Fruits and vegetables reduce risks of specific types of colorectal cancers

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The effects of fruit and vegetable consumption on colorectal cancer (CRC) appear to differ by site of origin, according to a new study published in the October issue of the *Journal of the American Dietetic Association*. Researchers found that within the proximal and distal colon, brassica vegetables (Brussels sprouts, cabbage, cauliflower and broccoli) were associated with decreased risk of these cancers. A lower risk of distal colon cancer was associated with eating more apples, however an increased risk for rectal cancer was found with increasing consumption of fruit juice.

"Fruits and vegetables have been examined extensively in nutritional research in relation to CRC, however, their protective effect has been subject to debate, possibly because of different effects on different subsites of the large bowel," commented lead investigator Professor Lin Fritschi, PhD, head of the Epidemiology Group at the Western Australian Institute for Medical Research, Perth, Western Australia. "It may be that some of the confusion about the relationship between diet and cancer risk is due to the fact that previous studies did not take site of the CRC into account. The replication of these findings in large prospective studies may help determine whether a higher intake of vegetables is a means for reducing the risk of distal CRC."

Researchers from the Western Australian Institute for Medical Research, University of Western Australia and Deakin University investigated the link between fruit and vegetables and three cancers in different parts of the bowel: proximal colon cancer, distal colon cancer, and rectal cancer. The case-control study included 918 participants with a confirmed CRC diagnosis and 1021 control participants with no history of CRC. The subjects completed extensive medical and nutritional questionnaires and were assigned a socioeconomic status based on their home address.

Consumption of brassica vegetables (e.g., broccoli, cabbage) was associated with reduced incidence of proximal colon cancer. For distal colon cancer, both total fruit and vegetable intake and total vegetable intake appeared to decrease risk. Distal colon cancer risk was significantly decreased in association with intake of dark yellow vegetables and apples, although there was an increased risk for rectal cancer with consumption of fruit juice. Risk of proximal colon cancer and rectal cancer was not associated with intakes of total fruit and vegetable, total vegetable or total fruit.

Previous studies on CRC have often failed to distinguish between the different sites of origin of cancers in the large bowel, even though it is now well established that tumors in the proximal colon develop along different pathways to those of the distal colon and rectum and that risk of cancer varies by subsite within the colorectum. The mechanisms for different effects of dietary components on different sites of the large bowel have not yet been determined.

The authors conclude that "from a public health point of view it is easier to translate food-based analyses into dietary recommendations, rather than using the intake of single nutrient."

More information: The article is "Fruit and vegetable consumption and the risk of proximal colon, distal colon and rectal cancers in a case-control study in Western Australia" by Neeltje Annema, Jane S. Heyworth, Sarah A. McNaughton, Barry Iacopetta, and Lin Fritschi. It appears in the *Journal of the American Dietetic Association*, Volume 111, Issue 10 (October 2011).

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