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Gut Treatment Protocols: Leaky Gut - Part One

Hey, everybody, in this section we're going to discuss treatment protocols for intestinal permeability, or leaky gut. As I mentioned in the section on diagnosis, intestinal permeability can be both a cause and an effect of gastrointestinal problems. In my experience, it's almost always a result of a deeper problem that must be addressed, like SIBO, parasites, infections like H. pylori, dysbiosis, food intolerances, etc. But once intestinal permeability is present, it can contribute not only to GI problems, but to systemic issues like autoimmunity, skin conditions, neurological and cognitive disorders, Alzheimer's, Parkinson's, ADHD, autism spectrum disorders, fibromyalgia, and more. Like IBS or IBD and GERD, the key is to address underlying mechanisms that contribute to intestinal permeability. But in some cases, additional attention may be required even after that has been done, although this is pretty rare in my experience. We don't even tend to test for intestinal permeability until after the treatment of other conditions.

The very beginning of the gut treatment unit, I said that treatment progresses in two steps. Step one is to address the underlying pathologies, and then step two is to restore a healthy gut ecosystem. So the treatment of intestinal permeability's no different. If you choose my strategy and only test after the underlying issues have been addressed, you've already done that work. If you do choose to test upfront, I still recommend addressing underlying pathologies first. Step two is similar for intestinal permeability as it is for other conditions. You do everything that we're going to talk about and we have talked about to restore a healthy gut ecosystem. So you do this with diet and nutrition, prebiotics, or fermentable fibers, and probiotics primarily, but there are some supplements with a particular effect on restoring the gut barrier, and there is also some medication that's being explored for that purpose.

So let's start with diet. If you've addressed the underlying pathologies, the patient's already on a Paleo template diet, but they're still having symptoms and you haven't done this yet, I would run Cyrex Array 3, Array 4, and Array 10, and then I would have the patient remove the foods that have been identified as either equivocal or out of range on these arrays for 60 days. Sometimes even after you've treated the pathologies, the food intolerances unfortunately persist, and if they do and the patient continues eating them, it could continue to trigger intestinal permeability.

I'm still not convinced that permanent removal of all these foods is necessary in all cases. In my bonus interview with Dr. Vajdani, he said he believes if someone tests positive for an antigen that cross-reacts with gluten, like dairy or corn, it should be removed forever. But I believe it may still be possible to re-introduce other foods like carrots, berries, etc., if the patient tests positive for them, and I think it's worth pointing out that I have actually had patients that have tested positive for cross-reactive antigens like dairy products or corn, and we've healed their gut and taken steps to restore their gut barrier integrity, and then we've retested them a few months down the line after doing a challenge with corn and dairy, and they're not producing antibodies. So I am reluctant to have patients remove foods from their diet forever when that happens, but I would say perhaps the jury is still out to some degree on this question. I'd like to do additional time series testing with patients to determine this on a broader scale, so that's something that we're planning to do. At a minimum, though, patients should remove foods while they're healing their gut barrier and as long as they are positive on the Cyrex arrays.

Specific nutrients play an important role in regulating gut barrier integrity. Vitamin A is one; it regulates the growth and differentiation of intestinal cells. Vitamin A deficiency has been shown to cause alterations in commensal bacteria and to impair the gut barrier by changing mucin dynamics and expression of defense molecules like MUC-2 and defensin. Vitamin D also plays a role in barrier function, and vitamin D deficiency has been correlated with the severity of inflammatory bowel disease and is characterized by intestinal permeability. Experiments with mice suggest that vitamin D deficiency might cause mucosal damage and compromise barrier function. If the patient's not already taking cod liver oil, that's a fantastic source of both vitamins A and D in their natural whole food form.

Zinc supplementation has been shown to improve mucosal repair in patients with diarrhea, as well as paracellular permeability in malnourished guinea pigs. Low doses, like 30 to 50 milligrams per day, don't seem to be effective, however. Treatment in these studies required a very high dose, which would be the equivalent of 110 milligrams three times a day for eight weeks. So that's 330 milligrams a day total for eight weeks, a much higher dose than is typically used for other treatment protocols. One important note here is that high-dose zinc supplementation for a long period can cause copper deficiency with pretty serious consequences, so if you use high-dose zinc, you must ensure that the patient does not continue taking that dose beyond the treatment protocol. And I can't emphasize this enough, I see so many patients who come into my clinic who started on a therapeutic dose of a particular supplement, but they were never told to stop that, and they end up having toxicity of that particular nutrient, so please do keep that in mind.

We discussed short-chain fatty acids earlier in this treatment protocol section. They include acetate, propionate, butyrate, and valerate, and they're produced by the fermentation of nondigestible fibers by colonic bacteria. Butyrate appears to play an especially important role in regulating barrier function. Low butyrate causes tight junction lesions and impaired intestinal permeability. Likewise, treatment with butyrate has been shown to lead to recovery in transepithelial resistance, which is associated with maintenance of tight junction integrity and inhibition of TNFa release. So as discussed in the inflammatory bowel disease, IBD, section, you can supplement with butyrate, but the best way to increase butyrate over the long term is to increase our consumption of fermentable fiber and possibly use prebiotics, and we're going to talk about that more in the prebiotics/probiotics section.

If you do choose to supplement with butyrate, there are a few different options available. Butyrate is available in calcium-magnesium form, or sodium form, or sodium potassium form. I prefer the sodium potassium form, because the dose of calcium and magnesium that a patient would get if they take a therapeutic dose of cal-mag butyrate is very high, something like 750 milligrams of calcium per day, and given what recent studies have shown about the possible adverse effects of calcium supplementation, even at much lower doses like 200 milligrams a day, I'm really reluctant to advise the patient to take that much calcium. Many patients are deficient in potassium, and while excess potassium certainly can have its own risks, I think it's less of an issue for many patients because they're more likely to be deficient in potassium. There is an enteric-coated form of butyrate that may be better at reaching the small intestine, but unfortunately it also has high doses of calcium. Most of the enteric forms that I've been able to find are cal-mag butyrate and they have the same issues that we just discussed.