

What does the latest "study" really tell us about eating fish?

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- *From:* "montygram" <nazztrader@xxxxxxxx>
 - *Date:* 12 Oct 2005 15:21:09 -0700
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I read a report of this study in Newsday newspaper, page A5, 10/11/2005 – that is the source of my information. Let's review it:

1. It is from the good people at Rush, who would not even answer a basic question I put to them about a previous "study" of theirs that concluded that "saturated fat," but not "animal fat" was "associated" with Alzheimer's disease (AD) among a group of people who did not consume any appreciable amount of coconut oil or palm kernel oil. How is this possible? They would not answer when I asked. After thinking it over, I realized what they had done, which was to note that items like pork and beef were less healthy than chicken and fish (in general). Why didn't they just say that, as other researchers have? I don't know, but I doubt you will get an answer if you ask them. I couldn't.

2. It appears that they are mining the same sources they did for the other study. They give simple tests to old people and also ask them to fill out questionnaires about what they ate. Many of them went on to develop AD within a few years. Were their memories failing before obvious signs of AD were present, and can we trust their memories at that point? Unless there is a way to control for this, it cannot be considered "science."

3. The conclusion was "eating fish at least once a week is good for the brain, slowing age-related mental decline." Now I agree that this makes sense, if the people ate fish low in fat as a substitute for beef and pork (and fried chicken, as well as a few other nasty things they would have eaten instead). But what about those great omega 3 PUFAs, you ask? On to the next item:

4. "The researchers looked for, but failed to find, a link between omega-3 fatty acids and protection from brain decline." Just as I have said here many times, it is not that fish is so good, but that beef and pork (especially the way they are processed, prepared, cooked, etc.) are so bad. I've eaten canned tuna which had a label that said 0 grams of fat, so the fat is not the issue. Basically, canned tuna with 0 grams of fat is a good source of protein, though a bit serotogenic (so eating a lot would be unhealthy, though that was

What does the latest "study" really tell us about eating fish?

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not the case among these old folks) and the mercury levels could be a concern to some. In other words, compared to a fried steak, high in iron, oxidized cholesterol, arachidonic acid and other PUFAs, etc., something like canned tuna is much better. And that is what they found. They just have not done enough objective research to understand exactly what it going on here. Who has?

5. It turns out that more than 15 years ago, a study was done which found that people who eat fried fish regularly are more likely to die of heart attacks than those who rarely eat fish. As we now know, it's only when cholesterol gets oxidized that it is a problem, so this makes perfect sense. Source: American Health 8 (5): 104. "The fish nobody knows." Barnett and Barone, 1989. See Bruce Fife's book, "Saturated fat may save your life," page 55, for a discussion of this study.

Here are some good sources. Note that in the first one listed, they make the point about chicken and fish versus "red meat," and in the second, they say "There were no associations of pancreatic cancer risk with intake of poultry, fish, dairy products, eggs, total fat, saturated fat, or cholesterol." Also noteworthy is that they appear to be very interested in how people prepare the foods, which is something the Rush people don't seem to be very concerned about. Thus, when epidemiology is done correctly, it can be very useful in confirming molecular-level evidence, which is truly scientific. Fish can be reasonably healthy, but don't fry it and stay away from the kinds that are high in omega 3s and pollutants.

Cancer Epidemiol Biomarkers Prev. 2004 Sep;13(9):1509-14.

Red meat, chicken, and fish consumption and risk of colorectal cancer.

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BACKGROUND: Red meat and processed meat consumption have been associated with increased risk of colorectal cancer in some, but not all, relevant cohort studies. Evidence on the relationship between risk of colorectal cancer and poultry and fish consumption is inconsistent. **METHODS:** We conducted a prospective cohort study of 37,112 residents of Melbourne, Australia recruited from 1990 to 1994. Diet was measured with a food frequency questionnaire. We categorized the frequency of fresh red meat, processed meat, chicken, and fish consumption into approximate quartiles. Adenocarcinomas of the colon or rectum were ascertained via the Victorian Cancer Registry. **RESULTS:** We identified 283 colon cancers and 169 rectal cancers in an average of 9 years of

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follow-up. For rectal cancer, the hazard ratios [95% confidence intervals (95% CI)] in the highest quartile of consumption of fresh red meat and processed meat were 2.3 (1.2–4.2; P for trend = 0.07) and 2.0 (1.1–3.4; P for trend = 0.09), respectively. The corresponding hazard ratios (95% CIs) for colon cancer were 1.1 (0.7–1.6; P for trend = 0.9) and 1.3 (0.9–1.9; P for trend = 0.06). However, for neither type of meat was the heterogeneity between subsites significant. Chicken consumption was weakly negatively associated with colorectal cancer (hazard ratio highest quartile, 0.7; 95% CI, 0.6–1.0; P for trend = 0.03), whereas hazard ratios for fish consumption were close to unity. CONCLUSION: Consumption of fresh red meat and processed meat seemed to be associated with an increased risk of rectal cancer. Consumption of chicken and fish did not increase risk.

J Natl Cancer Inst. 2005 Oct 5;97(19):1458–65.

Meat and fat intake as risk factors for pancreatic cancer: the multiethnic cohort study.

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BACKGROUND: Meat intake has been associated with risk of exocrine pancreatic cancer, but previous findings have been inconsistent. This association has been attributed to both the fat and cholesterol content of meats and to food preparation methods. We analyzed data from the prospective Multiethnic Cohort Study to investigate associations between intake of meat, other animal products, fat, and cholesterol and pancreatic cancer risk. **METHODS:** During 7 years of follow-up, 482 incident pancreatic cancers occurred in 190,545 cohort members. Dietary intake was assessed using a quantitative food frequency questionnaire. Associations for foods and nutrients relative to total energy intake were determined by Cox proportional hazards models stratified by gender and time on study and adjusted for age, smoking status, history of diabetes mellitus and familial pancreatic cancer, ethnicity, and energy intake. Statistical tests were two-sided. **RESULTS:** The strongest association was with processed meat; those in the fifth quintile of daily intake (g/1000 kcal) had a 68% increased risk compared with those in the lowest quintile (relative risk = 1.68, 95% confidence interval = 1.35 to 2.07; Ptrend < .01). The age-adjusted yearly incidence rates per 100,000 persons for the respective quintiles were 41.3 and 20.2. Intakes of pork and of total red meat were both associated with 50% increases in risk, comparing the highest with the lowest quintiles (both Ptrend < .01). There were no associations of pancreatic cancer risk with intake of poultry, fish, dairy products, eggs, total fat, saturated fat, or cholesterol. Intake of total and saturated fat from

What does the latest "study" really tell us about eating fish?

meat was associated with statistically significant increases in pancreatic cancer risk but that from dairy products was not.
CONCLUSION: Red and processed meat intakes were associated with an increased risk of pancreatic cancer. Fat and saturated fat are not likely to contribute to the underlying carcinogenic mechanism because the findings for fat from meat and dairy products differed. Carcinogenic substances related to meat preparation methods might be responsible for the positive association.

J Nutr. 2004 Apr;134(4):776–84.

Meat consumption patterns and preparation, genetic variants of metabolic enzymes, and their association with rectal cancer in men and women.

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Meat consumption, particularly of red and processed meat, is one of the most thoroughly studied dietary factors in relation to colon cancer. However, it is not clear whether meat, red meat, heterocyclic amines (HCA), or polycyclic aromatic hydrocarbons (PAH) are associated with the risk for rectal cancer. Rectal cancer cases (n = 952) and controls (n = 1205) from Utah and Northern California were recruited from a population-based case-control study between September 1997 and February 2002. Detailed in-person interviews regarding lifestyle, medical history, and diet were conducted. DNA was extracted from peripheral lymphocytes obtained from whole-blood samples, and glutathione S-transferase (GST)M1 enzyme and N-acetyl transferase (NAT)2 enzyme genotypes were assessed. Although energy and cholesterol intakes were higher among cases than controls, adjustment for confounders accounted for the differences. Increased consumption of well-done red meat [odds ratio (OR) 1.33 95% CI 0.98, 1.79] was associated with an (P = 0.04) increase in risk for rectal cancer among men. The mutagen index, calculated on the bases of reported amount, doneness, and method of cooking meat, was also positively but not significantly (P = 0.24) associated with risk of rectal cancer for men (OR 1.37 95% CI 0.98, 1.92). NAT2-imputed phenotype and GSTM1 did not consistently modify rectal cancer risk associated with meat intake. These data suggest that mutagens such as HCA that form when meat is cooked may be culpable substances in rectal cancer risk, not red meat itself.

Environ Mol Mutagen. 2004;44(1):44–55.

Meat-related mutagens/carcinogens in the etiology of colorectal cancer.

What does the latest "study" really tell us about eating fish?

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Diets containing substantial amounts of red or preserved meats may increase the risk of various cancers, including colorectal cancer. This association may be due to a combination of factors such as the content of fat, protein, iron, and/or meat preparation (e.g., cooking or preserving methods). Red meat may be associated with colorectal cancer by contributing to N-nitroso compound (NOC) exposure. Humans can be exposed to NOCs by exogenous routes (from processed meats in particular) and by endogenous routes. Endogenous exposure to NOCs is dose-dependently related to the amount of red meat in the diet. Laboratory results have shown that meats cooked at high temperatures contain other potential mutagens in the form of heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs). To investigate the role of these compounds, we have created separate databases for HCAs and PAHs, which we have used in conjunction with a validated meat-cooking food frequency questionnaire. The role of meat type, cooking methods, doneness levels, and meat-cooking mutagens has been examined in both case-control studies and prospective cohort studies, with mixed results. Here, we review the current epidemiologic knowledge of meat-related mutagens, and evaluate the types of studies that may be required in the future to clarify the association between meat consumption and colorectal cancer.

JAMA. 2005 Jan 12;293(2):172-82.

Meat consumption and risk of colorectal cancer.

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CONTEXT: Consumption of red and processed meat has been associated with colorectal cancer in many but not all epidemiological studies; few studies have examined risk in relation to long-term meat intake or the association of meat with rectal cancer. **OBJECTIVE:** To examine the relationship between recent and long-term meat consumption and the risk of incident colon and rectal cancer. **DESIGN, SETTING, AND PARTICIPANTS:** A cohort of 148 610 adults aged 50 to 74 years (median, 63 years), residing in 21 states with population-based cancer registries, who provided information on meat consumption in 1982 and again in 1992/1993

What does the latest "study" really tell us about eating fish?

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when enrolled in the Cancer Prevention Study II (CPS II) Nutrition Cohort. Follow-up from time of enrollment in 1992/1993 through August 31, 2001, identified 1667 incident colorectal cancers. Participants contributed person-years at risk until death or a diagnosis of colon or rectal cancer. MAIN OUTCOME MEASURE: Incidence rate ratio (RR) of colon and rectal cancer. RESULTS: High intake of red and processed meat reported in 1992/1993 was associated with higher risk of colon cancer after adjusting for age and energy intake but not after further adjustment for body mass index, cigarette smoking, and other covariates. When long-term consumption was considered, persons in the highest tertile of consumption in both 1982 and 1992/1993 had higher risk of distal colon cancer associated with processed meat (RR, 1.50; 95% confidence interval [CI], 1.04–2.17), and ratio of red meat to poultry and fish (RR, 1.53; 95% CI, 1.08–2.18) relative to those persons in the lowest tertile at both time points. Long-term consumption of poultry and fish was inversely associated with risk of both proximal and distal colon cancer. High consumption of red meat reported in 1992/1993 was associated with higher risk of rectal cancer (RR, 1.71; 95% CI, 1.15–2.52; $P = .007$ for trend), as was high consumption reported in both 1982 and 1992/1993 (RR, 1.43; 95% CI, 1.00–2.05). CONCLUSIONS: Our results demonstrate the potential value of examining long-term meat consumption in assessing cancer risk and strengthen the evidence that prolonged high consumption of red and processed meat may increase the risk of cancer in the distal portion of the large intestine.

Int J Cancer. 2005 Sep 10;116(4):592–8.

Dietary patterns and risk of prostate cancer in Ontario, Canada.

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Dietary patterns reflect combinations of dietary exposures, and here we examine these in relation to prostate cancer risk. In a case-control study, 80 incident primary prostate cancer cases and 334 urology clinic controls were enrolled from 1997 through 1999 in Kingston, Ontario, Canada. Food-frequency questionnaires were completed prior to diagnosis and assessed intake in the 1-year period 2–3 years prior to enrollment. Among controls, dietary intake was used in principal components analyses to identify patterns that were then evaluated with all subjects in relation to prostate cancer risk using unconditional logistic regression, controlling for age. Four dietary patterns were identified: Healthy Living, Traditional Western, Processed and Beverages. Increased prostate cancer risk is apparent in relation to

What does the latest "study" really tell us about eating fish?

What does the latest "study" really tell us about eating fish?

the Processed pattern, composed of processed meats, red meats, organ meats, refined grains, white bread, onions and tomatoes, vegetable oil and juice, soft drinks and bottled water. The OR for the highest tertile compared to baseline is 2.75 (95% CI 1.40–5.39), with a dose–response pattern (trend test $p < 0.0035$). Our results suggest that a dietary pattern including refined grain products, processed meats and red and organ meats contributes to increased prostate cancer risk. Since dietary information was collected before subjects knew their diagnosis, recall bias was avoided. (c) 2005 Wiley–Liss, Inc.

Nutr Hosp. 2005 Jul–Aug;20(4):235–41.

Colorectal cancer: lifestyle and dietary factors.

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INTRODUCTION: Colorectal cancer is the most common tumor in the developed countries, and the number of new cases annually is approximately equal for men and women. Several environmental factors can interact in all steps of carcinogenesis. Lately the balance between genetic predisposition and these factors, including nutritional components and lifestyle behaviors, determines individual susceptibility to develop colorectal cancer. The aim of this study is to revise the references about lifestyle include diet, physical exercise, tobacco smoking and use of alcohol, and the risk of colorectal cancer in databases published during 1994–2004. **DIETARY FACTORS:** According to the reports high intake of red meat, and particularly of processed meat and positive energetic balance (high intake of total fat and carbohydrate) was associated with a moderate but significant increase in colorectal cancer risk. Convincing preventive factors include increase consumption of a wide variety of fruit and vegetable, particularly, dark–green leafy, cruciferous, a deep–yellow on tones, and fibre. **LIFESTYLE:** Physical activity as a means for the primary prevention of colorectal cancer. There is a probable synergic effect among physical inactivity, high energy intake and obesity and incidence of colorectal cancer. A growing body of evidence supports that avoidance overweight and the use of tobacco and alcohol is recommended to prevent colorectal cancer. **CONCLUSION:** Current data suggest that lifestyle modification including proper diet such as the ones rich in vegetable and poor in red meat and fat, regular physical activity and maintaining an appropriate body weight and avoiding the use of tobacco and alcohol may lead to reduce colorectal cancer risk.

What does the latest "study" really tell us about eating fish?

Cancer Res. 2005 Sep 1;65(17):8034–41.

Meat, meat cooking methods and preservation, and risk for colorectal adenoma.

Sinha R, Peters U, Cross AJ, Kulldorff M, Weissfeld JL, Pinsky PF, Rothman N, Hayes RB.

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Cooking meat at high temperatures produces heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs). Processed meats contain N-nitroso compounds. Meat intake may increase cancer risk as HCAs, PAHs, and N-nitroso compounds are carcinogenic in animal models. We investigated meat, processed meat, HCAs, and the PAH benzo(a)pyrene and the risk of colorectal adenoma in 3,696 left-sided (descending and sigmoid colon and rectum) adenoma cases and 34,817 endoscopy-negative controls. Dietary intake was assessed using a 137-item food frequency questionnaire, with additional questions on meats and meat cooking practices. The questionnaire was linked to a previously developed database to determine exposure to HCAs and PAHs. Intake of red meat, with known doneness/cooking methods, was associated with an increased risk of adenoma in the descending and sigmoid colon [odds ratio (OR), 1.26; 95% confidence interval (95% CI), 1.05–1.50 comparing extreme quintiles of intake] but not rectal adenoma. Well-done red meat was associated with increased risk of colorectal adenoma (OR, 1.21; 95% CI, 1.06–1.37). Increased risks for adenoma of the descending colon and sigmoid colon were observed for the two HCAs: 2-amino-3,8-dimethylimidazo[4,5]quinoxaline and 2-amino-1-methyl-6-phenylimidazo[4,5]pyridine (OR, 1.18; 95% CI, 1.01–1.38 and OR, 1.17, 95% CI, 1.01–1.35, respectively) as well as benzo(a)pyrene (OR, 1.18; 95% CI, 1.02–1.35). Greater intake of bacon and sausage was associated with increased colorectal adenoma risk (OR, 1.14; 95% CI, 1.00–1.30); however, total intake of processed meat was not (OR, 1.04; 95% CI, 0.90–1.19). Our study of screening-detected colorectal adenomas shows that red meat and meat cooked at high temperatures are associated with an increased risk of colorectal adenoma.

• ***Follow-Ups:***

◆ ***Re: What does the latest "study" really tell us about eating fish?***

◇ *From:* Sbharris[at]sign[ix.netcom.com

• Prev by Date: ***Re: Did omega 3s and 6s kill the baby anteater?***

• Next by Date: ***Re: Did omega 3s and 6s kill the baby anteater?***

What does the latest "study" really tell us about eating fish?

- Previous by thread: ***Re: Eating in America, an asian perspective...***
- Next by thread: ***Re: What does the latest "study" really tell us about eating fish?***
- Index(es):
 - ◆ ***Date***
 - ◆ ***Thread***