

# “Leaky Gut” – A Precursor to Illness

By Angela Frieswyk



Often in clinical practice I find myself explaining why I can't just hand over a 'remedy' like the doctor does. This was one such day. My client, a cheeky mid-aged builder, was looking at me blankly when I suggested we change his diet and 'heal and seal' his gut in order to fix his longstanding fungal toe nails. "Haven't you just got some sort of herbal thing I can paint on the ugly buggers ... and my other niggles ... that's just me getting older," he said.

I had to pose the question to him. "If you had a customer with a leaky home, would you just cover up the bubbling wallpaper and mouldy ceiling with a lick of paint."

"No love, that would let a good home go to ruin! You'd have to find and fix the leaks first," he replied.

"Then why do you continue to swallow antacids for your reflux, vitamins for your fatigue, anti-inflammatories for your muscle pain, numerous fungal toe nails treatments, yet struggle to understand why I would want to heal and seal your gut first." The penny dropped.

This is not an uncommon scenario. Frequently I see people unsuccessfully treating a myriad of health symptoms, but fail to address the underlying problem itself. Just like 'leaky home', leaky gut syndrome is somewhat of an inconvenient diagnosis, requiring a lot of back tracking into diet, lifestyle, health and medication history in order to understand why the intestinal lining has become compromised.

## Leaky Gut in a Nutshell

The contents of the small intestine is like an external environment moving through us, held separate from our intimate interior, the bloodstream, by the integrity of the intestinal lining. 'Leaky Gut' is a colloquial term used to describe the increased permeability of the lining of the small intestine. Normally the small intestinal lining only 'absorbs' select substances into the bloodstream, such as amino acids, simple sugars and free fatty acids from digested proteins, carbohydrates and fats.

The small intestinal lining was once

thought to be a solid line up of single cells, with no gaps between each other. As we learnt more it was shown that the intestinal lining had additional inter-cellular portals or doors, known as tight junctions, which under normal conditions are held shut. Then in 2000, researchers of celiac disease discovered zonulin, a protein the body produces which causes the tight junctions to open. When tight junctions open the barrier between the outside world (the contents of the small intestine) and our internal world is broken. Partially digested food, toxins and wastes can move through these tight junctions into bloodstream, where they normally would not be. Unfortunately this movement can also include bacteria and other pathogens that have survived stomach acid and other digestive juices.

Once foreign substances are in the bloodstream it is the job of the immune system to mount an attack. In many people the opening and closing of the tight junctions is temporary and the immune system copes with the intrusion well enough. But if zonulin causes the tight junctions to stay open for too long, or get stuck open (like in the case of unmanaged celiac disease), the immune system becomes overburdened and eventually becomes dysfunctional. When the immune system is overburdened we become more susceptible to chronic infection (eg fungal, bacterial, viral or parasitic), inflammatory damage, the development secondary dietary or environmental sensitivities, plus we experience effects of accumulated toxicity as the liver struggles to keep up with detoxification.

This is thought to be one of the key steps in the subsequent development of autoimmune conditions where a dysfunctional immune system begins to attack its own body cells, particularly in genetically pre-disposed individuals. Hence leaky gut has been associated with psoriasis, rheumatoid arthritis, MS, diabetes, autoimmune hepatitis and so on. For those who are interested digging even deeper, there is a connection between leaky gut, leaky lung and leaky blood-brain barriers, all of which contain the similar tight junctions. While we are in the infancy of understanding the

mechanism, this is not surprising given the neural connections between the gut, lungs and brain. We see evidence of this with gut related problems typically co-existing with conditions such as asthma, depression, learning, behavioural and autistic spectrum disorders.

## Zonulin, SIBO and Gluten

Why would the body make zonulin to open the tight junctions when this results in so many consequences? The complete understanding is perhaps still unfolding, but so far it is known that in all people zonulin is produced in excess when bacteria are displaced into the small intestine, otherwise known as 'Small Intestinal Bacterial Overgrowth' or SIBO in short. Normally bacteria do not inhabit the small intestine as they are not meant to survive the lethal effects of stomach acid and other digestive juices. But when bacteria manage to escape this initial defence, they can colonise in the small intestine, a food rich environment where they rob us of nutrients and create toxins.

It is proposed that zonulin is the body's backup plan to SIBO. By releasing zonulin which then opens the tight junctions, fluid from inside the intestinal lumen moves into the small intestine, diluting the bacterial toxins and helping to flush them out into the large intestine. Like most backup plans this comes with a compromise ... undesirable substances also gain entry into the bloodstream.

If we think back in evolutionary terms to Palaeolithic man, (whose diet has gained some long overdue attention), SIBO would not have been a great issue due to the robustness of their digestive defence system (eg good stomach acidity), coupled with a fibre rich hunter/forager diet that supports beneficial gut bacteria. About 10,000 years ago (recently on an evolutionary scale) humans introduced grains into their diet. As many readers will already be aware, not only do grains contain anti-nutrients such as lectins, grains also exhaust the digestive juices and hence lower the digestive defence system. Excessive carbohydrates (typically from grain and sugar) also feed bacterial overgrowth in both the small and large intestine.

The grain story does not finish here. Gluten (or more specifically gliadin) from wheat, rye, oat and barley grains, has been proven to directly stimulate zonulin release. Research has shown that this is especially so in coeliac disease, but also occurs in every one of us. It could perhaps be said that we are not evolving with gluten containing grains, we are 'de-evolving' as a result of them.

### **Why Then Can Some People Tolerate Gluten?**

A saving grace of zonulin release is that its effects are usually short lived, doors open, doors shut. This would result in a short-lived invasion for the immune system to deal with (unlike established SIBO) and is perhaps why many people get away with eating a moderate amount of gluten, particularly if their immune system is still healthy enough to not become overwhelmed. However, the modern diet is no longer moderate but continually loaded with gluten, often at every meal, regularly stimulating the gap junctions to open. The problem has intensified as humans have hybridised grains to maximise the gluten content for making the fluffiest baked goods on the planet.

### **Lectins, Nightshades, Alcohol, Medication and Stress**

Other substances also contribute to leaky gut and again whether or not these cause problems can come down to the frequency of intake and our underlying health. These other triggers include lectin containing foods (legumes, beans and grains ... a double whammy for grains, rice is the least problematic); potatoes, tomatoes, chili (nightshade plants); alcohol and many medications. Stress has an indirect but hugely significant role in the development of leaky gut.

### **Dairy and Other Secondary Sensitivities**

Dairy has many other issues (beyond the scope of my word count!) but in the context of leaky gut, may well be a secondary sensitivity. Secondary sensitivities can occur to any substance that is loaded in the diet of a person with leaky gut. The immune system is then frequently exposed to partially digested food complexes and eventually sets off inflammatory reaction to the presumed foreign substances. I frequently see leaky gut clients suffering from sensitivities to foods they were once able to eat. These need to be identified either by exclusion and reintroduction, or trial alternative diagnostics such as EAV when this is too difficult.

### **The Four 'Ps' of Preventing Leaky Gut** Physiological – Maintain good stomach

acidity to maximise your gut defence against bacteria and other pathogens. Lowered stomach acidity, while often a result of aging, is hastened by an over-refined, over-cooked, grain laden diet. Of particular concern is the growing inappropriate use of stomach acid suppressing medications such as omeprazole (which is sold under a variety of brand names including Losec), lowering acid production by as much as 95%. [Ed note: For an excellent article on the health issues associated with stomach acid suppressing medications, please see Angela Frieswyk's article in issue 7 of this journal.] If we eat the diet we are evolved to cope with our 'digestive fire' will be much better supported. Such a diet would predominantly include organic vegetables, fruits, wild sourced and non-contaminated fish/seafood, organic free-range poultry, eggs, pasture fed meat and a small amount of soaked nuts or sprouted seeds. Not only will this remove the grains that we 'don't stomach well', it largely removes lectins, pesticide and antibiotic residue (factory farmed animals) and genetically modified food (eg corn genetically engineered by Monsanto to produce the Bt pesticide has been implicated with leaky gut).

To additionally support digestion: Include something raw with each meal. Include bitter greens such as endive, rocket, cress and young dandelion leaves regularly in salads. (If you already suffer from leaky gut, then work with your practitioner on a tailored healing diet first, as often those with leaky gut will not be able to handle raw foods until a significant amount of gut healing has been established). Dress salads and steamed vegetables with cider vinegar or lemon juice. Take a bitter herbal aperitif (eg gentian or Swedish Bitters combination) just before meals to stimulate the release of gastric juices. A complete ionic mineral salt supplement (eg CMD Mineral Drops) can also provide the body with Cl ions for making HCl (stomach acid). Some people may require a stop-gap solution such as digestive enzymes or betaine hydrochloride (use with meals), but ultimately it is ideal to restore your own endogenous production where possible.

**Pathological – Preventing SIBO** (SIBO may be caused by *Candida*, *Salmonella*, *Clostridia*, *Streptococci*, *Staphylococci* and so on).

Good stomach acidity is key to preventing this problem, as is preventing an overgrowth of bacteria in the bowel (dysbiosis). To help prevent dysbiosis avoid excessive

sugar, refined carbohydrates (typically grains), excessive alcohol, unnecessary antibiotics and antibiotic contaminated foods. A diet rich in vegetable fibre will support healthy gut flora, as can fermented prebiotic foods such as sauerkraut, naturally fermented miso, home-made pickled vegetables and chutneys (if you already have leaky gut work with your practitioner on the gut healing process before introducing fermented food). A probiotic supplement is required to do 'catch-up' in most people coming off a typical western diet or medications that have already hindered gut flora. Prebiotic foods should be ongoing, whereas a probiotic supplement maybe cycled (eg month on, month off, or according to health needs).

**Psychological:** Stress is a significant contributor to poor digestion and an inflammatory immune response, both associated with leaky gut. In the immediate term stress switches us out of digestion mode and into 'fight flight' mode. This also diverts blood flow away from the intestinal lining compromising oxygen and nutrient supply essential for fuel and repair of the lining. Stress is nothing new to human physiology however stress is now different, an unrelenting pace and high expectation of modern life. Frequently so busy we often don't even stop to eat in real peace. In particular, the effects of our chronic stress hormone 'cortisol', will hasten the consequences of leaky gut as it is involved with the dysfunction of the immune response. So take action with whatever stress management technique works for you ... breath work, meditation, music, yoga, exercise, holidays, etc.

**Pharmacological:** The main medications that are associated with the development of 'leaky gut' are regular or prolonged use of antibiotics (including tetracycline used for months on end for teenage acne), anti-fungals (eg Nystatin), non-steroid-anti-inflammatory drugs (eg aspirin, ibuprofen, paracetamol), steroids (eg prednisone and cortisone) and chemotherapy drugs. Other medications have an indirect role in disrupting gut flora, these include oral contraceptives, anti-acids and even sleeping tablets. A big part of my work is often finding, when possible, a long-term strategy to help patients come off medications, or in the least minimise their side-effects.

**Fixing Leaky Gut – The final 'P'**  
There are several staged steps in 'fixing' leaky gut. Most important is to

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## Stay Healthy by Supplying What's Lacking in Your Diet (9th edition)

By David Coory

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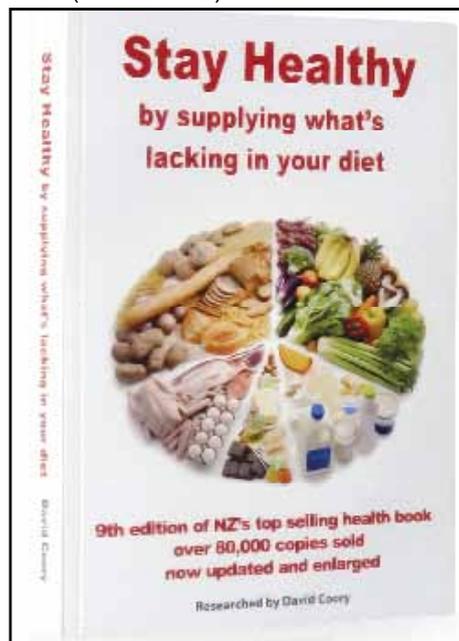
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Do you live to eat or eat to live?

For people who live to eat without giving much thought to it, this book will be a revelation. In fact, it is the ideal book to give to someone who has been eating without any consciousness of food as a source of nutrients.

Written to help people make better food

choices, it explains the key nutrients in food – protein, fats, carbohydrates, vitamins and minerals – and lists the amounts of these nutrients in common foods. The discussion of dietary fats and sugars is particularly useful, with a table that illustrates the different proportions of fatty acids in each common cooking or salad oil so that you can tell at a glance whether an oil is, for example, high in omega 6 or omega 3. This sort of information can be used to help balance your intake of fatty acids and avoid the common contemporary dietary mistake of a diet that is too high in omega 6 fatty acids.

Author David Coory advises against making drastic changes to eating patterns, pointing out that if your food choices have been less than optimal, changing your diet gradually gives you time to adjust to new foods and ways of eating – and is likely to lead to long term success in maintaining a better diet and consequently improved health. He warns against fad and unbalanced diets, citing a cautionary tale of a friend “who lived for some days mostly on oranges growing on his property. He eventually collapsed into a coma and was taken to hospital and diagnosed with full blown type 2 diabetes. Yet he had formerly enjoyed normal health. It was an apparent case of fructose overload, causing insulin resistance.”

Consuming large amounts of fructose (fruit sugar) can have other adverse effects, as “... new research has discovered that when a large amount of fructose is consumed at once, one third of the converted glucose is not used for energy but is directly converted to fat. Dr R Lustig, Endocrinology Division, University of California states: ‘120 calories of fructose results in 40 calories being stored as fat.’

“Too much fructose can also interfere with leptin, our appetite regulator, resulting in overeating. Excess fructose can result in a serious and common condition known as insulin resistance. This is a major cause of cardiovascular disease, Type 2 diabetes and even brain disorders such as Alzheimers. It also raises uric acid levels and can trigger gout.”

Fruit is of course a source of fructose, hence the problems experienced by the man who lived on little else but oranges. In practical terms, modest intake of whole fruit is not usually a problem; it is guzzling fruit juices and soft drinks (often sweetened with high fructose syrup) that can easily increase fructose intake above the level the a body can comfortably handle.

Coory advises on how to overcome “comfort eating”, and this book also includes a useful discussion of attitude and health. David Coory recommends using affirmations as a useful tool to maintain (or regain) a positive outlook on life:

“It may feel foolish at times, but mental affirmations, repeated with enthusiasm, several times daily have proven to be powerful and effective in rapidly swinging our minds from unhealthy negativity, to health promoting positivity.

“Affirmations can be repeated mentally, spoken out loud, written down or read. One historic favourite is: ‘Every day in every way I am getting better and better.’”

Summing up, this is a book that embodies a commonsense self-help approach to maintaining or regaining good health and would be a valuable addition to any family’s library.

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remove gluten and other foods/substances that are causing secondary sensitivities, while also carefully treating SIBO with appropriate anti-microbial herbs. During this process healing and anti-inflammatory gut support is required (I frequently use glutamine, aloe, turmeric and zinc containing formulations, but many other healing herbs and nutrients are also employed here). Physiology needs to be addressed, this may include improving digestion, stress, hormonal balance, nutritional deficiencies and side-effects of medications. This is not a condition that can be treated by a format protocol sourced from doctor Google. So the final ‘P’ for ‘fixing’ leaky gut is:

Practitioner - Find your nearest experienced practitioner who understands leaky gut and all its implications, and most importantly, in context to your own health history. With the right treatment, diet plan and motivation to stick to a sometimes lengthy healing journey, a major turn-around for many aspects of health can be achieved.

My client, introduced at the beginning of this article, has now been doing four months of gut healing, which included one month of anti-microbial treatment and ongoing gut flora support. He has gone gluten free and is eating a ‘slightly compromised’ version of the Palaeolithic diet. He no longer has reflux, so he has stopped Losec; his muscle pain is significantly reduced and he has been two months mostly without painkillers .... And he was very excited to report that not only is he seeing signs of healthy new toenails, he’s also got his libido back and a happy wife!

### ABOUT THE AUTHOR

Angela Frieswyk is a registered Medical Herbalist and Clinical Nutritionist based in Tauranga. She has been in private practice for 12 years, practicing within an integrated Herbal Clinic, Dispensary and Pharmacy. Angela also teaches ‘HerbWiseNZ’ traditional herbal medicine-making workshops. For private consultations Angela can be contacted on 021 0256 5070 or visit her website [www.herbalist.kiwi.nz](http://www.herbalist.kiwi.nz)