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Saturated Fats in Diet May Trigger Gut Diseases

By Anna Azvolinsky, MyHealthNewsDaily Contributor | LiveScience.com – Wed, Jun 13, 2012

A diet high in [saturated fat](#) may trigger the gut [inflammation](#) associated with diseases such as [colitis](#), a new study in mice suggests.

Diets in the Western world tend to be high in saturated fats, and the results may help explain why [inflammatory bowel diseases](#) (IBD) such as colitis are on the rise in this region, the researchers say.

The study showed that a [diet high in saturated fats](#) derived from milk, but not a diet high in [polyunsaturated fats](#), increased the rate of colitis in [laboratory mice](#) with a genetic mutation that made them susceptible to the condition.

"Our [study] suggests one possible mechanism by which these types of foods may be playing a role in the increasing incidence of inflammatory diseases," said study researcher Suzanne Devkota, who worked on the study while at the University of Chicago.

The prevalence of processed foods may be contributing to the rise in [inflammatory bowel disease](#), said Devkota, who is now at Harvard Medical School in Boston. Saturated fats and trans fats can be used to make these foods more shelf-stable, more flavorful or easily transportable.

In fact, she said, the major source of unhealthy fats in the American diet may not be meat, but rather the saturated milk fats and trans fats added to foods such as candies and ice cream.

Inflammation and diet

To conduct the research, the authors used genetically altered laboratory mice as a model of human IBDs. These mice cannot produce an important anti-inflammatory molecule ordinarily found in the gut of mice and humans.

The mice were fed either a low-fat diet, a diet high in saturated fat, or a diet high in [polyunsaturated fat](#). In the high-fat diets, 37 percent of the total calories came from fat, similar to the typical [Western diet](#), according to the researchers.

Mice on the saturated fat diet were almost twice as likely to develop colitis over a six-month period as mice on the diet high in polyunsaturated fats (mainly, safflower oil). [\[Want to Get Healthy? Try Switching to 'Right' Fats\]](#)

The increase in colitis stemmed from an uncontrolled growth of a certain type of bacteria, according to the researchers. These bacteria grow quickly in environments where saturated fats are broken down, and this overgrowth results in an immune response that leads to inflammation and colitis.

"The [bacteria] only emerges under conditions in which it is provided with excess nutrients for its growth," Devkota said. The milk fats created the conditions in the gut that allowed the bacteria to "bloom."

Peter Higgins, a gastroenterologist and assistant professor at the University of Michigan School of Medicine, said "the study is provocative, and suggests the possibility of a chain of causation, linking genetics to diet to microbiota to IBD."

But Higgins, who was not involved in the study, also noted that only about 5 percent of rodent studies are later validated in humans.

"I think this is a great study to increase the awareness of eating healthier for the sake of keeping our [gut microbiota healthy](#),"

said Dr. John Yung-Chong Kao, a gastroenterologist and assistant professor at the University of Michigan, who was not involved in the study.

Inflammatory Diseases Are On The Rise

Inflammatory bowel diseases are relatively new, and have been on the rise. As many as 1.4 million U.S. adults have an IBD. "The major cause for the increase in incidence is the change in environmental factors that include a Western diet," Devkota said.

But the increase is not unique to IBDs, said study leader Eugene Chang, of the University of Chicago.

"Other complex immune disorders, such as rheumatoid arthritis, asthma and juvenile [Type 1] diabetes," also likely arise due to a combination of genetic susceptibility, an imbalance of microorganisms in our bodies, and changes in our environment — with environment likely playing the biggest role, Chang said.

Of course, diet is only one environmental factor; the rise in obesity and a sedentary lifestyle also likely contribute. "Using more antibacterial soap, and having less exposure to bacteria, parasites and pets in childhood" are all lifestyle changes likely linked to the rise of IBDs, Higgins said.

Inflammation in the gut is not always bad, Higgins said. "Mild, controlled inflammation in the gut is important for fighting off infection. Uncontrolled inflammation in the gut, as seen in IBD, is a very bad thing."

Due to their genetics, some people are more susceptible to certain types of [inflammation induced by microorganisms](#). "This [explains] why not everyone on [Western] diets gets IBD, or other complex immune disorders," Chang said.

The study is published today (June 13) in the journal Nature.

Pass it on: A diet high in saturated fat may exacerbate or cause colitis or other types of inflammatory bowel diseases in susceptible individuals.

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