



Introduction to Intestinal Permeability

(Leaky Gut)

What is Intestinal Permeability?

Intestinal Permeability, also known as "Leaky Gut," is a condition where the integrity of the intestinal cell barrier is compromised or broken down. Normally, our intestinal cell network forms a critical barrier between our digestive tract (outside environment) and our blood stream (inside environment). With Intestinal Permeability, the barrier is broken down and intestinal contents can enter the blood stream.

Why test for Intestinal Permeability?

Intestinal Permeability has several physiological ramifications. The purpose of testing for Intestinal Permeability is to accurately identify the root cause condition so your physician can recommend an effective treatment plan to heal your gut.

What are symptoms of Intestinal Permeability?

Health conditions associated with untreated intestinal permeability are classified in **three groups**:

- 1 Digestive:** Inflammatory Bowel Disease, IBS (gas, bloating, constipation reflux) and food sensitivities.
- 2 Systemic:** Depression, anxiety, migraine headaches, muscle pain, chronic fatigue, anxiety, mood swings, brain fog, and micronutrient deficiencies.
- 3 Autoimmune:** Celiac disease, rheumatoid arthritis, Type 1 Diabetes, asthma and Hashimoto's thyroiditis.

What causes Intestinal Permeability?



Dietary factors

- Refined sugar
- High starch diet
- Gluten in grains
- Casein in dairy
- Alcohol



Medications

- Antibiotics
- NSAIDs (nonsteroidal anti-inflammatory drugs)



Lifestyle Factors

- Excessive stress
- Smoking tobacco

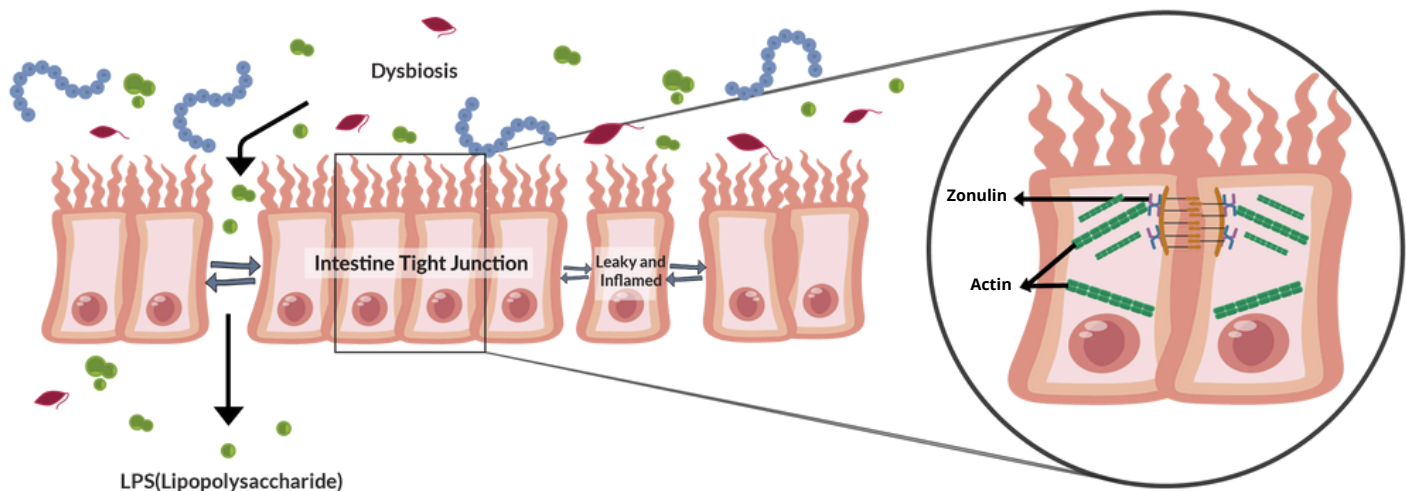


Gut conditions

- Dysbiosis
- SIBO
- Yeast overgrowth & *Candida albicans*
- Parasites
- Low gastric acid production

Testing For Intestinal Permeability

The Vibrant Wellness Wheat Zoomer measures Zonulin levels and blood antibodies to three important biomarkers: **Zonulin, Actin, LPS (lipopolysaccharide)**.



Zonulin

- Discovered in the early 2000's, zonulin is a protein found in the tight junctions of our intestinal epithelial cells. Zonulin is a "gate keeper protein," and plays a critical role in the structure and health of tight junctions in the intestines. Tight junctions are the main barrier between our digestive tract and our blood stream. If zonulin is elevated in the blood or antibodies are present, this indicates that tight junctions have broken down and the barrier has been damaged.
- Bacterial dysbiosis and gluten in the diet are two known factors that cause zonulin release from the tight junctions.
- The blood brain barrier has zonulin receptors. Zonulin can bind to these receptors and open the tight junctions of the brain, demonstrating the "gut-brain connection."

Actin

- Actin is a muscle protein that has structural and mechanical roles in the small intestine. In the microvilli, actin is involved in cell division, growth, and repair. Actin also serves to anchor the microvilli to the cell membrane barrier and to attach intestinal cells together.
- Antibodies against actin in the blood stream can indicate compromised structural integrity of intestinal tight junctions or microvilli.

LPS (Lipopolysaccharide)

- Our digestive tract is home to trillions of microorganisms (i.e. the Gut Microbiome), which includes both gram (+) and gram (-) bacteria.
- Lipopolysaccharide is a component of the cell wall on gram (-) bacteria. Only with intestinal permeability, LPS will enter the blood stream and our bodies will produce LPS antibodies.
- If LPS enters the blood, it's a powerful mediator of inflammation and has been linked to various chronic diseases, including heart disease, metabolic syndrome, chronic fatigue, obesity, depression, and autoimmune disease.

Leaky Gut Protocol

Did your recent lab test indicate leaky gut? This handout will provide simple guidelines for healing your gut. For the most effective protocol, consult with your provider for a personalized wellness plan.

1

30 Day Leaky Gut Reset

Eliminate the following foods and additives:

- Known foods that cause allergies, sensitivities, and intolerances
- Pesticides (Avoid The Dirty Dozen, Enhance the Clean Fifteen)
- Refined and processed vegetable oils

Typically Problematic Foods

- Wheat
- Dairy
- Eggs
- Legumes
- Nuts
- Soy
- Artificial sweeteners
- Alcohol
- Caffeine
- Cocoa
- Tobacco
- Possibly nightshades

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Heal & Seal

During and after the 30 day leaky gut reset, incorporate helpful and therapeutic foods so your gut lining can begin to heal.

- **Bone broth:** your intestinal cells need the collagen in bone broth to heal and stay strong.
- Help heal your intestinal cells by enhancing *butyrate* production with fibrous fruits, veggies, and beans.
- Consume foods high in Omega-3 to reduce inflammation in your intestinal cells.
- Probiotic foods (*except dairy for the first 30 days*):
 - Sauerkraut
 - Kimuchi
 - Kombucha
 - Other homemade ferments of your choice (not pasteurized!)
- Stress Management is critical to preventing digestive problems from recurring, and reducing the symptoms of current problems.
- Focus on:
 - Drinking a minimum of 80 oz of purified water every day
 - Slowing down and taking time to eat
 - Avoiding stressful people and situations
 - Meditation or prayer daily
 - Exercising (but not too much)
 - Quality sleep (minimum of 7 hours per night)

Focus on these gut-fortifying foods regularly:

- Unprocessed meat (grass-fed beef, buffalo, pork and wild game)
- Unprocessed seafood (wild-caught or organically raised)
- Unprocessed poultry (cage free and organically fed chicken, turkey, duck and other bird)
- Honey, maple syrup, and molasses, in moderation
- Healthy fats from coconut oil, high omega-3 foods, olives, olive oil, and avocados
- **Non-starchy veggies such as:**
 - Leafy greens (like spinach, chard, kale, etc)
 - Broccoli
 - Cauliflower
 - Brussels sprouts, carrots, sweet potatoes, asparagus, beets, celery, cucumber; eggplant; green beans, onions; peas, mushrooms, bell peppers; tomatoes, etc.
 - Remember to check for produce lowest in pesticides.
- **Fruit such as:**
 - Citrus (oranges, lemons, limes, grapefruit, tangerines), apples, grapes, berries, bananas, kiwi, and other fresh fruits.

3

Reintroduction Phase

After the first 30 days of elimination, try a systematic re-introduction of certain foods. Only introduce one new food every three days:

- Eggs
- Nightshades
- Nuts
- Fermented or raw dairy
- Soaked legumes
- Alcohol and caffeine in moderation

If you experience any symptoms after re-introducing one of these foods, avoid it for good until you speak with your provider.

Remain grain-free/gluten-free, dairy-free and soy-free long term, or per your provider's recommendations.

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Maintenance Phase

Other things to emphasize:

- Keep track of your bowel movement frequency and consistency. You should go 1-2 times per day and stool should be firm.
- Diet and lifestyle changes are essential for healing leaky gut. Discuss whether supplements are appropriate for you with your provider.

Supplements

Regulatory Statement:

This test has been laboratory developed and their performance characteristics determined by Vibrant America LLC, a CLIA-certified laboratory performing the test CLIA#:05D2078809. The test has not been cleared or approved by the U.S. Food and Drug Administration (FDA). Although FDA does not currently clear or approve laboratory-developed tests in the U.S., certification of the laboratory is required under CLIA to ensure the quality and validity of the tests.

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