



*learn*

# *Leaky Gut Syndrome*

HOW DOES IT RELATE TO  
GLUTEN INTOLERANCE?



As we head into the holiday season, often times we reflect on our health over the past year and how we can do better in the coming year. Many of us know that diet and exercise fall on top of that list, but how about giving yourself the gift of knowledge? Being informed of the possible conditions that can come with being gluten intolerant will help you make good decisions regarding your health. One of the conditions often associated with gluten intolerance and celiac disease is leaky gut syndrome. Leaky gut syndrome is not a mysterious illness but a well-defined functional disorder of the gut that causes abnormal intestinal permeability. Imagine the gut as a hollow tube with walls built of billions of living building blocks (epithelial cells). The tube is inhabited by myriads of microorganisms, some of which attach to the wall and others that float within the lumen (the inner open cavity of the tube). In a cyclical way, the tube fills up with remnants of food, bile, and digestive enzymes. The wall of the tube is fed by the lumen bacteria and serves as a highly selective filter, known as a tight junction, only allowing a small portion of molecules to escape from the lumen. When this filter, or tight junction, is abnormal, intestinal permeability increases, releasing a large number of molecules from the lumen into the bloodstream and therefore resulting in leaky gut syndrome. Leaky gut syndrome can trigger various ailments ranging from migraine headaches and eczema to arthritis and autoimmune diseases.

The "tightness" of the tight junction is regulated by zonulin, a protein that modulates the permeability of the tight junctions. Over 10 years ago, researchers discovered that the production and release of zonulin is increased by gluten, which results in increased gut "leakiness," thus explaining how gluten consumption triggers leaky gut syndrome.

The abnormal permeability of the gut, or the degree of leakage, can be objectively measured and monitored with specific laboratory tests. In general, there are two types of tests useful in clinical settings. The first group of tests measures the concentration of zonulin in the blood. Finding elevated zonulin levels is indicative of leaky gut syndrome. The second set of tests measures the ability of non-metabolized sugar molecules (for example, lactulose) to get through the digestive lining. To perform the test, the patient drinks a lactulose solution and a urine test measures the amount of lactulose. An increased amount of lactulose in the urine is indicative of leaky gut syndrome.

The most common causes of leaky gut syndrome include:

- Intestinal infections and parasites
- Chronic yeast (candida) infection

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- Fatigue
- Digestive Problems
- Weight Problems
- Inflammation
- Joint Pain



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- Imbalance between the “good” and the “bad” microbes in the gut (dysbacteriosis or dysbiosis)
- Prolonged use of antibiotics
- Poorly balanced diet (for example, diet based on predominantly carbohydrates)
- Chronic use of alcohol
- Chemotherapy
- Radiation therapy
- Chronic use of NSAIDs (ibuprofen, naproxen, diclofenac, etc.)
- Chronic use of corticosteroid hormones (prednisone, methylprednisolone, hydrocortisone, etc.)
- Chronic use of estrogens (birth control pills, hormone replacement therapy, etc.)

Leaky gut syndrome is associated with various conditions such as:

- Celiac disease and gluten intolerance
- Ulcerative colitis
- Crohn’s disease
- Autoimmune hepatitis
- Ankylosing spondylitis (inflammatory disease that causes vertebrae to fuse together)
- Rheumatoid arthritis
- Psoriasis and psoriatic arthritis
- Eczema
- Hay fever
- Asthma
- Chronic sinusitis
- Diabetes
- Migraine headaches

Typical symptoms of leaky gut syndrome include:

- Bloating and abdominal discomfort with exacerbations after eating meals
- Diarrhea
- Mucus in the stool
- Eating-associated fatigue, muscle weakness, and pain
- Brain fog
- Poor tolerance of alcohol
- Acne, hives, and eczema
- Food-associated headaches

Therapy of leaky gut syndrome is centered on several simple principles:

- **Elimination of immunogenic foods.** Detection of immunogenic foods is typically based on food intolerance testing. There are several systems used to detect food intolerance. Some of them are based on leukocyte (white blood cell) activation by the immunogenic foods; the others are based on measurement of specific antibody responses to specific foods in blood or saliva. In our clinical practice, we have found that IgG4-based food intolerance testing

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has the highest correlation with clinical responses to the food elimination diet.

- **Diet optimization.** Typically, this involves reduction of carbohydrate consumption, elimination of spicy foods, and increased consumption of fiber-rich and fermented foods. In gluten-intolerant patients, obviously, elimination of gluten and cross-reactive foods (dairy products, eggs, soy, etc.) is a must. However, the best results can be achieved on the basis of a highly individualized diet utilizing food intolerance test results.
- **Improvement of food digestion.** This is accomplished by introduction of various digestive enzymes.
- **Normalization of gut microflora.** This is achieved by consumption of high dose probiotics (100 billion CFU a day and above) and prebiotics.
- **Optimization of mucosal immune responses.** Typically, this can be achieved by introduction of specific food supplements including immunobiotics (Mannan Oligosaccharides), stimulants of mucosal immune responses (Epicor™ and oral Bovine Immunoglobulins), and activators of natural killer cells (Coix Seed Extract, Beta-Glucan Arabinogalactan, Cordyceps Synensis).
- **Restoration of the tight junction.** Normal bacteria that populates the human gut produces short-chain fatty

acids, including butyric acid among others. Butyric acid stabilizes the tight junction and prevents development of leaky gut syndrome. In our clinic, we broadly use various salts of butyric acid in the form of food supplements to effectively treat leaky gut syndrome.

The recognition and treatment of leaky gut syndrome in people with gluten intolerance and celiac disease can result in significant symptom improvement above and beyond just a gluten-free diet. Head over to [www.leakygutaid.com](http://www.leakygutaid.com) for a self-assessment to detect for possible presence of leaky gut syndrome.

Always check with a qualified medical professional before beginning any new protocol. 



**ABOUT THE AUTHOR:**

**Dr. Alexander Shikhman**, founder of the Institute for Specialized Medicine, is board certified in internal medicine and rheumatology. Dr. Shikhman also launched Gluten-Free Remedies™, a line of all natural supplements which help treat the

complications that can arise from celiac disease. Find Dr. Shikhman at [www.ifsm.com](http://www.ifsm.com) and [www.glutenfreeremedies.com](http://www.glutenfreeremedies.com).