

FROM THE FAMILY PRACTICE INQUIRIES NETWORK

# Does a high-fiber diet prevent colon cancer in at-risk patients?

*Linda French, MD Susan Kendall, PhD*

*MLIS, Michigan State University, East Lansing, Mich*

## ■ EVIDENCE-BASED ANSWER

There is no direct evidence of an effect of dietary fiber on colon cancer incidence. A diet high in fiber has not been shown to be effective in the short-term (2- to 4-year) prevention of recurrent colon polyps (strength of recommendation [SOR]=A, based on consistent randomized clinical trials). Furthermore, epidemiological evidence is inconsistent in demonstrating an association between dietary fiber consumption and the occurrence of colon cancer (SOR=C).

## ■ EVIDENCE SUMMARY

The term “dietary fiber” refers to a heterogeneous group of substances that may vary in their biologic effects. Fiber is thought to reduce the risk of colon cancer through the following proposed mechanisms—decreased gastrointestinal transit time, increased stool bulk, and fermentation of volatile fatty acids. Other aspects of diet such as fat content, red meat, and micronutrients may also play a role in the development of colon cancer.

Additional proposed risk factors include sedentary lifestyle, obesity, tobacco use, and alcohol consumption<sup>1</sup>; while the commonly accepted high-risk groups for colon cancer are those aged >60 years, those with a positive family history of colorectal cancer, and those with familial polyposis syndrome. In summary, it appears that the cause of colon cancer is complex and multifactorial.

No randomized controlled trials of interventions test whether increase dietary fiber affects the development of colon cancer. Recent randomized controlled trials of interventions have used colon polyps as a surrogate endpoint, since it is believed that polyps are precursors to cancer. A Cochrane meta-analysis<sup>2</sup> of 5 trials (including 4349 subjects) of increased dietary fiber to prevent recurrence of colon adenomas found no difference between intervention and control groups for development of at least 1 adenoma (relative risk [RR]=1.04; 95% confidence interval [CI], 0.95–1.13). In a trial<sup>3</sup> of ispaghula husk fiber, the intervention group actually had significantly more recurrent adenomas after 3 years (29.3% vs 20.2%; RR=1.67; 95% CI, 1.01–2.76; *P*=.04).

Other evidence comes from epidemiological studies, which have limited ability to demonstrate causation. Immigrants to Westernized countries from ethnic groups with lower risk of colon cancer develop colon cancer rates similar to the host country over time. Such data support environmental factors in the risk for colon cancer.

Dietary fiber is 1 of several possible factors, yet epidemiological evidence has not been consistent. A systematic review<sup>4</sup> of dietary fiber and colorectal neoplasia (which included case-control and cohort studies as well as randomized controlled trials) showed that 13 of 24 case-control studies found an association with high dietary fiber as a possible protective factor, while only 3 of 13 longitudinal studies found such an association.

## ■ RECOMMENDATIONS FROM OTHERS

The American Gastroenterological Association states that “currently available evidence from epidemiological, animal, and intervention studies does not unequivocally support the protective role of fiber against development of colorectal cancer.”<sup>5</sup> They recommend dietary fiber consumption of at least 30–35 g/d from a variety of sources. The intake level of most studies that demonstrate protective effects are in that range, and it is not certain what the best source(s) may be. They state that a high-fiber diet should begin before age 30, because the impact of dietary change may require decades; they also note that a high-fiber diet has other established health benefits.

The American Dietetic Association recommends a diet rich in dietary fiber through consumption of a variety of fruits, vegetables, whole and high-fiber grain products, and legumes for a daily intake of 20–35 g/d for healthy adults and, for children, a daily intake of 5 plus the child’s age in grams.<sup>6</sup> They cite the epidemiological association of a high-fiber diet and lower colorectal cancer risk as well as many other health benefits.

### CLINICAL COMMENTARY

## Dietary fiber has benefits, but is no panacea

**Mark B. Stephens, MD, MS**

*Uniformed Services University of the Health Sciences, Bethesda, MD*

Given colorectal cancer’s multifactorial nature, it comes as no surprise that dietary fiber is not the panacea for primary or secondary prevention in high-risk patients. These data are specific only to high-risk patients, however, and should not be misinterpreted as reason to abandon recommendations for patients to consume an adequate bulk of fiber on a daily basis. Routine preventive counseling for reducing rates of colorectal cancer should also emphasize the benefits of adequate physical activity and a low-fat diet.

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