Plasma phospholipid fatty acids, dietary fatty acids and prostate cancer risk.

Bassett JK, Severi G, Hodge AM, Macinnis RJ, Gibson RA, Hopper JL, English DR, Giles GG.
Cancer Epidemiology Centre, Cancer Council Victoria, Carlton, VIC, Australia.

Abstract
Animal and experimental studies have demonstrated that long-chain n-3 fatty acids inhibit the development of prostate cancer, whereas n-6 fatty acids might promote it. We performed a case-cohort analysis within the Melbourne Collaborative Cohort Study using a random sample of 1,717 men and 464 prostate cancer cases to investigate associations between fatty acids assessed in plasma phospholipids (PPLs) or diet (estimated using a 121-item food frequency questionnaire) and prostate cancer risk. Hazard ratios (HRs) and 95% confidence intervals (CIs) were estimated using Cox regression. Prostate cancer risk was positively associated with %PPL saturated fatty acids (SFAs); HR [95% CI] = 1.51 [1.06, 2.16] (Q5 vs. Q1, fifth vs. first quintile); p-trend = 0.003. HRs (Q5 to Q2 vs. Q1) were significantly elevated for %PPL palmitic acid. %PPL oleic acid was inversely associated with risk, HR = 0.62 [0.43, 0.91] (Q5 vs. Q1); p-trend = 0.04. No statistically significant linear trends were observed for dietary intakes. The HRs were elevated for moderate intakes of linoleic acid (Q2 and Q3 vs. Q1, 1.58 [1.10, 2.28] and 1.70 [1.18, 2.46], respectively), but the increase was not significant for higher intakes (Q4 and Q5). No association varied significantly by tumour aggressiveness (all p-homogeneity > 0.1). Prostate cancer risk was positively associated with %PPL SFA, largely attributable to palmitic acid and inversely associated with %PPL monounsaturated fatty acids, largely attributable to oleic acid. Higher risks were also observed for dietary n-6 polyunsaturated fats, primarily linoleic acid.

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