

# Abstract

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## Dietary folate, methionine, riboflavin, and vitamin B-6 and risk of sporadic colorectal cancer.

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**BACKGROUND:** Adequate intake of folate, methionine, riboflavin, and vitamin B-6 may prevent aberrant DNA methylation and thereby protect against colorectal cancer (CRC).

**OBJECTIVE:** However, previous epidemiological studies investigating associations between dietary intakes of these nutrients and CRC have been inconsistent.

**METHODS:** We investigated the associations between intakes of folate, methionine, riboflavin, and vitamin B-6 and CRC risk, accounting for the sublocalization of the tumor. Within the Netherlands Cohort Study on diet and cancer (n = 120,852), 2349 cases and 4168 subcohort members were available for data analyses from a follow-up period of 13.3 y after baseline. Gender-specific adjusted incidence rate ratios (RR) were calculated over quintiles of dietary intake in case-cohort analyses.

**RESULTS:** Folate intake was not associated with CRC risk in either men or women. However, methionine was associated with decreased risk of proximal colon cancer among men (RR = 0.57 for highest vs. lowest quintile of intake; P-trend = 0.03) and rectal cancer among women (highest vs. lowest quintile; RR = 0.45; P-trend = 0.05). Riboflavin tended to be associated with decreased proximal colon cancer risk among women (RR = 0.61; P-trend = 0.07). Conversely, there was a strong positive association between vitamin B-6 and rectal cancer among women (RR = 3.57; P-trend = 0.01).

**CONCLUSION:** Our findings suggest that relatively high methionine intake may protect against proximal colon cancer in men and rectal cancer in women but that folate may not have a protective effect. This is the 2nd prospective cohort study in which vitamin B-6 intake was associated with increased risk of rectal tumors in women, which might suggest that this vitamin enhances rectal cancer in women.

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