

Study: Probiotics reduce stress-induced intestinal flare-ups

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For those with irritable bowel syndrome who wonder if stress aggravates their intestinal disorder, a new University of Michigan Health System study shows it's not all in their head.

Researchers revealed that while stress does not cause IBS, it does alter brain-gut interactions and induces the intestinal inflammation that often leads to severe or chronic belly pain, loss of appetite and diarrhea.

Stress has a way of suppressing an important component called an inflammasome which is needed to maintain normal gut [microbiota](#), but probiotics reversed the effect in animal models, according to findings published online ahead of print in *Gastroenterology*.

"The effect of stress could be protected with probiotics which reversed the inhibition of the inflammasome," says senior study author and gastroenterologist John Y. Kao, M.D., associate professor of internal medicine at the University of Michigan. "This study reveals an important mechanism for explaining why treating IBS patients with probiotics makes sense."

Probiotics are live bacteria that help grow the gut-dwelling "good" bacteria that keep pathogens in check, aid digestion and [nutrient absorption](#) and contribute to immune function.

U-M researchers including Chung Owyang, M.D., chief of the U-M Division of Gastroenterology, Gary Huffnagle, Ph.D., professor of pulmonary and critical care, and infectious disease expert Vincent Young, M.D., Ph.D., were able to identify the way stress significantly altered the composition of [gut bacteria](#) and the role of probiotics.

Maintaining healthy microbiota requires action by nucleotide-binding oligomerization domain protein-like receptors, pyrin-domain containing (NLRP)-6 inflammasomes. But when stressed, mice

produced corticotropin-releasing hormone (CRH) that prevented inflammasomes from doing their job.

Inhibiting inflammasomes alters the composition of the gut, leading to [intestinal inflammation](#). In the study, pretreatment with probiotic therapy reduced inflammation in mice with stress-induced small bowel inflammation.

"Additional clinical study is required to determine the optimal probiotic therapy," says Kao. "Patients can start living healthier lifestyles to improve their gut microbiota such as adding more fruits and vegetables to their diet, and looking for ways to keep stress in check."

More information: "Stress-induced corticotropin-releasing hormone-mediated NLRP6 inflammasome inhibition and transmissible enteritis in mice," *Gastroenterology*, doi: 10.1053

Provided by University of Michigan Health System

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