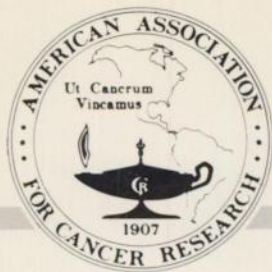


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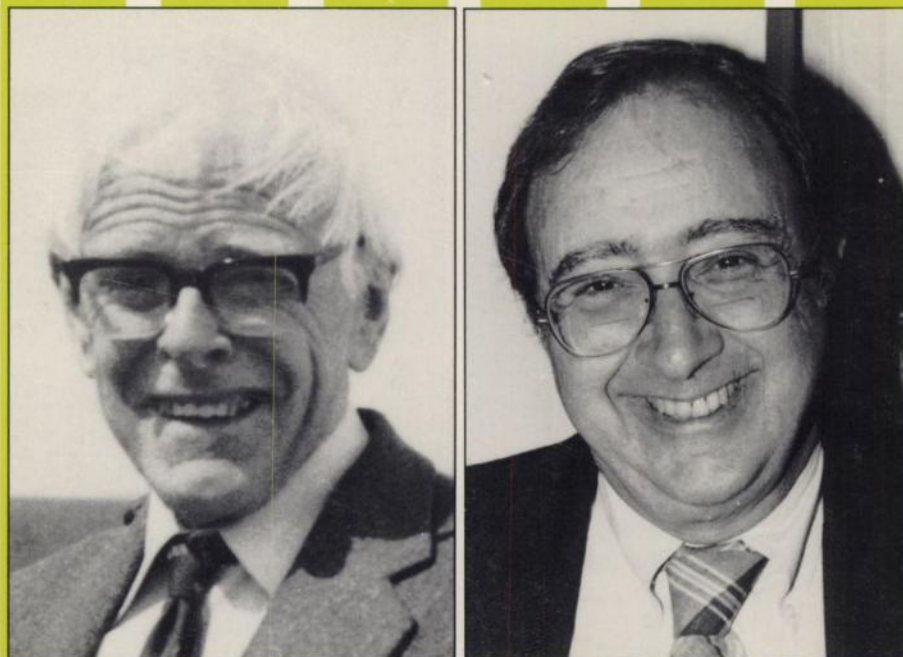


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COVER LEGEND



The recent proliferation of fiber-rich cereals on the supermarket shelves testifies to the diligence of the food industry in providing the public with the putative benefits of dietary fiber in the promotion of health and specifically in cancer prevention. As with other dietary matters, scientific opinion is far from unanimous. The history begins with Dennis Burkitt, who observed [*Cancer (Phila.)*, 28: 3, 1971] that colon cancer was rare in certain areas of Africa where diets are high in fiber. In a guest editorial (*J. Natl. Cancer Inst.*, 54: 3-6, 1975) he marshalled much support for the hypothesis of a protective action of fiber. He proposed that carcinogens may be formed by colon-dwelling bacterial flora and that their effects would be minimized by the greater fecal bulk from high-fiber diet, by dilution, by adsorption, and by a more rapid transit time. He emphasized the 10,000-fold higher susceptibility to cancer of the colonic mucosa than that of the small intestine, the higher content of anaerobes in the colons of subjects on a low-fiber diet, and the tendency in some urban, industrial societies with a high incidence of colorectal cancer toward more refined diets low in fiber. A recent collaborative study from the United States and Finland (Reddy et al., *Cancer Res.*, 47: 644-648, 1987) demonstrated that supplementation of diets of 15 healthy subjects with wheat and rye fiber led to a 50% increase in fecal weight and

significant lowering of fecal bile acid concentration as well as fecal mutagenic activity. Increased fecal bile acid concentration has been correlated positively with the risk of colon cancer.

Although there is much epidemiological support for a role of dietary fiber in lowering human colon cancer risk, the data are inconsistent. In the words of the National Academy of Science publication, "Diet, Nutrition and Cancer," there is "no conclusive evidence to indicate that dietary fiber . . . exerts a protective effect against colorectal cancer in humans" (pp. 1-7, 1982).

David Kritchevsky, together with David M. Klurfeld, in a recent comprehensive critique of the literature, *Essential Nutrients in Carcinogenesis* (Plenum Press, 1986), has pointed out that association of fiber intake with lowered colon cancer rates is strongest in intercountry comparisons, where many other confounding variables may exist. Lesser support comes from intracountry comparisons, in which other confounding factors are less likely. High fat consumption, which is perhaps tantamount to low fiber intake, is positively correlated with human colon cancer, and this together with high caloric intake and obesity may well be more important contributors to high colon cancer rates. Case-control studies are also inconsistent and suffer from the same uncertainties as geographic comparisons; the same appears to be true of a host of experimental studies. Kritchevsky points out that discrepancies in data could reflect the heterogeneity of the substances termed "fiber," which covers wide variations in chemical structure, solubility, fermentability in the intestine, and physiological properties.

Those agencies, such as the National Cancer Institute and the American Cancer Society, which recommend higher intake of high-fiber foods, are undoubtedly aware of the uncertainties. They nonetheless feel that the data are sufficiently suggestive to share with the public and that high-fiber cereals, fruits, and vegetables taken in moderation are a wholesome substitute for high caloric fat, are compatible with good nutritional practice, and may contribute to lower cancer risk as well.

Pictured are Dennis Burkitt (*left*) and David Kritchevsky (*right*). We acknowledge the assistance of Dr. Kritchevsky, who also provided the photographs.

Sidney Weinhouse