

Bran: May Irritate Irritable Bowel

FIBER

Dietary fiber is derived from the undigested components of plant cells and has the particular capacity to hold water.¹ In the small bowel, chemically it is relatively inert, but on reaching the large intestine, it is fermented by bacteria, resulting in production of short-chain fatty acids and gases such as hydrogen, carbon dioxide and methane. Traditionally, fiber is divided into soluble (gums, pectins, and ispaghula) and insoluble (cellulose, hemicellulose, lignins, and bran) forms.¹ The soluble forms delay gastric emptying, small intestinal transit, and nutrient absorption. Insoluble fiber is less susceptible to bacterial degradation and tends to accelerate transit through the colon more effectively than soluble forms. Overall, increased dietary fiber intake results in heavier, softer stools with reduced colonic and whole gut transit times. This is well demonstrated by the fact that the average UK intake of 20 g fiber/d results in stool weights of approximately 150 g/d; whereas UK vegetarians consuming 55 g of fiber produce approximately 225 g of stool, and rural Ugandans, whose daily diet contains 150 g of fiber pass stools of up to 500 g/d.¹ The principal sources of fiber in the UK are vegetables and cereals. Wheat bran is especially rich in the insoluble form.

IRRITABLE BOWEL SYNDROME

Irritable bowel syndrome (IBS) is a common disorder that characteristically presents with symptoms including abdominal pain, disturbed bowel habits (loose stools or constipation), distention, the passage of mucus per rectum, and a sensation of incomplete rectal evacuation. Attempts to standardize the diagnosis have led to the introduction of the Rome criteria² whereby certain symptoms, at a specific frequency, are required. Because many of these symptoms are rather nonspecific, it may be necessary to exclude other gastrointestinal pathologies, and this can often be achieved by a careful history and examination, with investigations being kept to the minimum possible.³ Irritable bowel syndrome can occur concomitantly with organic conditions such as inflammatory bowel disease.⁴ In addition to gut symptoms, IBS is frequently associated with many other features including backache, lethargy, urinary complaints, dyspareunia, and fibromyalgia.⁵

The pathophysiology of IBS is still uncertain, but the most favored theories include disordered motility and visceral hypersensitivity. Exaggerated motor responses to various stimuli in both the small⁶⁻⁸ and large⁹⁻¹¹ bowel have been described. No consistent patterns have been found, however, and correlation with symptoms is often poor. Visceral hypersensitivity in the rectum of IBS patients was first described more than 25 years ago¹² and is currently the focus of considerable attention, particularly now that it has been recognized that this hypersensitivity occurs beyond the distal colon.¹³ Intolerance of certain foods, or their constituents, is undoubtedly important in a proportion of patients¹⁴ but is probably not responsible for symptoms in the majority of sufferers.

The treatment of IBS remains far from satisfactory, with antispasmodics being the mainstay of drug therapy. The most frequent advice offered to patients, particularly at the initial consultation, is to increase their intake of fiber products such as bran.

IRRITABLE BOWEL SYNDROME AND BRAN: IS IT HELPFUL?

Burkitt et al.¹⁵ were the first to propose a role for fiber in protecting unindustrialized societies from diverticulosis, appendicitis, and colorectal neoplasia, and suggested that the incidence of these conditions in the West might be reduced by the addition of fiber to the diet. At about the same time, it was suggested that "fibre deficiency" could be the cause of IBS, and this led to a trend recommending the use of products such as bran to help this condition. A number of trials of fiber were subsequently reported,¹⁶⁻¹⁸ and despite their generally disappointing results, particularly with bran, the use of this product as a first-line therapy continued to flourish, as witnessed by a survey of US gastroenterologists in 1984.¹⁹ The enthusiasm for such agents was probably encouraged by their being "natural" and also relatively inexpensive, as well as by their availability and freedom from serious side effects. Additional actions of fiber, such as the reduction of blood lipids, would have also been seen as advantageous.

IRRITABLE BOWEL SYNDROME AND BRAN: IS IT HARMFUL?

For some time, we have been of the opinion that bran may actually exacerbate the symptoms of patients with IBS and demonstrated this in a study reported in 1994.²⁰ Eleven percent of patients were helped by supplementation, whereas 55% claimed they were made worse, the remainder apparently being unaffected. In contrast, proprietary fiber supplementation appeared to be better tolerated, benefitting up to 39% of subjects.²⁰ This study, however, was undertaken in hospitalized IBS patients, who represent only 10-15% of the whole IBS population. It could, therefore, be argued that the remainder (the majority) benefit from bran and therefore do not require referral to a hospital. This can only be resolved by studying the effects of bran on patients with IBS in the community. Careful scrutiny of some of the bran trials does show evidence of a tendency to cause negative effects. Cann et al.²¹ reported that pain and urgency were significantly more frequent in patients receiving bran, and that stools became less formed in diarrhea-predominant subjects. Review of Snook and Shepherd's²² data shows a number of patients actually becoming more symptomatic while taking bran. High rates of withdrawal in several fiber trials also suggest that the treatment was either ineffective or poorly tolerated.^{18,23} The problem with therapeutic trials is that they are designed to look for benefits of therapies; therefore, negative findings can sometimes, unintentionally, be overlooked.

SUMMARY

The irritable gut is known to be hypersensitive, and it is reasonable to suspect that patients with the disorder might be hyperreactive to agents that stimulate or irritate it. This appears to

be a possible explanation for the adverse effects of bran on hospital patients with this disorder, but we do not yet know how this product affects community IBS sufferers. We cannot ignore the fact that fiber and bran have major beneficial effects in other areas, not least in the reduction of colonic carcinoma.

In conclusion, it is probably best to recommend that patients with IBS be left to judge for themselves whether bran helps or exacerbates their symptoms, but there is enough evidence to suggest that the current dogma of routinely treating all IBS sufferers with bran should be challenged. Proprietary sources of fiber, such as ispaghula, may be more appropriate for those IBS subjects (for example, constipated) for whom fiber supplementation is believed justified.

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PII S0899-9007(97)00498-X

EDITORIAL COMMENTS

Nutrition Vol. 14, No. 5, 1998

The Health Food Movement

Advances in the epidemiology and science of nutrition have created the appearance of a convergence between scientific nutrition and the health food movement. Recent studies such as the effects of a low-fat, primarily lacto-vegetarian diet on hypertension¹ and the increased awareness of such substances as asgenistein, indoles, linonoids, linolenic acid, and lycopene, all derived from vegetables and fruit, have eroded some of the distinction. It would appear that the "health food movement" and what were once called "health food nuts" and "food cultists" and some cutting-edge notions in nutrition are beginning to overlap. Is it time for health professionals and scientists to apologize for their attacks on this long and proud tradi-

tion that advocated vegetarianism and coarse whole grains? Before we rush toward reconciliation, however, it is worth reflecting on the difference between the health food movement and scientific nutrition. A considered approach may help avoid continued tension and facilitate constructive interaction between proponents of these two approaches to nutrition.

At one point, the differences between nutritional science and health food were easily defined. The polarity was black and white: meat and potatoes versus whole grains and vegetables. Until almost the beginning of this century, health sciences considered a predominantly meat diet as most nutritious and