

Could compound in artificial sweeteners worsen Crohn's disease?

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Lab study suggests maltodextrin may encourage growth of E. coli bacteria in small intestine.

(HealthDay) -- The food additive maltodextrin, commonly used in some artificial sweeteners, may worsen Crohn's disease by encouraging the growth of E. coli bacteria in the small intestine, a new study suggests.

However, researchers stressed that the findings are preliminary and the tests were conducted in the lab, not in people, so it's too soon to advise those with the inflammatory bowel disease to avoid maltodextrin.

Maltodextrin is a white powder used in many processed foods as a thickener or a filler, including the [artificial sweeteners](#) Splenda and Equal, along with cereal, canned fruits, packaged desserts, instant pudding, sauces and [salad dressings](#). Maltodextrin, typically derived

from corn or wheat starch, is also used in some medication coatings.

In the study, researchers placed Equal, Splenda and another sweetener, Stevia, in a dish along with E. coli bacteria taken from people with [Crohn's disease](#). While E. coli is commonly found in the [digestive tract](#) of humans, it's usually found in the [large intestine](#), explained senior study author Christine McDonald, assistant staff in the pathobiology department at the Cleveland Clinic's Lerner Research Institute. Prior research has found that people with Crohn's tend to have E. coli in their [small intestine](#).

Though the precise role that E. coli plays in Crohn's is unknown, it's thought that the bacteria may contribute to the inflammation that marks the condition.

When grown in the dish with the Equal (which contains aspartame, dextrose and maltodextrin) and the Splenda (which contains sucralose, dextrose and maltodextrin), the E. coli grew stickier, forming a thick biofilm, according to the researchers. The same didn't happen with the Stevia, which is made from the leaves of a South American plant and does not contain maltodextrin.

Researchers then repeated the experiments, culturing E. coli with maltodextrin alone, and the same sticky biofilm formed.

"In the lab, the E. coli becomes stickier, and it sticks to intestinal cells," said McDonald, who conducted the research with graduate student Kourtney Nickerson. "But we haven't tested this in animals to see if there is a particular amount you need to eat to have this effect. It may be that in people who have other risk factors for [inflammatory bowel disease](#), this may tip them over the edge."

The study, which was funded by the U.S. National Institutes of Health,

was to be presented Monday at the Digestive Disease Week meeting in San Diego.

Crohn's disease is an inflammation of the digestive tract that can lead to swelling, pain and ulcers. Although the disease can affect any part of the digestive tract from the mouth to the anus, the most common spot is the small intestine.

It's unknown what causes the disease, although it's believed that microbes -- along with genetics and other environmental factors -- play a role, said Dr. Jerrold Turner, an associate chair in the department of pathology at the University of Chicago.

A healthy gut contains a multitude of bacteria that aid in the digestion of food and extraction of nutrients from foods. A healthy intestine has a layer of mucus that keeps the bacteria away from the lining of the intestine itself. Prior studies have found that, in people with Crohn's, the thickness of that mucus layer decreases, meaning there are more bacteria directly on the cells lining the intestine, possibly leading to inflammation, Turner explained.

The sticky [biofilm](#) may also mean there are more bacteria on the lining of the intestines, McDonald said.

No specific diet has been shown to prevent or treat Crohn's disease, according to the U.S. National Digestive Diseases Information Clearinghouse. However, the incidence of Crohn's has been rising in the United States in recent decades, leading researchers to suspect that something about the modern American diet is contributing.

In addition, many people with the disease notice that certain foods or types of foods seem to make their symptoms worse.

McDonald said people with Crohn's may want to try avoiding maltodextrin and see if their symptoms improve, but she and Turner both said more needs to be learned before they recommend that people with Crohn's or a susceptibility to Crohn's avoid the additive.

"It's a very interesting and provocative finding, and [it] may tell us something about the bacteria and what is happening in the intestines, but it's really too preliminary to make any recommendations," Turner said.

A group representing the artificial sweetener industry said the finding was too preliminary to prompt any changes in how artificial sweeteners are made or sold.

"This study was done on cells in petri dishes, therefore it is not possible to apply these findings to humans," the Calorie Control Council said in a statement released Monday. "Even the researcher has stated that it is too early to conclude that maltodextrin promotes disease. Further research is needed before any human nutrition recommendations can be made."

Because this study was presented at a medical meeting, the data and conclusions should be viewed as preliminary until published in a peer-reviewed journal.

More information: The [U.S. National Digestive Diseases Information Clearinghouse](#) has more on Crohn's.

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