



Dr Wendy Wells
8595 E Bell Rd D101
Scottsdale, AZ 85260
(480) 607-0299

Gastroporesis or “Leaky Gut”

From the mouth to anus is an enfolding of our skin. As you know, our skin contains a layer of cells and microorganisms that protect us. The gastrointestinal (GI) tract has the same. Although it is inside our bodies, it is a protective lining of our internal organs from the outside environment. When in optimal condition, the GI lining blocks the intrusion of pathogenic molecules from entering the bloodstream.

The three functions of the intestinal lining include absorption of nutrients, protection, and immune function.

1. Normally, nutrients and fluids are absorbed into and through the cells in the lining, and between them, through the tight cell junctions. These nutrients get into our blood and feed our cells of the entire body.
2. In some, the protective barrier is damaged and the junctions are wider than they should be. This causes molecules to get into the blood that are foreign to the body. These foreign substances such as food and microorganisms cause an immune reaction. In others, the intestinal cells allow molecules that are foreign to enter, as is the case with Celiac's Sprue.
3. A large portion of our immune system is actually in our GI tract.
 - a. The highest number of T lymphocytes are found here. Normally, properly digested small molecules do not trigger our immune system. Peyer's Patches, or lymph tissue, line our small intestine, and protect us from foreign substances or organisms. When we have a lowered immune system, our GI tract is affected and hence more foreign substances are allowed into the bloodstream.
 - b. The other, very important, immune component involves secretory IgA or Immunoglobulin A. These IgA molecules are secreted by B cells and bind to foreign substances and “tag” them for proper removal by the body. In gastroporesis, or “Leaky Gut”, this secretory IgA is usually decreased. IgA can be measured accurately in the saliva, stool or serum.
 - c. There are over 100,000 billion micro flora (3 ½ pounds) in our intestine. Lactobacilli and bifidobacterium are the most prevalent. When these are at their optimal concentration, they increase secretory IgA, keep Candida and other pathogenic bacteria to a minimum, and decrease inflammation in the bowel.

When any of these three functions are compromised, intestinal permeability can ensue. These foreign substances that enter the blood stream stimulate an immune response

which stimulates cells that produce an inflammatory response in the body. Inflammation can be experienced as pain, swelling, redness, or can go unnoticed until it becomes a chronic problem.

Intestinal Permeability or Leaky Gut → Inflammation → Pain

The liver is also affected by a Leaky Gut. Once these foreign macromolecules enter the blood stream, they go directly to the liver. The function of the liver is to clean the blood. The liver cleans the blood by absorbing the molecules and then “conjugating” them. Then they are transferred into the bile and released into the small intestine. The conjugation process is costly because it produces free radicals which can damage the body. Once this toxic bile goes into the intestines, 10% is excreted and 90% is reabsorbed into the body. It is extremely important to eat a high fiber diet and take fiber supplements to bind to this toxic bile and eliminate it.

If not destroyed in the gut or by the liver, the antigens pass into the blood and produce a systemic reaction.

What causes Leaky Gut?

Food Intolerance

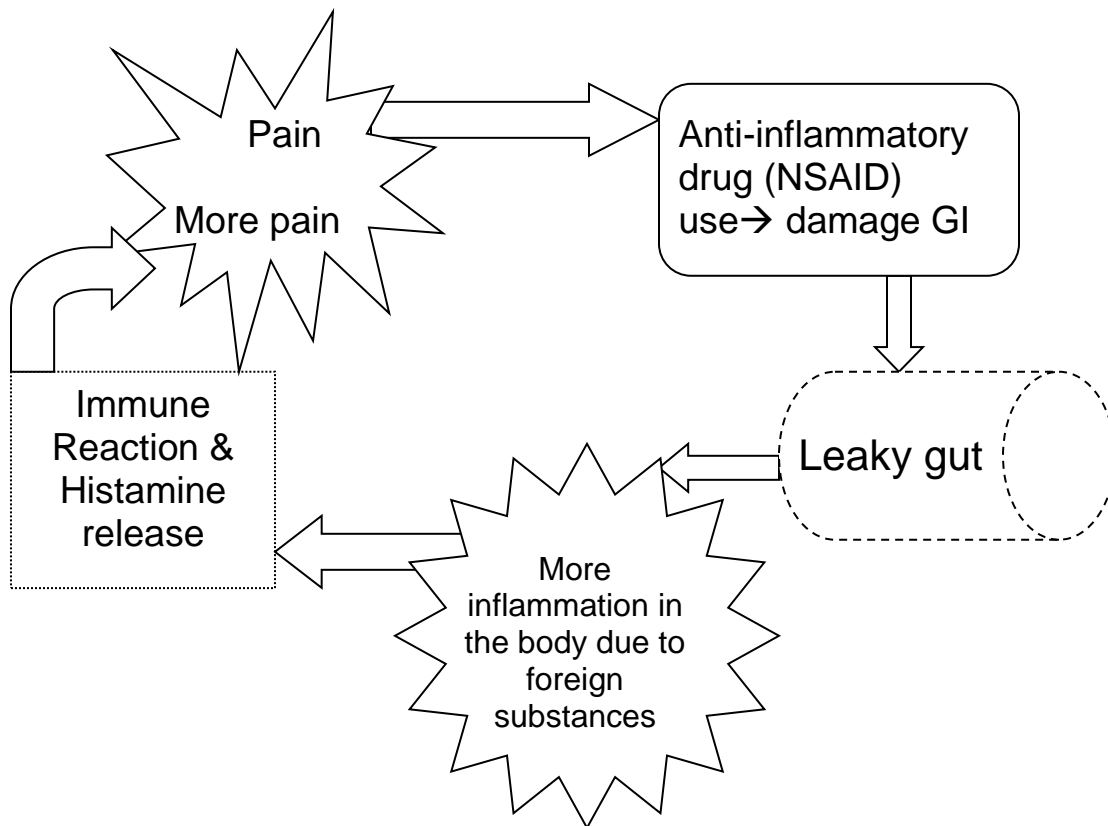
Each individual is unique in how well we digest our food. Some simply do not have the enzymes to digest certain foods. Celiac’s Disease or Lactose intolerance is the classic example. It is a huge misnomer that these people are the only ones with food intolerances. Most everyone has some degree of food intolerance. Food intolerance leads to improper digestion which leads to food particles that putrefy in the GI tract and cause toxicity and inflammation. When people stop eating these foods or food combinations, they feel better! Then when these particles get inside the body due to Leaky Gut, Food “allergy” occurs. This is an IgG, or IgE immune reaction. Both food intolerance and food allergy can be determined by a simple blood test.

NSAIDS

NSAIDS or non-steroidal anti-inflammatory drugs (ibuprofen) bind directly to the protective phospholipid surfactant which allows gastric juices to damage the lining of the GI tract. NSAIDS are well known for their ability to reduce prostaglandins by inhibiting cyclooxygenase enzymes. Prostaglandins can cause pain in the body but are also important for protection of the intestinal lining. They stimulate mucus production in the GI tract and hence keep the harmful fluids away from the cells lining the gut. Reducing prostaglandins by taking NSAIDS is one of the most common reasons for intestinal damage.

Prednisone

Chronic Prednisone use is another cause of Leaky Gut. Prednisone, a powerful anti-inflammatory, also causes damage to the lining of the GI by blocking the mechanism of mucus production and protection. This produces a vicious cycle.



Antibiotics

Antibiotics change the intestinal flora and can encourage overgrowth of pathogenic or harmful bacteria or fungi. These cause dysbiosis and increase the likelihood of leaky gut.

Chemotherapy

Methotrexate is a chemotherapeutic agent which can induce colitis, or inflammation of the colon. This drug inhibits cell growth, and intestinal cells have a high rate of turnover. Therefore, the GI tract is strongly affected by this drug.

Alcoholism

Alcoholics have gastroporesis due to the effects of alcohol on the mucosal lining. In one study, after 15 days of abstinence, the permeability of the intestine was shown to normalize.

Other

Other causes of Leaky gut include surgery, trauma, recent gastroenteritis, aging, low anti-oxidant status. Any kind of stress or mental/emotional imbalances increase cortisol in the blood and cortisol is known to lower the amount to intestinal mucous and thus decrease secretory IgA.

What conditions are associated with Leaky Gut?

Acute gastroenteritis
Ankylosing spondylitis
Asthma
Celiac's disease
Crohn's disease
Cystic fibrosis
Eczema
Food allergy
HIV / AIDS
Inflammatory bowel disease
Irritable bowel syndrome
Migraines
Pancreatic insufficiency
Skin conditions, chronic
Reiter's syndrome
Rheumatoid arthritis
Schizophrenia
Stomach ulcer
Ulcerative colitis
Urticaria

Interestingly enough, many of the above conditions are ones for which anti-inflammatory medications are frequently prescribed.

What symptoms are associated with Leaky Gut?

First symptoms are gas, bloating, cramping after meals, diarrhea, and constipation. More advanced symptoms are lack of concentration, fatigue, headaches, irritability.

How to test for Leaky Gut

Adrenal Stress Index is a saliva test. It measures your level of cortisol which is one of the causes of Leaky gut. This test also measures secretory IgA.

Mannitol / Lactulose test by Genova is a urine test. Normally, Mannitol is absorbed by the intestines where Lactulose is not. If results show > 1% lactulose in the urine, then gastroporesis is confirmed.

Stool culture and parasitology test will tell your naturopathic physician what good or bad organisms are growing in your intestines. Treatment plan can be designed accordingly.

How to treat Leaky Gut

This is only a list; each individual will need a different protocol. Working with a naturopathic physician is recommended for best results.

- Remove the cause
- Reduce stress
- Repopulate your bowel with high amounts of probiotics. A high potency product with 15 to 20 billion bacteria is the therapeutic dose recommended.
- Rebuild gut integrity: Increase secretory IgA (see below)
- Test for food intolerances and remove problem foods
- Exercise!!!
- Take digestive enzymes
- Stimulate healthy mucous production in the bowel using botanical medicine such as slippery elm and marshmallow.
- Lower cortisol levels using botanical medicine adaptogens such as Ginseng, Eleutherococcus, or Rhodiola. Phosphatidyl serine can also be effective.
- Increase insoluble fiber like psyllium or wheat bran
- Support liver with botanical medicine such as Dandelion, Milk thistle, Yellow dock, beets, broccoli.
- Quercetin to decrease the immune / allergic response of food sensitivities
- Multivitamin and Essential Fatty Acids / Fish oil

The following have been shown to increase secretory IgA

- Glutamine is the amino acid that feeds the cells of the intestinal lining. It is also a precursor to glutathione, which is the most important anti-oxidant in the body. Powder form is available and should be taken between meals.
- Medium Chain Triglycerides are found in butter, palm kernel oil and coconut oil. They are available as a supplement. Healthy bacteria / probiotics produce these short chain fatty acids. Like Glutamine, they are food for the intestinal cells.
- Exercise moves the lymph system and therefore helps detoxify the bowel. It's also a wonderful stress reducer due to the stimulation of endorphins.
- Healthy mucous lining can be re-established using botanicals like Slippery Elm and Marshmallow.
- Colostrum is from mother's milk. Mother's naturally produce IgA and deliver it to baby during the first few days of breast feeding.

The most important aspect of the healing process of intestinal permeability is to remove the irritating factors. Next important is to protect the lining and then rebuilding the cells integrity with the nutrients they need. Finally, lifestyle changes that can sustain your gastrointestinal health include a high fiber diet, anti-oxidants, essential fatty acids, a daily exercise regimen and stress reduction.