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Special Report

Red Meat, Dietary Nitrosamines, and Heme Iron and Risk of Bladder Cancer in the European Prospective Investigation into Cancer and Nutrition (EPIC)

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Cancer Epidemiology, Biomarkers & Prevention, Vol. 20, No. 3; pp. 555-559, 2011

Link to full text: http://cebp.aacrjournals.org/content/20/3/555.full.pdf+html

Significance: This study does not support an effect of red meat intake, nitrosamines (endogenous or exogenous), or heme iron intake on bladder cancer risk.

The association between red meat consumption, dietary nitrosamines (NDMA: *N*-nitrosodimethylamine, and ENOC [endogenous nitroso compounds]), and heme iron and the risk of bladder cancer among participants of the European Prospective Investigation into Cancer and Nutrition (EPIC) were investigated. Data on food consumption and complete follow-up for cancer occurrence were available for 481,419 participants from 10 European countries. Estimates of HRs were obtained by proportional hazard models, stratified by age at recruitment, gender, and study center and adjusted for covariates. After a mean follow-up of 8.7 years, 1,001 participants were diagnosed with bladder cancer. No overall association between intake of red meat ($\log_2$ HR=1.06; 95% CI: 0.99–1.13), nitrosamines ($\log_2$ HR=1.09; 95% CI: 0.92–1.30 and HR=0.98; 95% CI: 0.92–1.05 for ENOC and NDMA, respectively) or heme iron ($\log_2$ HR=1.05; 95 CI: 0.99–1.12) and bladder cancer risk were found. The associations did not vary by sex, high- versus low-risk bladder cancers, smoking status, or occupation (high vs. low risk).

Energy Drinks

Health Effects of Energy Drinks on Children, Adolescents, and Young Adults

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Pediatrics, Vol. 127, No. 3; pp. 511-528, 2011

Link to full text:
http://pediatrics.aappublications.org/cgi/content/full/127/3/511?maxtoshow=&hits=10&RESULTFORMAT=&fulltext=%22health+effects+of+energy+drinks&searchid=1&FIRSTINDEX=0&sortspec=relevance&resourcetype=HWCIT

Significance: Pediatricians need to be aware of the possible effects of energy drinks in vulnerable populations and screen for consumption to educate families.

This study reviewed the effects, adverse consequences, and extent of energy drink consumption among children, adolescents, and young adults. Articles related to energy drinks were identified through PubMed and Google using "energy drink," "sports drink," "guarana," "caffeine," "taurine," "ADHD," "diabetes," "children," "adolescents," "insulin," "eating disorders," and "poison control center." Energy drinks are consumed by 30-50% of adolescents and young adults. Frequently containing high and unregulated amounts of caffeine, these drinks have been reported in association with serious adverse effects, especially in children, adolescents, and young adults with seizures, diabetes, cardiac abnormalities, or mood and behavioral disorders or those who take certain medications. Of the 5448 U.S. caffeine overdoses reported in 2007, 46% occurred in those <19 years. Energy drinks have no therapeutic benefit, and many ingredients are understudied and not regulated. The known and unknown pharmacology of agents included in such drinks, combined with reports of toxicity, raises concern for potentially serious adverse effects in association with energy drink use.

Cardiovascular Disease

Long-Term Effects of Intensive Glucose Lowering on Cardiovascular Outcomes

The ACCORD Study Group

New England Journal of Medicine, Vol. 364, No. 9; pp. 818-828, 2011

Link to full text: http://www.nejm.org/doi/full/10.1056/NEJMoa1006524

Significance: The use of intensive therapy for 3.7 years to target HgA1c <6% reduced 5-year nonfatal myocardial infarctions but increased 5-year mortality.

This report describes the 5-year outcomes of intensive glucose lowering on mortality and key cardiovascular events. Subjects with type 2 diabetes and cardiovascular disease or additional cardiovascular risk factors were randomized to receive intensive therapy (IT) (targeting HgA1c <6.0%) or standard therapy (HgA1C 7-7.9%). After termination of the IT, due to higher mortality in the IT group, target HgA1c was 7-7.9% for all participants, who were followed until the planned end of the trial. Before the IT was terminated, the IT group had more deaths from any cause (hazard ratio (HR), 1.21; 95% CI, 1.02-1.44) and fewer nonfatal myocardial infarctions (HR, 0.79; 95% CI, 0.66-0.95). These trends persisted during the entire follow-up period (HR for death, 1.19; 95% CI, 1.03-1.38; and HR for nonfatal myocardial infarction, 0.82; 95% CI, 0.70-0.96). After the intensive intervention was terminated, median HgA1c in the IT group rose from 6.4% to 7.2%, and the use of glucose-lowering medications and rates of severe hypoglycemia and other adverse events were similar in the two groups.

Mercury Exposure and Risk of Cardiovascular Disease in Two U.S. Cohorts

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New England Journal of Medicine, Vol. 364, No. 12; pp. 1116-1125, 2011

Link to full text: http://www.nejm.org/doi/full/10.1056/NEJMoa1006876

Significance: There was no evidence of any clinically relevant adverse effects of mercury exposure on coronary heart disease, stroke, or total cardiovascular disease in U.S. adults at the exposure levels seen in this study.

Among subjects from two U.S. cohorts (51,529 men; 121,700 women) whose toenail clippings had been stored, this study prospectively identified incident cases of cardiovascular disease (CVD) (coronary heart disease and stroke) in 3427 participants and matched them to risk-set–sampled controls according to age, sex, race, and smoking status. Toenail mercury and selenium concentrations were assessed. Associations between mercury exposure and incident CVD were evaluated. Median toenail mercury concentrations were 0.23 µg/gram (interdecile range, 0.06-0.94) in the case participants and 0.25 µg/gram (interdecile range, 0.07-0.97) in the controls. In multivariate analyses, participants with higher mercury exposures did not have a higher risk of CVD. For comparisons of the fifth quintile of mercury exposure with the first quintile, the relative risks were as follows: coronary heart disease, 0.85 (95% CI, 0.69-1.04); stroke, 0.84 (95% CI, 0.62-1.14; P=0.27; and total CVD, 0.85 (95% CI, 0.72-1.01). Findings were similar in analyses of participants with low selenium concentrations or low overall fish consumption and in several additional sensitivity analyses.

Fish Consumption and Risk of Stroke in Swedish Women

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American Journal of Clinical Nutrition, Vol. 93, No. 3; pp. 487-493, 2011

Link to full text: http://www.ajcn.org/content/93/3/487.full

Significance: The consumption of fish, especially of lean fish, may reduce risk of stroke in women.

This study examined the association between fish consumption and stroke incidence in women using data from a population-based prospective cohort of 34,670 women in the Swedish Mammography Cohort who were free of cardiovascular disease and cancer at baseline. Over a mean follow-up of 10.4 y, 1680 incident cases of stroke, including 1310 cerebral infarctions, 233 hemorrhagic strokes, and 137 unspecified strokes were identified. Fish consumption was significantly inversely associated with risk of total stroke but not with cerebral infarction or hemorrhagic stroke. Compared with women in the lowest quintile of fish consumption (<1.0 serving of fish/wk), the multivariable RR of total stroke for women in the highest quintile (>3.0 servings of fish/wk) was 0.84 (95% CI: 0.71-0.98). Consumption of lean fish but not of other fish types was inversely associated with risk of stroke. The multivariable RR of total stroke was 0.67 (95% CI: 0.49-0.93) for ≥3 servings of lean fish/wk compared with that for no consumption.

Black and Green Tea Consumption and the Risk of Coronary Artery Disease: A Meta-Analysis

Z-M. Wang, B. Zhou, Y-S. Wang, Q-Y. Gong, Q-M. Wang, J-J. Yan, et al.

American Journal of Clinical Nutrition, Vol. 93, No. 3; pp. 506-515, 2011

Link to full text: http://www.ajcn.org/content/93/3/506.full

Significance: This meta-analysis does not support a protective role of black tea against CAD; however, it supports a tentative association of green tea consumption with a reduced risk of CAD.

A meta-analysis was performed to determine whether an association exists between tea consumption and total coronary artery disease (CAD) endpoints in observational studies. PUBMED and EMBASE databases were searched for studies conducted from 1966 through November 2009. A total of 18 studies were included in the meta-analysis: 13 on black tea and 5 on green tea. For black tea, no significant association was found [highest compared with lowest, summary relative risk (RR): 0.92; 95% CI: 0.82-1.04; an increment of 1 cup/d, summary RR: 0.98; 95% CI: 0.94-1.02]. For green tea, the summary RR indicated a significant association between the highest green tea consumption and reduced risk of CAD (summary RR: 0.72; 95% CI: 0.58-0.89). Furthermore, an increase in green tea consumption of 1 cup/d was associated with a 10% decrease in the risk of developing CAD (summary RR: 0.90; 95% CI: 0.82-0.99).

Dairy Consumption and 10-y Total and Cardiovascular Mortality: A Prospective Cohort Study in the Netherlands

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American Journal of Clinical Nutrition, Vol. 93, No. 3; pp. 615-627, 2011

Link to full text: http://www.ajcn.org/content/93/3/615.full

Significance: Fermented full-fat milk was inversely associated with all-cause and nonsignificantly with stroke mortality in both sexes.

This study investigated the association between dairy product consumption and the risk of death (from all causes, ischemic heart disease [IHD], and stroke) in the Netherlands Cohort Study (NLCS). The NLCS was initiated in 120,852 men and women aged 55–69 y at baseline in 1986. After 10 y of follow-up, 16,136 subjects with complete dietary information had died; 28% men and 22% women died due to IHD or stroke. Multivariate survival analyses following a case-cohort approach showed only a few statistically significant, but mostly weak, associations. A slightly increased risk of all-cause and IHD mortality was found for both butter and dairy fat intake (per 10 g/d; rate $\text{ratio}_{\text{mortality}}$: 1.04; 95% CI: 1.01-1.06) only in women. The role of dairy product consumption in mortality generally appeared to be neutral in men. In women, dairy fat intake was associated with slightly increased all-cause and IHD mortality.

Carbohydrates

Carbohydrate Nutrition Is Associated with the 5-Year Incidence of Chronic Kidney Disease

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Journal of Nutrition, Vol. 141, No. 3; pp. 433-439, 2011

Link to full text: http://jn.nutrition.org/content/141/3/433.full

Significance: Higher intake of energy-dense, nutrient-poor sources of carbohydrate, potentially through acute hyperglycemia, could impair kidney function.

This study determined whether cross-sectional and longitudinal associations exist between carbohydrate nutrition (mean dietary glycemic index [GI], dietary intakes of carbohydrate, sugar, starch, and fiber) and chronic kidney disease (CKD) in 2600 Blue Mountains Eye Study (1997–1999) participants aged ≥50 y. Cross-sectionally, participants in the 4th quartile of mean dietary GI intake compared with those in the first quartile (reference) had a 55% increased likelihood of having moderate estimated glomerular filtration rate (eGFR) (eGFR < 60 $mL \cdot min^{-1} \cdot 1.73\ m^{-2}$) [multivariable-adjusted OR=1.55 (95% CI=1.07–2.26]. After multivariable adjustment, participants in the 4th quartile of dietary cereal fiber intake compared with those in the first quartile (reference) had a 50% reduced risk of incident moderate CKD (P-trend = 0.03). Higher baseline consumption of energy-dense, nutrient-poor sources of carbohydrate (e.g., cookies) yielded a 3-fold higher risk of incident CKD (P-trend = 0.01). A link between high cereal fiber intake and reduced incidence of moderate CKD was observed, which was supported by the cross-sectional association with dietary GI.

Lipids

Effects of Meals Rich in Either Monounsaturated or Saturated Fat on Lipid Concentrations and on Insulin Secretion and Action in Subjects with High Fasting Triglyceride Concentrations

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American Journal of Clinical Nutrition, Vol. 93, No. 3; pp. 494-499, 2011

Link to full text: http://www.ajcn.org/content/93/3/494.full

Significance: In contrast with SFAs, MUFA-based strategies may provide cardiovascular benefits to persons at risk by limiting lipid and insulin excursions and may contribute to optimal glycemic control after meal challenges.

This study examined the effects of meals enriched in monounsaturated fatty acids (MUFAs) or saturated fatty acids (SFAs) on postprandial lipid, glucose, and insulin concentrations and the extent of β cell function and insulin sensitivity in subjects with high fasting triglyceride concentrations. Fourteen men with fasting hypertriglyceridemia and normal glucose tolerance were given meals (≈10 kcal/kg body weight) containing MUFAs, SFAs, or no fat. The high-fat meals significantly increased postprandial concentrations of triglycerides, nonesterified fatty acids, and insulin and postprandial indexes of β cell function. However, postprandial indexes of insulin sensitivity decreased

significantly. These effects were significantly attenuated with MUFAs relative to SFAs. MUFAs postprandially buffered β cell hyperactivity and insulin intolerance relative to SFAs in subjects with high fasting triglyceride concentrations.

Phytochemicals

Estimation of Daily Proanthocyanidin Intake and Major Food Sources in the U.S. Diet

Y. Wang, S-J. Chung, W.O. Song, O.K. Chun

Journal of Nutrition, Vol. 141, No. 3; pp. 447-452, 2011

Link to full text: http://jn.nutrition.org/content/141/3/447.full

Significance: The marked differences in proanthocyanidins intake among various sociodemographic subgroups needs further investigation in relation to health disparities and chronic disease prevalence in the U.S.

This study estimated the dietary intake of proanthocyanidins (PA), the polymers of flavan-3-ols, and identified its major sources by combining the recently released and expanded USDA PA database with food consumption data of 8809 U.S. adults in the NHANES 1999–2002. U.S. adults >19 y had a total PA intake of 95 mg/d, in the order of polymers (30%), monomers (22%), dimers (16%), 4–6 mers (15%), 7–10 mers (11%), and trimers (5%). When adjusted for energy intake, the total PA intake increased with age ($P<0.001$), was higher in women than men ($P<0.01$) and in alcohol consumers compared with nonconsumers ($P<0.05$), and was lower in non-Hispanic blacks compared with other ethnicities ($P<0.001$). Three major food sources, tea, legumes, and wines, contributed 45 mg (48%) of daily PA intake.

Metabolic Syndrome

Food Consumption, Nutrient Intake and the Risk of Having Metabolic Syndrome: the DR's EXTRA Study

R. Kouki, U. Schwab, M. Hassinen, P. Komulainen, H. Heikkilä, T.A. Lakka, et al.

European Journal of Clinical Nutrition, Vol. 65, No. 3; pp. 368–377, 2011

Link to full text: http://www.nature.com/ejcn/journal/v65/n3/full/ejcn2010262a.html

Significance: Maximal oxygen uptake seems to be a strong confounding factor between food consumption and metabolic syndrome.

The associations of intakes of selected food items and nutrients with the risk of having metabolic syndrome (MetS) were examined in a representative population sample of 1334 individuals (671 women, 663 men) 57–78 years of age. Consumption of vegetables, non-root vegetables, legumes and nuts, berries and fish had an inverse association, and consumption of sausage had a direct association with the risk of having MetS in men after adjustment for age, smoking and alcohol consumption. Consumption of vegetables and non-root vegetables had an inverse association, and consumption of sausage had a direct association with the risk of having MetS in women after these adjustments.

However, after further adjustment for maximal oxygen uptake (VO_{2max}), most of these associations vanished. Men in the highest third of consumption of berries, fish, and legumes and nuts had 49, 37 and 44% lower risk of having MetS, respectively, than those in the lowest third after further adjustment for VO_{2max}. Women in the highest third of sausage consumption had a 72% higher risk of having MetS than non-consumers.