

Hot Chilies Can Cool Gut Inflammation

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STORY AT-A-GLANCE

- › Nearly 3 million Americans suffer from inflammatory bowel disease, not to be confused with the less serious and functional disorder, inflammatory bowel syndrome
- › Capsaicin, commonly found in hot chilies, triggers a chemical cascade that calms the inflammatory response in your gut
- › You may also reduce the inflammatory response in your gut by normalizing your microbiome using fermented or cultured foods, increasing your fiber content and including coconut oil in your diet

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Research has recently discovered that hot chilies may help soothe your gut when you suffer from [inflammatory bowel disease](#) (IBD). IBD is not to be confused with inflammatory bowel syndrome (IBS), which is a less serious functional disorder that doesn't cause ulcers or intestinal damage as does IBD.

IBD is an autoimmune condition that may have serious consequences. Currently there are nearly 3 million Americans who suffer from IBD, with nearly 70,000 new cases diagnosed each year.¹ This is nearly triple previous estimates, which may be due to a combination of rising rates and improved diagnostic criteria.

The rising rates of the condition may be related to genetics, environmental factors, diet and changes in your [gut microbiome](#). Research has demonstrated your microbiome is so important that physicians may even use it as a diagnostic tool.²

While improving your microbiome plays a significant role in reducing or eliminating your symptoms, capsaicin and endocannabinoids may also play a role in reducing your symptoms through control of your neuroimmune axis.³ Before understanding how it works, it's helpful to understand the condition.

What Is Inflammatory Bowel Disease?

IBD is a chronic inflammation of part or all of your intestinal tract that may result in ulcerations, vomiting, bloody diarrhea and weight loss. The condition is often debilitating and may lead to a life-threatening situation. There are two different types of IBD – [Crohn's disease](#) and ulcerative colitis (UC). Both forms of IBD are more common in developed countries, while ex-smokers and nonsmokers more commonly have UC, and smokers more commonly develop Crohn's.

People who experience UC will often suffer from ulcers and inflammation in the lining of the large intestines, while Crohn's is a disease that affects your entire digestive tract. Doctors believe your symptoms are the result of widespread recurring immune response focused in your intestines.⁴

Your immune system mistakes substances in your intestines for a foreign material and sends out white blood cells that trigger inflammation.⁵ Without significant changes to your lifestyle, symptoms continue to get worse and affect your quality of life.

Unfortunately, the symptoms are often associated with stigma, fear and isolation that have resulted in the disease being relatively hidden and people suffering in silence. While there is no real cure for the condition, there are strategies that may reduce or eliminate your symptoms.

Why Hot Chilies May Calm Your Gut

Research has found when mice were fed [capsaicin](#), the substance in chili peppers that makes them "hot," they had less inflammation in their gut – and some were even cured

of a mouse model Type 1 diabetes.⁶ Researchers found capsaicin acted on receptors, causing local production of anandamide.

Anandamide acts through your cannabinoid receptor 2 (CB2) that increases the number and function of immune macrophages in your gut. You have endogenous cannabinoids or endocannabinoids produced in your system from glycerophospholipids. Anandamide is an endogenous intestinal cannabinoid.

It controls your appetite and energy balance through the nervous system in your intestinal tract. This study uncovered the immunological role anandamide and endocannabinoids play in the regulation of immune tolerance in the gut,⁷ and in maintaining immune homeostasis between the nervous and immune systems.

Following the discovery of endogenous cannabinoid production in the mid-2000s, a large number of studies exploring the system and regulatory function were initiated, as scientists were hopeful for a pharmaceutical approach to health.⁸

Interactions in the endocannabinoid system are much like those that occur in the brain, as your gut has a very large nervous system affected by the endocannabinoids produced after ingesting chili peppers. Researchers question if people who use edible cannabinoids may experience the same relief.⁹

What Is Cannabidiol (CBD)?

The cannabis plant, commonly known as marijuana, has two major active ingredients. The more famous molecule is tetrahydrocannabinol (THC), known for the psychoactive properties that leave people feeling "high" or "stoned."¹⁰ The second chemical compound found in the cannabis plant is cannabidiol (CBD). This doesn't have the psychoactive effects but still has an effect on your body. CBD may actually counteract the psychoactivity of THC.¹¹

How much THC and CBD in the plant depends upon the strain. In the past decade much research has been undertaken to ascertain the medical efficacy of CBD in the treatment

of specific conditions. There has been promising evidence of positive effects as an antidepressant,¹² anti-inflammatory,¹³ antioxidant¹⁴ and neuroprotective.¹⁵

Often used in oil form, medicinal cannabis oil is extracted from strains of the plant grown specifically high in CBD and low in THC. CBD works by binding to cannabinoid receptor cells, some heavily concentrated in your nervous system. However, there are receptors in almost every organ of your body.¹⁶

The combination of your endogenous cannabinoid and receptors makes up your endocannabinoid system, involved in many of your organ systems. However, the four primary purposes appear to be neuroprotection, immune balance, stress recovery and homeostasis regulation.¹⁷

Although both THC and CBD are cannabinoids, they react with your body in different ways. THC engages your CB1 receptors, many of which are in your central nervous system, or brain. Combined with the psychoactive properties, this results in feeling "high."¹⁸

CBD Results Push Further Research

Neurologist Dr. Ethan Russo discussed the difference between THC and CBD and the way they interact with your receptors in an interview with Project CBD. He points out that cannabis has been selectively bred over the years for high THC levels to increase the psychoactive effects of the plant.¹⁹

However, the medicinal plant bred for high levels of CBD and low levels of THC do not engage your CB1 receptors in the same way. He explains:

"It doesn't tend to bind directly, what's called the orthosteric site where THC binds. Rather, it binds on what's called an allosteric site, another site on the receptor, and it so it alters the binding of both THC and the endogenous cannabinoids, the endocannabinoids."

So, cannabidiol is what's called the negative allosteric modulator, which is a fancy way of saying that when THC is present it interferes with its activity – which is a good thing in terms of wanting too much psychoactivity and again limiting side effects like anxiety or rapid heart rate that can be a problem if someone has too much THC."

This difference has fueled a group of "medical cannabis refugees," who have moved to Colorado in search of medicinal plants that have demonstrated unique and powerful success in the treatment of conditions like Parkinson's disease^{20,21} and obsessive compulsive disorder.^{22,23}

In the past decade the endocannabinoid system has been implicated in a number of biological and physiological functions that show increasing promise in treatment of a wide variety of disorders, including IBD, neuropathic pain and multiple sclerosis.²⁴

However, while great strides have been made in research, the socially unacceptable psychoactive properties of the cannabis plant have presented a significant challenge to families seeking treatment. The use of selective receptor agonists could potentially improve treatment options.

How CBD May Affect Your Gut Health

Research from the University of Vermont found those who ate red-hot chili peppers experienced a 13% reduction in risk of death, primarily from heart disease or stroke.²⁵ Data suggested participants benefited from the result of capsaicin cellular and molecular mechanisms, especially in the gut.

The outcome of an **excessive inflammatory response** in your gut is intestinal damage and disturbances in motility and secretion – the hallmarks of IBD.²⁶ With no known current pharmaceutical cure, success of treatment modalities is measured by severity of symptoms.

Active inflammation in the gut may be mediated by enteric glial cells that release factors, amplifying the immune response.²⁷ This represents an important connection

between your nervous system and immune system inside your gut. CBD can control these glial cells in your nervous system without psychoactivity, and therefore reduce the inflammatory response in your intestinal tract. These results indicate that CBD meets criteria for a therapeutic strategy to treat IBD.²⁸

The gut-brain connection offers a strong explanation of how your intestinal health responds to stress and, conversely, why acute or chronic abdominal distress may result in emotional complaints. CBD is becoming more recognized for the important role it plays in treating this neuroimmune axis.²⁹

And finally, the side-effect profile for CBD oil and other medicinal preparations of CBD is very low. In fact, the preparations have fewer side effects than current medications used to treat UC and Crohn's disease.^{30,31}

Prevention and Treatment Without Drugs

Like most health conditions, prevention is the best medicine. Your gut bacteria have a powerful influence over your immune system and the inflammatory response in your body as I discuss in the video above.^{32,33} Individuals who suffer from IBD often share an altered microbiome resulting in a protracted state of inflammation and symptoms.³⁴ Reseeding your gut to achieve a more normal composition should be high on your list to reduce your symptoms or prevent the condition.

Traditionally fermented and unpasteurized cultured foods are loaded with healthy bacteria, and are easy to make from scratch at home. Other helpful foods that are important if you struggle with IBD include:

- **Blueberries** — These little berries are packed with antioxidants, vitamins and fiber, and research has demonstrated they may help alleviate and protect against inflammation in your gut.^{35,36} They are rich in polyphenols that have both antimicrobial and antioxidant effects.

When combined with probiotics, **blueberries** may reduce inflammatory-inducing bacteria in your gut and increase the amount of healthy Lactobacilla. The fiber

doesn't degrade in your large intestines, protecting your intestinal lining from substances that cause inflammation.

- **Coconut oil** – This is a wonderful overall addition to your diet and has anti-inflammatory effects that may help heal injury to your digestive tract.³⁷ **Coconut oil** also has antimicrobial properties that may kill microorganisms, including yeast that may cause chronic inflammation.
- **Caprylic acid** – This is a medium-chain triglyceride (MCT oil) that is also a potent antifungal. Dr. Leon Chaitow, author of "Candida Albicans: Could Yeast Be Your Problem?" recommends it in lieu of antifungal drugs for Candida overgrowth.
- **Animal-based omega-3** – This is another essential element for preventing and controlling IBD. Remember, however, that omega-3s are also a type of polyunsaturated fatty acid (PUFA), and when consumed in excessive quantities, 3 will cause metabolic damage similar to that of omega-6 LA, as it too breaks down into dangerous metabolites known as ALEs (advanced lipoxidation end products). Consume omega-3 fats in moderation.
- **Fiber-rich foods** – Fiber foods such as **organic psyllium seed husk**, berries, vegetables such as broccoli and Brussels sprouts, root vegetables and tubers, help nourish beneficial microbes in your gut.

However, while fiber and starches are often recommended for gut health, they can worsen symptoms by feeding bad bacteria if your gut health is poor. Excess fiber consumption with slow motility feeds bacteria along the digestive tract, leading to conditions like small intestinal bacterial overgrowth (SIBO), which is often associated with bloating, along with excess endotoxin production.

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