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BODY MASS INDEX AND CANCER RISK IN A COHORT OF SWEDISH CONSTRUCTION WORKERS. *C Samanic, W H Chow, G Gridley, J F Fraumeni, Jr, and B Jarvholm (National Cancer Institute, Bethesda, MD 20892)

To evaluate the association between body mass index (BMI), weight gain and cancer risk, we examined the health records of 362,343 Swedish men who underwent at least one physical examination from 1971 to 1992, and were followed until death or the end of 1999. Incident cancer cases were identified by linkage to the Swedish cancer registry. Poisson regression models were used to estimate relative risks (RR) of cancer for both BMI at baseline exam and change in BMI after six years of follow-up, adjusting for age and smoking status. Compared to men of normal weight, obese men had a significantly increased risk of all cancers combined (RR = 1.1), esophageal adenocarcinoma (RR = 2.7), cancers of the colon (RR = 1.7) and all colon subsites, rectum (RR = 1.4), liver (RR = 3.6), prostate (RR = 1.1) and for renal cell cancer (RR = 1.6). Risk for esophageal squamous cell carcinoma was elevated for underweight men (RR = 3.1). A similar pattern of risk was observed when restricting the analysis to men who never smoked, with an excess risk for pancreas cancer observed only among obese nonsmokers (RR = 1.8). When BMI for the obese category was divided further, risks tended to increase further with increasing levels of BMI for cancers of the colon, rectum, liver and pancreas. Compared to men whose weight remained stable, men with more than a 15% increase in BMI after six years of follow-up had an increased risk of pancreas (RR = 2.6), liver (RR = 2.3) and renal cell (RR = 1.6) cancers. The association of both obesity and weight gain over time with cancer risk deserves further attention in light of associated metabolic changes.

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PHYSICAL ACTIVITY IN RELATION TO RISK OF BILIARY TRACT CANCER: A POPULATION-BASED STUDY IN CHINAM. *F Leitzmann, Y-T Gao, A Rashid, B-S Wang, J Deng, M S Shen, J F Fraumeni, Jr, A W Hsing (National Cancer Institute, Bethesda, MD 20892)

Biliary tract cancers encompass cancers of the gallbladder, extrahepatic bile duct, and ampulla of Vater. Data regarding the association between physical activity and biliary tract cancer risk are virtually unavailable. The authors conducted a population-based case-control study of 462 incident cases of biliary tract cancer (273 gallbladder, 135 bile duct, and 54 ampulla of Vater) and 927 healthy controls randomly selected from the general population in urban Shanghai between 1997 and 2001 to investigate the role of recreational, occupational, and commuting-related physical activity in biliary tract cancer etiology. Information on physical activity was collected using standardized in-person interviews. Unconditional logistic regression was used to estimate odds ratios (OR) and confidence intervals (95% CI) adjusted simultaneously for potential confounding variables. We found no significant associations between occupational and recreational physical activity and risk of biliary tract cancers. However, stair climbing was related to decreased risk of all three subsites of biliary tract cancers in both men and women. Compared with subjects who reported no daily stair climbing, the multivariate adjusted OR of total biliary tract cancer for those who climbed 20 steps or more daily was 0.68 (95% CI = 0.47, 0.98). Daily stair climbing may represent a type of physical activity that distinguishes between physically active and inactive individuals in our study population. Further research is needed to confirm this association and clarify the mechanisms involved.

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FLUIDS IN RISK OF RECTAL CANCER: ANALYSIS OF THE AMOUNT, TYPE AND ASSOCIATED NUTRIENTS. *M A Murtaugh, K Ma, B J Caan, M L Slattery (University of Utah, Salt Lake City, UT 84108)

Little information is available about how total fluid intake and source of fluid intake influences risk of rectal cancer. We examined these associations with risk of incident rectal cancer in a population-based case-control study of 952 cases and 1205 controls living in Northern California and Utah. We also determined if intake of fiber (soluble and insoluble), physical activity, and NSAIDS or aspirin modified the associations between fluid intake and rectal cancer. We identified a modest inverse association of water intake (OR 0.70, 95% CI 0.48, 1.02) and total fluid intake (high vs. low OR 0.70, 95% CI 0.46, 1.06) with risk of rectal cancer in men and a positive association with juice among women (high vs low OR 1.56, 95% CI 1.00, 2.41). NSAIDS modified the association of alcohol consumption with rectal cancer: 1) risk associated with beer increased among men who did not take NSAIDS and had a high beer intake (1.60 (1.08, 2.39); 2) risk associated with long-term alcohol intake increased in a linear fashion in women who did not use NSAIDS (OR 1.98 95% CI 1.15, 3.40). Associations for beer and white wine differed by estrogen status. Insoluble fiber modified the association of water intake with rectal cancer in men; low intake of water and low fiber were associated with increased risk of rectal cancer beyond that of either factor alone (OR 1.82, 95% CI 1.11, 3.00). The interactions of fiber with water intake suggest that bowel motility may be the mechanism responsible for modification of rectal cancer risk for water. Associations of alcohol to risk for rectal cancer are more likely related to cellular hyperproliferation and may be modified by NSAID use.

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CANCER SURVIVOR STATUS AND FUNCTIONAL LIMITATIONS IN A COHORT OF OLDER WOMEN. *C Sweeney, M K Schmitz, D Lazovich (University of Minnesota, Minneapolis, MN 55454)

As the population ages and cancers are detected and treated earlier, the population of elderly cancer survivors is growing. Cancer and its treatment may exacerbate age-related decline in physical function. Participants in the Iowa Women's Health Study, a population-based cohort of women who were ages 55 to 69 at baseline in 1986, reported on functional limitations (5 activities) on follow-up questionnaires. Incident cancers were ascertained through the Iowa SEER registry. For outcomes of self-reported functional limitations in 1997, when median age was 72, we calculated the odds ratios (OR) for two exposure categories, women with a cancer diagnosis within 5 years (n = 1,213) and those who were 5-year survivors in 1997 (n = 1,136), with reference to cancer-free cohort members (n = 23,801). We adjusted for baseline predictors of functional limitations, including age, general health, smoking, body weight, education, and history of heart disease, diabetes, and fracture. The prevalence of functional limitations in cancer-free subjects ranged from 2.1% for unable to prepare meals to 31.2% for unable to do heavy work. Both groups of cancer survivors were more likely than cancer-free cohort members to report limitations for several activities: unable to do heavy work, OR = 1.7, 95% confidence interval (CI): 1.5, 1.9, for within 5 years and OR = 1.6, 95% CI: 1.4, 1.8 for 5-year survivors; unable to walk a half mile OR = 1.6, 95% CI: 1.4, 1.8, and OR = 1.4, 95% CI: 1.2, 1.6; unable to walk up and down stairs OR = 1.4, 95% CI: 1.1, 1.8, and OR = 1.3, 95% CI: 1.1, 1.7. Data from this prospective study describe functional limitations in elderly cancer survivors that persist 5 or more years after diagnosis.

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