

# Research Shows Link Between NSAID Use and Gut Disease

Popping an ibuprofen after a workout or for a headache seems safe enough, right? Recent research shows the OTC drug could be contributing to leaky gut syndrome and celiac disease.

Anyone who suffers from gluten sensitivity, intolerance, or celiac disease knows how troublesome the problem is. Unlike some immediately life-threatening allergies, such as peanut or seafood, gluten allergies don't send their sufferers into anaphylactic shock. Rather, those who suffer from gluten sensitivities and celiac disease have a myriad of potential problems to deal with, including gastro-intestinal problems, hives, pain, arthritis, and even cloudy thinking and depression.

Gluten is a protein primarily found in wheat, barley, and rye. The name comes from the Latin *gluten*, meaning glue, which makes perfect sense—it helps things stick together and keep shape, and gives dough and other foods a firm, chewy texture. Because so many products are processed with wheat, gluten can show up in everything from oatmeal and salad dressing to shampoo and lipstick.

For people with celiac disease, consuming gluten triggers an immune response in the digestive system. This response causes inflammation of the intestines, which leads to bloating, diarrhea, vomiting, weight loss, and damage of the intestinal lining. When the lining gets damaged, it causes malabsorption and malnutrition, which can lead to loss of bone density, anemia, infertility, and even cancer. There isn't a cure for celiac, but sticking to a strict (as even one spore can trigger the immune system) gluten-free diet helps. According to the National Foundation for Celiac Awareness, an estimated 1% of the U.S. population has the disease, though it's severely under-diagnosed.

In addition, there is evidence that “Risk of death among patients with celiac disease, inflammation, or latent celiac disease is modestly increased.”

It's also possible to be gluten intolerant without having celiac disease. People with non-celiac gluten sensitivity, as it's clinically called, have symptoms similar to celiac, but they aren't due to an immune response. According to a 2012 report by BMC Media, non-celiac patients report more non-digestive symptoms like joint pain, chronic fatigue, and eczema. Again, a gluten-free diet helps alleviate these symptoms.

One more thing: celiac and non-celiac gluten sensitivity are not the same as a wheat allergy. As Mayo Clinic explains, “a wheat allergy generates an allergy-causing antibody to proteins found in wheat. But, one particular protein in wheat—gluten—causes an abnormal immune system reaction in the small intestines of people with celiac disease.”

But why are people developing these reactions in the first place?

Recently, some gluten-free champions have revisited studies from the past 20 years that show NSAIDs (non-steroidal anti-inflammatory drugs) such as ibuprofen might just play a contributing role by increasing the likelihood of leaky gut syndrome. According to one NIH study, “All the conventional NSAIDs studied were equally associated with small intestinal inflammation apart from aspirin...” and “intestinal permeability changes were significantly more pronounced” with some of the tests.

There is also evidence that NSAIDs cause intestinal damage when taken in conjunction with exercise. “This is the first study to reveal that ibuprofen aggravates exercise-induced small intestinal injury and induces gut barrier dysfunction in healthy individuals. We conclude that non-steroidal anti-inflammatory drugs consumption by athletes is not harmless and should be discouraged.”

And from as far back as the 1980s, a study found “NSAIDs are thus shown to disrupt intestinal integrity and long term treatment leads to inflammation of the small intestine.”

How does this relate to gluten and other food allergies?

When the intestine is permeable and inflamed, infectious or toxic substances “leak” through the lining into the blood stream. This may cause a negative autoimmune response, and inhibits proper digestion and nutrient absorption. It can also lead to a number of other ailments, including diabetes, asthma, and even heart failure.

Dr. Alessio Fasano, the director of the Center for Celiac Research at Massachusetts General Hospital, agrees. “There are many factors that seem to play a roll. The use and abuse of antibiotics—anything that affects the macrobiotics of the gut.”

Fasano says that those born by C-section seem to have higher likelihood of developing gluten sensitivities, and those who were breast fed seem to be protected from it. “But this is all ‘a work in progress’ ... [that] we are trying to confirm or refute.”

“From what we understand, [with NSAIDs] one of the side effects is that they can affect the permeability of the gut,” says Fasano. “Now, you have increased passage of gluten, and if you are genetically predisposed, you can develop celiac or gluten-intolerance.”

Fasano says patients need to ask themselves, “What are the pros and cons of taking this drug?” For someone who has chronic inflammation who cannot take steroids all the time, it might be beneficial to take NSAIDs to deal with the problem, but for someone who suffers regularly from a runny nose, “it would be better if you don’t take it.”

Leaky gut syndrome aside, NSAIDs are responsible for (PDF) over 100,000 hospitalizations each year, and over 16,000 deaths.

Editor's Note: An earlier version of this story quoted a statistic that The Daily Beast could not verify.