



Diet and Functional Bowel Disease

By: Kenneth W. Heaton, M.D., F.R.C.P., Former Consultant Physician, Department of Medicine, Bristol Royal Infirmary, Bristol, United Kingdom

The exact nature of the connection between what people eat and how their intestines behave is controversial, but there is certainly a connection. If you eat less than usual you will notice smaller, less frequent stools that are less easy to pass. You may, quite reasonably, consider yourself to be constipated.

Does the opposite situation – overeating – cause diarrhea? There is little scientific work on this but, in my clinical experience, it does happen. When I treat patients with steroid drugs (for inflammatory bowel disease) they sometimes get the troublesome side effect of gaining weight, partly because the drug stimulates their appetite. I have noticed that such patients tend to suffer from diarrhea and abdominal discomfort. Presumably they are overloading their intestines. One undoubted fact is that some foods have laxative properties.

Chemical laxatives naturally present in food

The laxative properties of prunes are well known. Many attempts have been made to identify the laxative agent in prunes, which is present in the juice as well as the whole fruit. Some possible candidates have been identified. One of these substances, also found in rhubarb, may account for its laxative action.

Bulk laxatives naturally present in food

Anything swallowed which escapes absorption in the small intestine, and so gets into the colon, will have a laxative effect. In ordinary diets the main substances that get into the colon in significant amounts are the carbohydrates, some more than others. The most important carbohydrates that do this, and their sources, are listed in Table 1 below.

CARBOHYDRATES WHICH GET INTO THE COLON IN SIGNIFICANT AMOUNTS AND HAVE A LAXATIVE EFFECT		
Carbohydrate	Food sources	Comments
Fiber (non-starch polysaccharides)	Fruit, vegetables, wholegrain products	Efficient laxative (esp. wheat) in adequate amounts
Starch, especially amylose	Grain products, potatoes	Less of a laxative
Fructose polymers	Onions, leeks, Jerusalem artichokes	Affect some people
Trisaccharides (indigestible sugars)	Pulses (i.e. beans, peas and lentils)	Affect some people much more than others
Lactose (milk sugar)	Milk and dairy products	Only in people who lack the enzyme lactase

Table 1

Effects of carbohydrate in the colon

Carbohydrates which get into the colon are escaping from the frying pan into the fire. Although the colon cannot digest them, the bacteria that live in the colon can destroy them utterly, by a process called fermentation. The end products of fermentation include *short chain fatty acids* that are quickly absorbed and used by the body as an energy source, and *gases*, especially hydrogen, methane, and carbon dioxide. The laxative effect of unabsorbed

carbohydrate is due, in part, to the gases that stretch and stimulate the colonic muscles and make the stools soft and spongy. It is also due, in part, to the sheer bulk of the bacteria that multiply prodigiously as they feed on the carbohydrate. In the case of certain non-starch *polysaccharides* (e.g., some

kinds of fiber) the carbohydrate itself contributes to the laxative effect, partly by acting as a sponge and retaining water in the stool and partly by the mechanical stimulus to colonic movements that comes from solid, intact cell-wall matter touching the wall of the intestine.

Symptoms resulting from fermentation in the colon

Many people get no symptoms whatsoever from carbohydrate fermenting in the colon. They just enjoy the easy passage of long, soft stools. Although they may pass gas more often, the gas can be inoffensive if there is no protein being fermented at the same time. Other people hear gurgling noises from their colon (technically called *borborygmi*) and perhaps feel slightly distended or bloated. Yet others—those with irritable colons—feel very bloated and get actual pain from the stretching of the bowel.

Foods provoking IBS

Lactose has a reputation as a cause of irritable bowel symptoms, but the scientific evidence is weak. It may do so if taken in large amounts by people who lack the lactose digesting enzyme (mostly non-Caucasians), but such people generally learn to avoid milk.

However, it cannot be true that everyone without the lactose digesting enzyme gets IBS-like symptoms when they drink milk. This is demonstrated when looking at people given a popular laxative called lactulose. Lactulose is chemically identical with lactose except for one subtle difference—no one can absorb it. That means it *always* enters the colon intact, yet not everyone who takes it gets IBS-like symptoms. To the contrary, lactulose is popular because it is perceived as gentle!

There is no doubt that some foods provoke intestinal symptoms like bloating, excess gas, colicky pains, and urgent passage of loose stools in some people. Such people are often described as having *food intolerance*, the implication being that the cause of their trouble is the food they eat. But, if the food in question is one which they have eaten regularly for years (without a problem) their food intolerance must be an acquired phenomenon. Something has happened to make their intestines stop tolerating foods that they have dealt with happily for many years. That something is the real cause of their IBS.

It is technically very difficult, indeed virtually impractical, to prove that someone with a food intolerance has a physical rather than a psychological reaction to the food (except in rare cases of true food allergy, which occurs mainly in people with asthma or eczema). There are no published studies that show convincingly that people who respond to an elimination diet are physically intolerant of the eliminated foods. Even if it can be proved that their reactions

are physical it leaves open the question of *why* they have developed the intolerance.

For people who get benefit from simple dietary restrictions, like avoidance of beans and citrus fruits, it makes sense to adjust the diet. It does not make sense for people to eat highly restricted diets which destroy social life and risk malnutrition. Strict elimination diets are a last resort and should be supervised by a qualified dietician.

Wheat bran

Wheat bran is an excellent laxative and can be recommended to people who suffer from constipation. However, enthusiasm for bran in the 1970's and 1980's was based on inadequate scientific data, and unfortunately for those with IBS, it deflected attention from the real causes.

A diet naturally high in fiber can be recommended on general health grounds but even this upsets some sufferers from IBS.

FOOD INTOLERANCE

Food intolerance occurs when the body cannot adequately digest a portion of a particular food, usually because of a chemical deficiency. For example, people with lactose intolerance have difficulty digesting milk because of a deficiency of the enzyme lactase which is needed to digest milk sugar (lactose). (Food intolerance should not be confused with *food allergy* which affects a relatively small percentage of people and is an immune system response to an allergen.)

Some studies of people with IBS have purportedly identified intolerance of specific foods. More studies are needed.

Food intake diaries can be helpful for identifying individual dietary irregularities or inadequacies that bear attention.

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