

Cannabis link to relieving intestinal inflammation explained

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Reports from cannabis users that the drug reduces the symptoms of inflammatory bowel disease (IBD) may finally be explained by new research from the University of Massachusetts Medical School and the University of Bath showing that endocannabinoids help control and prevent intestinal inflammation in mice.

This is the first-time scientists have reported a biological mechanism to explain why some marijuana users have reported beneficial effects from cannabis on intestine inflammation conditions such as ulcerative colitis and Crohn's disease. Researchers hope that their findings will lead to the development of drugs and treatments for gut disorders, which affect millions of people around the world and are caused when the body's immune defenses mistakenly attack the lining of the intestine.

The findings appear in the *Journal of Clinical Investigation*.

"There's been a lot of anecdotal evidence about the benefits of medical marijuana, but there hasn't

been a lot of science to back it up," said Beth A. McCormick, Ph.D., vice chair and professor of microbiology & physiological systems at UMass Medical School. "For the first time, we have an understanding of the [molecules](#) involved in the process and how endocannabinoids and cannabinoids control inflammation. This gives clinical researchers a new drug target to explore to treat patients that suffer from inflammatory bowel diseases, and perhaps other diseases, as well."

The researchers discovered that gut inflammation is regulated by two important processes, which are constantly in flux and responding to changing conditions in the intestinal environment. The first process, identified in previous scientific research, promotes an aggressive immune response in the gut that destroys dangerous pathogens, but which can also damage the lining of the intestine when immune cells attack indiscriminately.

The second pathway, first described in this paper, turns off the inflammation response via special molecules transported across the epithelial cells lining the gut by the same process already known to remove toxins from these cells into the intestine cavity. Crucially, this response requires a naturally-produced molecule called an endocannabinoid, which is very similar to cannabinoid molecules found in cannabis.

If the [endocannabinoid](#) isn't present, [inflammation](#) isn't kept in balance and it can run unchecked, as the body's immune cells attack the intestinal lining.

McCormick and colleagues believe that because cannabis use introduces cannabinoids into the body, these molecules could help relieve [gut inflammation](#), as the naturally produced endocannabinoids normally would.

"We need to be clear that while this is a plausible explanation for why marijuana users have reported cannabis relieves symptoms of IBD, we have thus

far only evaluated this in mice and have not proven this experimentally in humans. We hope, however, that these findings will help us develop new ways to treat bowel diseases in humans" said professor Randy Mrsny from the University of Bath Department of Pharmacy and Pharmacology.

Provided by University of Massachusetts Medical School

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