalez CA. Demark-Wahnefried W. Curr Urol Rep. 2008 May; 9(3):217-25.		"fruit" part of the plant, the seeds). The corresponding figures for antioxidant nutrients were 0.74 (0.58, 0.94; P for trend = 0.009) for vitamin C, 0.68 (0.53, 0.87; P for trend = 0.006) for provitamin A carotenoids, and 0.65 (0.51, 0.84; P for trend 0.001) for lycopene. The effect of vitamin C and provitamin A disappeared after adjustment for total antioxidant capacity in plant foods. CONCLUSIONS: A high intake of fresh fruit, root vegetables, and fruiting vegetables is associated with reduced mortality, probably as a result of their high content of vitamin C, provitamin A carotenoids, and lycopene. Antioxidant capacity could partly explain the effect of ascorbic acid and provitamin A but not the association with lycopene.						