

Bacteria-immune system 'fight' can lead to chronic diseases, study suggests

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Results from a study conducted at Georgia State University suggest that a "fight" between bacteria normally living in the intestines and the immune system, kicked off by another type of bacteria, may be linked to two types of chronic disease.

The study suggests that the "fight" continues after the instigator bacteria have been cleared by the body, according to Andrew Gewirtz, professor of biology at the GSU Center for [Inflammation](#), Immunity and Infection. That fight can result in metabolic syndrome, an important factor in obesity, or [inflammatory bowel disease](#) (IBD).

The results were published in the journal *Cell Host & Microbe*.

"The implication at present is that it is very important to control the early environment," Gewirtz said. "We need to examine how this can be achieved – perhaps via breastfeeding, a more diverse diet, probiotics are possibilities."

The study's results are important as instances of [chronic diseases](#) like metabolic syndrome and IBD are increasing rapidly among humans, he explained.

[Metabolic syndrome](#) involves risk factors, including obesity, which can lead to cardiovascular disease, diabetes and stroke. According to the American Heart Association, about 35 percent of adults are affected by this syndrome.

IBD, which includes Crohn's disease and ulcerative colitis, happens when the [intestines](#) become inflamed, leading to abdominal cramps and pain, diarrhea, weight loss and bleeding.

More than 600,000 Americans annually have some kind of inflammatory bowel disease, according to the American Academy of Family Physicians.

Bacteria normally live in the gut of humans, with the average human having about 4 pounds of bacteria living there.

"It is increasingly apparent that bacteria are playing a role in healthy development, and need to be properly managed by the mucosal immune system to avoid inflammatory diseases" Gewirtz explained.

More information: The study, "Transient inability to manage Proteobacteria drives gut inflammation in TLR5-deficient mice," appears in the August 16 print edition of the journal *Cell Host & Microbe*.

Provided by Georgia State University

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