

Public release date: 20-Oct-2006

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High bread consumption is associated with increased risk of renal cell carcinoma

A case-control study of more than 2300 Italians has found a significant association between high bread consumption and renal cell carcinoma. Eating a lot of pasta and rice may also raise the risk, while eating many vegetables may lower the risk. The study published online October 20, 2006 in the *International Journal of Cancer*, the official journal of the International Union Against Cancer (UICC), and is available via Wiley InterScience at <http://www.interscience.wiley.com/journal/ijc>.

Renal cell carcinoma (RCC) is the most common type of kidney cancer, and accounts for 2 percent of all adult cancers. Previous studies have shown that diet plays a role in RCC risk, but attempts to discern which foods have harmful or beneficial effects have been inconclusive. To discern the relationship between specific foods and RCC risk, researchers led by Francesca Bravi of the Institute of Pharmacological Research "Mario Negri" in Milan, conducted a large case-control study of 2301 Italians.

Between 1992 and 2004, the researchers enrolled 767 adults diagnosed with RCC and 1534 controls who did not have the disease. Two controls were matched to each case by gender, age range, and location. The researchers collected sociodemographic information, anthropomorphic measures, lifestyle habits and personal and family medical history from each participant. They also administered a 78-item food frequency questionnaire which asked about the average weekly consumption for each item over the previous two years. They then performed statistical analyses to discover odds ratios (OR) with a 95 percent confidence interval.

"A significant direct association was observed for bread consumption (OR=1.94) for the highest compared to the lowest quintile of intake," the researchers report. Those who consumed more bread had a higher RCC risk. A modest non-significant risk increase was also observed for pasta and rice (OR=1.29). By contrast, decreasing risk was associated with increasing intake of poultry, processed meat, and all vegetables, both raw and cooked.

The association between elevated cereal intake (bread, pasta and rice) "may be due to the high glycemic index of these foods and their possible involvement in insulin-like growth factors," the researchers suggest. The inverse relationship between vegetable consumption is consistent with previous studies and may be related to their content of vitamins, micronutrients or elements such as carotenoids, flavonoids and phytosterols.

While the study was limited by the fact that the interviewers who gathered each participant's information and administered the food questionnaire were not blind to case-control status, its strengths include the large sample size and the reproducibility and validity of diet information.

"Our results confirm that diet may play a role on the risk of RCC, and in particular, a moderate cereal and high vegetable consumption may have a favorable effect on this neoplasm," the authors conclude.

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Article: "Food Groups and Renal Cell Carcinoma: A Case-Control Study from Italy," Francesca Bravi, Cristina Bosetti, Lorenza Scotti, Renato Talamini, Maurizio Montella, Valerio Ramazzotti, Eva Negri, Silvia Franceschi, and Carlo La Vecchia, *International Journal of Cancer*; Published Online: October 20, 2006 (DOI: 10.1002/ijc.22225).

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