Lactose Intolerance and Colorectal Cancer: What's the Connection?

Multiple epidemiological studies show a lower risk of colorectal cancer with diets high in dairy and milk, but researchers don't know the mechanisms responsible.

April 9, 2020 By Dana-Farber Cancer Institute

A number of research studies suggest that people who consume a lot of milk and other dairy products have a somewhat lower risk of developing colon cancer than those who don't. But many people avoid or minimize dairy consumption because they are "lactose intolerant," meaning they have difficulty digesting lactose — a sugar found in dairy products — due to a deficiency of the enzyme lactase.

Often, lactose intolerance develops with increasing age, and the proportion of people with the condition varies widely across different ethnic groups, amounting to millions of affected individuals around the world — so where does this leave those who are lactose-intolerant and concerned that their diet may impact their risk developing colon cancer?

"It's a complicated story," says Jeffrey Meyerhardt, MD, MPH, clinical director of Dana-Farber's Department of Gastrointestinal Oncology.

"Yes, there are multiple epidemiological studies showing a lower risk of colorectal cancer with diets high in dairy and milk, but we really don't know the mechanisms responsible," he says. "It might involve calcium, vitamin D, components of the microbiome, and others."

Most of the research that's looked at the issue is observational, meaning it's difficult to prove cause and effect and identify the specific factors in dairy products that might reduce colon cancer risk.

One review from 2019 looked at 29 studies involving 22,000 case reports, ultimately finding a consistent and significant decrease in colorectal cancer risk associated with a higher consumption of total dairy products, compared with lower consumption. A 2018 report from the World Cancer Research Fund and the American Institute for Cancer Research concluded, "In general, the more dairy products people consume, the lower the risk of colorectal cancer."

Another review notes that studies conducted in Hungarian and Finnish populations have shown an increased risk of colorectal cancer in individuals who have a genetic variant causing lactase

deficiency. According to the review's authors, the enzyme lactase inhibits the development of colon cancer because it produces intestinal galactose, a sugar which binds lectins and helps prevent excessive growth in the intestinal mucosa. While this would suggest deficiency in lactase may contribute to a higher risk of colorectal cancer, the authors said further studies are needed, and similar studies in Italian, British, and Spanish populations failed to find this link.

It's possible that vitamin D and calcium, nutrients found in a dairy-rich diet, may play a role in preventing cancer or helping people live longer with metastatic disease, but the overall picture is complicated, and more studies are needed to understand more about the link between lactose intolerance and colorectal cancer.

This article was originally published on February 20, 2020, by Dana-Farber Cancer Institute. It is republished with permission.

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