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MEAT CONSUMPTION AND COLON CANCER: CAN IT BE EXPLAINED BY OTHER FACTORS?. RA Goldbohm, LE Voorrips* and PA Van den Brandt (TNO Nutrition and Food Research, Zeist Netherlands)

Cohort studies on (red) meat consumption and colon cancer risk have shown inconsistent results. Previous analyses in the Netherlands Cohort Study (NLCS) showed no association with fresh (non-preserved) meat. Effect modification by vegetable consumption and physical activity may be one of the explanations. In the NLCS 120,000 men and women participate, of whom at baseline dietary intake was assessed by a 150-item food frequency questionnaire. With 6.3 years of follow-up, repeated analyses were performed with 332 male and 288 female incident cases. Effect modification by vegetable intake and physical activity was considered. A case-cohort design was used, with data of 3123 subcohort members. Rate ratios (RRs) and 95% confidence intervals (CIs) were adjusted for age, family history, Body Mass Index, and energy and alcohol intake. Meat consumption remained not associated with colon cancer risk (RR (CI) for highest versus lowest quintile: 0.9 (0.6-1.4) in both men and women), nor were separate meat items. Processed meat was associated with a small increase in risk (RR(CI): 1.4 (0.9-2.3) for those eating 20+ g/day versus non-users). Heme-iron, however, showed a positive association in men but not in women (RR (CI) high versus low: 1.6 (1.0-2.4), p-trend 0.04). No evidence of effect modification by vegetable consumption was observed; a small positive association was observed among men with low leisure time physical activity only. The biologically plausible results regarding heme-iron warrant further research.

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RISK FACTORS FOR COLORECTAL CANCER FOLLOWING BREAST CANCER. LM Kmet*, LS Cook, NS Weiss, SM Schwartz and E White (University of Calgary, Calgary, AB T2N 4N1 Canada)

BACKGROUND: Apart from age and treatment, little is known about other risk factors for colorectal cancer (CC) following breast cancer. We conducted a nested case-control study to investigate family history of breast cancer, body mass, parity, menopausal status, prior hormone replacement therapy (HRT) and initial breast tumor characteristics as risk factors for subsequent CC. **METHODS:** Women diagnosed with an initial breast cancer (1978-1992) were identified from the western Washington population-based cancer registry. Cases were women who later developed CC prior to 1995 (n=146). Controls were a random sample of those who did not develop a second cancer, matched to cases on age, stage and year of initial diagnosis (n=270). Data were obtained from medical records and physician questionnaires. Matched odds ratios (mOR) and 95% confidence intervals (CI) were estimated using conditional logistic regression. **RESULTS:** In this population, the incidence of CC was associated with a family history of breast cancer (vs. no family history, mOR=2.1, CI: 1.1-4.1), a high body mass (≥30 kg/m² vs. <30 kg/m², mOR=2.2, CI: 1.2-3.9), and a lobular breast cancer histology (vs. ductal, mOR=2.0, CI: 0.9-4.4). Risk was unrelated to menopausal status, prior use of HRT and estrogen/progesterone receptor density of the breast tumor. **CONCLUSION:** Our results for high body mass and parity are consistent with studies of risk factors for CC in general, but we did not find a reduced risk associated with HRT. Our finding of an elevated risk with a family history of breast cancer is consistent with the reported positive familial relationship between breast and CC occurrence.

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NEW LIFE FOR THE DIETARY FIBER AND COLORECTAL NEOPLASIA HYPOTHESIS? DATA FROM THE PROSTATE, LUNG, COLORECTAL, AND OVARIAN CANCER (PLCO) TRIAL. U Peters*, R Sinha, N Chatterjee, A Subar, R Ziegler, R Bresalier, JL Weissfeld, A Flood, RN Hoover, A Schatzkin, RB Hayes and PLCO Project Team (National Cancer Institute, Bethesda, MD 20892)

The role of dietary fiber in the etiology of neoplasia is controversial. We investigated the associations of dietary fiber and fiber sub-groups with prevalent colorectal adenoma within the PLCO trial, a randomized trial to evaluate cancer screening methods. Of 20,402 men and women who underwent sigmoidoscopy screening through Sept. 1997, 1683 were confirmed by colonoscopy to have one or more adenomas in the distal large bowel (descending colon, including sigmoid and rectum). The range of total dietary fiber intake was 4 to 93 gram/day (131-item food frequency questionnaire). In an energy-adjusted, multivariate logistic regression model that included fiber as a continuous variable, each 10 gram/day increment of total dietary fiber intake was associated with a 30% lower risk (odds ratio [OR] 0.70, 95% confidence interval [CI] 0.64-0.76) of distal colorectal adenoma. Non-parametric regression analysis (including Kernel smoothing) indicated increasing protection through approximately the 90th percentile of dietary fiber (about 40 gram/day). The fiber-adenoma associations differed according to food sources of fiber. For each 10 gram/day increment of fiber intake, the risk of distal adenoma decreased for fiber from grain/cereals by 35% (OR 0.65, CI 0.56-0.75), from vegetables by 6% (OR 0.94, CI 0.81-1.09) and from fruits by 51% (OR 0.49, CI 0.39-0.60). In summary, dietary fiber, particularly fiber from grains and fruits, is inversely associated with distal colorectal adenoma in the PLCO trial.

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CANCER EPIDEMIOLOGY AND PESTICIDES: THOUGHTS ON BIOLOGIC PLAUSIBILITY USING A RISK ASSESSMENT PARADIGM. J Acquavella*, J Tomenson, J Doe, L Bloemen, G Chester and J Cowell (Monsanto Company, St. Louis, MO 63167)

Widely used pesticides have become a focus of epidemiologic research and, in fact, many epidemiologic studies have found associations between reported use of specific pesticides and various cancers. Many of these associations have been questioned on methodologic grounds. A more fundamental issue, however, is plausibility in light of the significant amount of toxicologic research and biomonitoring or exposure modeling data for these compounds. Such data are contained in regulatory submissions that are not widely available and some have been published in journals that are not normally reviewed by epidemiologists. In many instances, these data suggest that even worst case human exposures are well below levels that might produce adverse human health effects. In this paper, the authors review the carcinogen classifications, exposure biomonitoring/modeling data, and regulatory risk assessment projections for several of the most widely used pesticides in the context of the planning and interpretation of epidemiologic studies. Explicit consideration of this information might stimulate an interest in alternative explanations for epidemiologic findings, alternative approaches to exposure assessment, or alternative causal theories for specific pesticides.