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Fruit and Vegetable Consumption and the Risk of Proximal Colon, Distal Colon, and Rectal Cancers in a Case-Control Study in Western Australia

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Abstract

Background

Fruits and vegetables (F/V) have been examined extensively in nutrition research in relation to colorectal cancer (CRC). However, their protective effect is subject to debate, possibly because of different effects on different subsites of the large bowel.

Objective

To determine whether any association between F/V consumption and risk of CRC differed by subsite of the bowel (proximal colon, distal colon, and rectum).

Design

The Western Australian Bowel Health Study is a population-based, case-control study conducted between June 2005 and August 2007. Complete food frequency questionnaire data were analysed from 834 CRC cases and 939 controls. Logistic regression analysis was used to estimate the effects of quartiles of F/V intake on risk of CRC at different subsites. Odds ratios (OR) and 95% confidence intervals (CI) were calculated for CRC overall and for the three separate subsites.

Results

Risk of proximal colon cancer and rectal cancer was not associated with intakes of total F/V, total vegetable, or total fruit. Brassica vegetable intake was inversely related with proximal colon cancer (Q4 vs Q1 OR 0.62; 95% CI 0.41 to 0.93). For distal colon cancer, significant negative trends were seen for total F/V, and total vegetable intake. Distal colon cancer risk was significantly decreased for intake of dark yellow vegetables (Q4 vs Q1 OR 0.61; 95% CI 0.41 to 0.92) and apples (Q4 vs Q1 OR 0.51; 95% CI 0.34 to 0.77). An increased risk for CRC was found to be associated with intake of fruit juice (Q4 vs Q1 OR 1.74; 95% CI 1.24 to 2.45).

Conclusions

Our results suggest that different F/V may confer different risks for cancer of the proximal colon, distal colon, or rectum. Future studies might consider taking into account the location of the tumor when examining the relation between F/V consumption and risk of CRC.