Natural Approaches

To Leaky Gut

by Neil Wootten BA Hons, MBASES, GPP

Leaky Gut sounds a bit messy, but actually it is not at all. It occurs where there is hyperpermeability of the gut membrane. The gut should, indeed, be permeable to a certain degree to allow nutrients through. Ordinarily, the large intestine acts like a one-way protective sieve that filters out certain food molecules and peptides. In the case of Leaky Gut, the one-way gate of the gut open too wide, allowing an increase in peptide molecules and pathogens, which attract certain cells of the immune system called phagocytes, letting them pass through the gut wall into the intestine. It is the presence of these phagocytes that causes an inflammatory reaction in the gut wall.

I liken it to sieving flour. If you are sieving flour for baking, you need a fine sieve that will allow the fine flour through and keep the lumps out. This is how the gut operates normally; it allows molecules of nutrients through, but stops larger molecules and pathogens getting through into the bloodstream. When the gut becomes too permeable, the effect is like trying to sieve flour with a colander – many more lumps get through. This equates to undigested molecules and particles of food, along with pathogens getting into the body and setting off an immune reaction. Such foreign bodies, circulating in the blood, will sensitize the immune system and often cause adverse reactions to food, showing up as either an allergy or intolerance. These, in turn, can result in a bewildering array of symptoms those with chronic illnesses may be able to relate to:

* Fatigue and malaise

- Arthritic conditions
- Painful muscle conditions
- Fevers of unknown origin
- Food intolerances
- Abdominal pain
- Abdominal distension
- Diarrhoea
- Skin rashes
- Toxic feelings
- Brain Fog
- Shortness of breath
- Poor exercise tolerance

Also, whenever this permeability is increased, IBS gets worse.

How Is It Caused?

Many people suffer from leaky gut and do not realize it. A Leaky Gut can be caused by anything that damages the lining of the intestine – infectious microbes, such as bacteria and parasites, a Candida albicans overgrowth, allergies or even certain prescription drugs, such as antibiotics and particularly Non-Steroidal Anti-Inflammatory Drugs or NSAIDs. This last is a phenomenon that is a well-known and studied side effect of NSAIDs. Even single doses of aspirin or of indomethacin increase cellular permeability, in part by inhibiting the synthesis of the protective fatty acid prostaglandin. Long-term exposure to NSAIDs leaves the gut highly inflamed and permeable.

Whatever causes leaky gut, once the condition has developed, it can be self-perpetuating. The relationship between food sensitivities and the leaky gut is both complex and circular. In experimental trials reported in Allergy in 1989, children and adults with eczema, urticaria or asthma triggered by food allergy show that they have higher gut permeability than those who don’t have these conditions. This indicates that allergies and food sensitivities may be caused by an over permeable gut. Interestingly, gut permeability also sharply increases whenever allergic subjects are exposed to allergenic foods. In all probability what this indicates is that an increase in intestinal permeability is both important as a cause
of food allergy and also the result of food allergy.

**How Does It Affect Us?**

There are a number of physical conditions that are well-recognized by mainstream allopathic medicine as having a relationship to Leaky Gut. These include inflammatory and infectious bowel diseases, chronic inflammatory joint diseases, skin conditions like acne, psoriasis and dermatitis, and many diseases triggered by food allergy or specific food intolerance, including eczema, urticaria and irritable bowel syndrome, and even chronic hepatitis.

Leaky Gut is also very much associated with Candida. The Candida organism can metamorphose in the gut, changing from a simple yeast cell into a much more harmful 'mycelial' fungal form. Under the microscope, the cell appears to sprout roots and branches; these burrow their way into the walls of the intestine, and ultimately can spread throughout the body, with potentially widespread adverse effect. The National Candida Society notes that up to 16 million people in the UK may be affected by Candida-related problems.

Increased gut permeability may play a primary role in causing these diseases, or it may be a consequence of it. But by causing an immune system reaction, liver dysfunction and pancreatic insufficiency, it creates a vicious cycle. In most cases, the role of increased intestinal permeability in these sorts of patients often goes undiagnosed and unrecognized.

One of the latest and most interesting theories comes from health writer Susie Cornell, who postulates that Leaky Gut probably plays a central role in the development of Multiple Sclerosis (MS). In one research project of 40 MS patients, all were found to have a number of nutritional deficiencies, even among those taking supplements. The patients show particular deficiencies of magnesium, manganese, selenium, zinc and mostly all of the B vitamins. This is quite common with Leaky Gut patients. Even patients who supplement with these specific nutrients remain deficient in them.

Because different parts of the intestinal wall absorb different nutrients, damage to the wall in one area may cause poor absorption of one particular nutrient, says Cornell. This is why a patient might show one single deficiency rather than complete malnutrition. The symptoms of B12 deficiency and magnesium deficiency include fatigue, irritability, nervous system disorders, tingling and numbness in fingers and toes and even balance problems. These are among the symptoms that have collectively been termed 'MS'. You may have noticed that some of these symptoms are shared with Leaky Gut.

**Testing for Leaky Gut**

Thankfully, it is a relatively simple exercise to test for Leaky Gut. A safe, non-invasive and inexpensive method called the Lactulose/Mannitol test has been developed to measure small intestinal permeability and also test how well a treatment is working. Claude Andre, the leading French research worker in this area, says that measuring gut permeability is a sensitive and practical screening test for detecting food allergy and responsiveness to treatment.

In Andre's protocol, patients ingest five grams each of the innocuous sugars lactulose and mannitol. These sugars are not metabolized by humans, and the amount absorbed is fully excreted in the urine within six hours. Mannitol, a monosaccharide, is passively transported through the intestinal cell walls; the average absorption is 14% of the administered dose. In contrast, the intestinal tract blocks lactulose, a disaccharide; less than one per cent of the administered dose is normally absorbed. The level of both lactulose and mannitol recovered in urine is then measured.

The normal ratio of lactulose/mannitol recovered in urine is less than 0.03. A higher ratio signifies too much absorption of lactulose and therefore a gut that 'leaks'. If your test shows you have abnormal fasting permeability, you have more gut lining damage than patients with normal fasting permeability and will take longer to heal.

If you come up with a normal Lactulose/Mannitol test result, repeat it after you've eaten a meal of your most common foods. If the test meal produces an increase in lactulose excretion (which signifies a leaky gut) or a decrease in mannitol excretion (signifying malabsorption of food), it's likely that you have specific food intolerances. Further testing for food allergy is then warranted. Once you've been maintained on a stable elimination diet for four weeks, you should repeat the lactulose/mannitol challenge after a test meal with the foods permitted on the elimination diet. A normal result will assure you that all major allergens have been identified. An abnormal result indicates that more detective work is needed.

In the case of relatively mild celiac disease or inflammatory bowel disease, your mannitol absorption may not be affected but the lactulose absorption will be elevated. A recent study published in the Lancet found that the lactulose/mannitol ratio was an accurate predictor of a relapse in patients who'd previously suffered from Crohn's disease.

If your initial fasting lactulose is elevated, or if the initial fasting lactulose/mannitol ratio is elevated, your practitioner should also consider the possibility of mild bowel disease or gluten allergy.

We may have to entirely re-think what we term disease as not something we necessarily catch, but something predominantly under our control, caused by a chronic breakdown of digestive processes. It may be that symptoms we group together into a classifiable disease or syndrome may be no more than the manifestation of one or more nutrient deficiencies, or the results of a hyperpermeable gut. This would mean that the most important supplements we take may not necessarily be vitamins and minerals themselves, but all the digestive enzymes and substances which ensure that our gut properly absorbs and distributes what we eat.

**How To Correct It?**

It is quite possible to cure a Leaky Gut with a nutrient dense diet and appropriate supplements. Many natural substances help repair the intestinal mucosal surface or support the liver when it becomes challenged and stressed by toxins.

We have found the swiftest approach, however, to be the use of Colostrum. Professor Playford of Imperial College and Hammersmith Hospital conducted...
trials on indomethacin-induced gut hyperpermeability, and noted that Colostrum healed leaky gut even while the gut was being attacked by this NSAID. A key growth factor in Colostrum is Epidermal Growth Factor (EGF), a polypeptide that stimulates growth and repair of epithelial tissue that is widely distributed in the body. Purified EGF has been shown to heal ulceration of the small intestine. He noted that the growth factors contained in Colostrum, including EGF, repaired damage to the gut, and should also work to improve inflammatory and ulcerative conditions of the gut. Colostrum also contains Secretory IgA, which is essential to the maintenance of the integrity of the mucosal lining of the gut.

Vitamin and mineral supplements should include all the B vitamins, vitamin A, C and E, zinc, selenium, molybdenum, manganese and magnesium. Because of the association between increased gut permeability and pancreatic dysfunction, pancreatic enzymes may also be needed. It is clearly better, if possible, to avoid drugs that damage the gut. This is not essential if co-dosing with Colostrum, as it heals the gut and keeps permeability at normal levels.

One would think that beneficial bacteria might have a role to play in achieving and maintaining normal gut permeability levels. Currently Lactobacillus casei var GG, a strain of lactobacillus isolated and purified in Finland, has been shown to be effective in improving the gut permeability when this was associated with a rotavirus infection.

Most practitioners recommend glutamine, the amino acid needed for the maintenance of intestinal metabolism, structure and function for Leaky Gut. It has been shown to reverse all the gut abnormalities in patients fed intravenously. Glutamine also repairs gut lining damage caused by chemotherapy or radiation, although we have found clinically that it is much slower to take effect than Colostrum.

**Supporting the Liver**

Because the effects of Leaky Gut greatly increase the load on the liver, it is vital to support proper liver function. The liver of leaky gut patients works overtime to remove oversized food molecules and to oxidize gut toxins, causing increased production of free radicals. This, in turn, causes damage to liver cells and sends by-products into bile, producing toxic bile capable of damaging bile ducts and backing up into the pancreas. Indeed, this may be the cause of chronic pancreatic disease. In attempting to rectify all this, the liver depletes its reserves of certain amino acids. This is similar to the process that occurs in liver diseases caused by alcohol.

A lowered level of liver glutathione is a common occurrence in leaky gut syndromes, and contributes to liver dysfunction and liver necrosis among alcoholics, and immune impairment in patients with AIDS. The most effective way to raise liver glutathione is to take its dietary precursors, cysteine or methionine. A useful supplement to take is N-acetyl cysteine which helps the body to synthesize glutathione at the same time as giving protection from the toxins.

Take essential fatty acids (EFAs), particularly gammalinolenic acid (GLA). In laboratory experiments, fish oil was able to prevent intestinal mucosal injury produced by methotrexate and protect the body from the toxins produced in the gut. Take these in their most concentrated and physiologically active form to avoid exposure to large quantities of polyunsaturated fatty acids.

If you are supplementing with dietary fibre, make sure you are taking hypoallergenic insoluble fibre and watch the amount, as too much may increase gut permeability.

A large proportion of the population have a kind of low-level dysfunction in the gut, called dysbiosis. This is caused by an imbalance of non-beneficial (bad bacteria or yeasts) organisms which mainly do their damage by altering the metabolic or immune responses of the body. The situation where the immune system begins to react to (and destroy) normal gut flora is one example that has been implicated in the development of conditions such as Crohn's disease and ankylosing spondylitis. Recent research suggests that this kind of gut bacterial sensitization is an early complication of altered permeability.

Leaky Gut is relatively common, and when one looks at the possible causes, one can easily understand why. Widely prescribed medications can cause widespread problems. Yet Leaky Gut is also relatively easy to diagnose with a simple Lactulose/Mannitot test, and also fairly straightforward to correct. Once the Leaky Gut is dealt with, one should find a lessening of a myriad of puzzling symptoms. It is important once the gut is restored to a normal permeability to avoid the very things that caused the hyperpermeability in the first place. Equally important is the consumption of a diet and a supplement regime that will help maintain the health of the gut wall. Remember, you are not what you eat; rather you are what you absorb!

**References**


About the Author

Neil Wootten is a qualified Sport scientist who specialises in immunology and nutrition. He has worked in sport since 1986, and now is managing Director of Winning Team Limited which specialises in the manufacture of innovative immune and gut health products. Since both he and his wife suffered from chronic gut problems of which they cured themselves, he also heads up www.gutdoctor.co.uk, and runs an anti-Candida clinic in Cornwall. He can be contacted on winningteam@gutdoctor.co.uk.

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