How To Combat Chronic Inflammation With Therapies Transcript

(Transcripts are generated by AI and may contain errors)

Introduction and interview overview

Welcome to the conquering Chronic Inflammation Summit. I'm your host, Dr. David Jockers. And today, I have the honor of interviewing my good friend, Dr. Michael Ruscio.

He is the bestselling author of Healthy Gut Healthy You. He has the Future of Functional Medicine practitioner newsletter, Dr. Ruscio radio, which is a fantastic podcast, and he has functional medicine formulations.

His website is drruscio.com Today we're talking about you biotic and neurological therapies to combat chronic inflammation and reactivity. We're going to go into detail on the small intestine and why that is such an important area when it comes to understanding how the immune system can get hardwired for inflammation.

We're going to talk about the limbic system part of the nervous system. That is very important to understand when it comes to a chronic inflammatory response.

And of course, the best strategies to help improve your gut health, to help improve your nervous system, and to help reduce chronic inflammation in general.

You guys are in for a treat here. And please share this with anybody that you know and that you care about. And let's go into the interview. Well, Dr. Michael Ruscio always great to connect with you.

We've had some really great, great conversations in the past about probiotic FODMAPs, gut health. And today I'm excited to talk about the small intestine in particular and its relationship to chronic inflammation, and also the nervous system and how the nervous system relates, particularly part of the nervous system called the limbic system.

So I'm going to go into more detail there. But always great to connect with you guys. You got to check out his website doctor ruscio.com. A lot of great content there and his great podcast Dr. Ruscio radio.

And so Dr. Ruscio, let's start with the small intestine. Why should that be a major area we look at when it comes to anybody that's dealing with autoimmune or chronic inflammation?

Why the small intestine matters for inflammation

Sure. Well, thanks for having me back. I always enjoy chatting. and you know, when you look at the anatomy, the small intestine is 22ft in length and the large intestine is five feet.

Ironically, the small intestine, it's actually much longer and 95% of calories and nutrients are absorbed in the small intestine. And it's where you have the most absorption and therefore the most immune surveillance.

So things like leaky gut and inflammation are going to predominantly curr or, you know, occur in the small intestine. So, it's such a crucial kind of centerpiece of digestion.

And it ties to inflammation because when things like leaky gut occur or overgrowth, it's the immune system and the resultant inflammation that polices that membrane or that barrier.

And so this is how people may say, well, I was feeling good. I ate something, felt bloated, and I felt foggy because of this sort of systemic, inflammatory, effect that can happen if the small intestine isn't in, in good shape.

So, yeah, it's it's a quite important part of our GI system. Yeah, absolutely. And how is the intestinal lining? I know, you know, a lot of times we talk about the intestinal lining.

We'll talk about how it's one cell right. Held in by tight junctions. Does that change. Does the I guess you could say the the thickness of the intestine change as we move from the small intestine into the large intestine?

Or is it one cell all the way through? I'm fairly sure that the large intestine is quite a bit thicker than is the small intestine, due to the fact that you're not really having as much absorption there.

Right. So the small intestine, the way that our body's designed, it's really built for absorption. Right. in a sense, why it's only one cell that's separating the actual intestine from the bloodstream, whereas a large intestine is a little bit thicker. So more of a barrier there.

and so, you know, why would that be? Why, you know, thinking about just our ancestors. why would you know? Our small intestine only have one cell? Yeah. Yeah.

I love this question. And, you know, if you look at the GI anatomy of a ruminant like a cow, they have long, small intestines and long, large intestines, and they need the longer, large intestine to ferment because eat such rough grasses and things like this.

So they're really dependent upon bacterial assistance to sort of co ferment and break down the foods. But when you look at carnivores, they have much shorter, large intestines.

They don't use bacteria as much because the meat is much easier to assimilate. And therefore we don't need all of that bacterial assistance with a really long, large intestine where the bacteria can kind of go to work on processing all that food stuff.

And then omnivores, which is what we are kind of in the middle where we have a small intestine predominated system. There is a large intestine because we are omnivorous, but because things like ripe fruits, starches and, meat are technically easier to digest, the small intestine just goes to work on pulling out as much nutrients as they can without requiring all of that assistance to kind of, again, like ferment as a cow would in, in the colon or in the large intestine.

Yeah, that's a great explanation. And also throughout the history of mankind, we had a lot of times of famine where, you know, food was scarce. And so when we got food, we wanted to maximize absorption, right?

So whatever we ate, we wanted to get maximal absorption versus, you know, today's day and age were always in abundance. Right? Food is, you know, you and I have pantries full of food.

We could last, you know, easily a week without ever going out to actually get any food. And so people can eat literally eat all day. And so we have abundance.

We don't need to prioritize absorption now actually detoxification or in sense protecting our bloodstream from perhaps chemicals, different things that may be in the food seeping into the bloodstream, is more important, right, than, than absorption to a high degree.

but that's not the way it was throughout the history of mankind.

Gut symptoms, absorption, and signs of dysfunction

So in a sense, our small intestine is not really built for what we're dealing with today in first world countries. Yeah. And we can build upon that. There's this theory known as the minimal foraging theory.

So for hunter gatherers, the less you have to walk around to procure food, the the better. And part of that meant the more calorically dense the food was, the better.

Because if you, you know, if you walked ten miles to harvest broccoli, there's not a ton of calories in broccoli. But if you killed a large game animal, there's much more calories per unit of weight.

and yeah, now it's sort of the opposite where there's all these high calorie foods in abundance. And it does pose a problem for sure. Yeah, absolutely.

And so what are some telltale signs that people are having inflammation that perhaps is stemming from the small intestine. Right. Well, this is challenging to answer because it's very nonspecific.

But we can do it sort of like a quick scan brain fog is one as can be depression and anxiety coming to the thyroid gland. It's possible that someone's on thyroid medication, but they're having inconsistent symptoms and levels because they're not absorbing the thyroid hormone consistently.

We actually published on this last year. so that's something for people to be aware of. If you are hypothyroid and on medication and or like, you know, my, my levels are in flux and I can't ever feel as though it's working symptomatically.

It could be that that levothyroxine and or arm or whatever you're taking, it's not consistently absorbing in the small intestine. And therefore your levels and your symptoms are, kind of all over the place.

adrenal dysfunction. There was a really interesting study by Ford last year that found using probiotics for IBS actually led to, regulation of the cortisol awakening response.

Sorry. The author on this one was, was Quigley. So the cortisol waking response, probably the most accurate way of assessing cortisol. And they found that people who had IBS so gas, bloating, indigestion, pain, diarrhea, constipation, they had abnormally low levels of cortisol in the morning a low awakening response.

You want that cortisol to be high in the morning. So you get up, you get out of bed, you get on with your day and if you don't have that cortisol awakening, you can feel like, oh, you know, I need that cup of coffee or I it takes me like two hours to get going.

What they found was after they treated a group of people who had IBS, their cortisol levels normalized. So it's pretty, pretty phenomenal. So even something like adrenal hormone output and the resulting energy can be implicated.

And then of course gas, bloating, diarrhea, indigestion, constipation, bloating, pain those are telltale signs. But you may even have something like joint pain skin eruptions that you can't figure out why you're having those.

So symptoms alone are kind of tough, but you can look for correlation. Like I was saying earlier, you may unless you're feeling well, you eat something, you have something like, let's say, bloating, and at the same time your joints feel kind of inflamed or you feel foggy.

You know that that's one of the ways to sort of look to see. Is it the gut that's driving this? And just for some figures, IBS affects 15 to 20% of the US population and then a broader category known as functional gastrointestinal disorders.

So we can put non IBS, constipation, reflux Gerd in there. That can be up to 40% of the US population. So you know, it's not an uncommon thing for the gut to be involved in, in driving any, any one of this sort of wide list of symptoms.

Yeah, I mean, I had it that's my story. I had IBS back in my early 20s as a personal trainer. And that's really what got me into actually natural health functional medicine that, led me into it because I had to use that in order to get well, naturally, because modern medicine really didn't have good answers for me.

And, you know, one of the things that I use was probiotics, which, you know, back in the early 2000s, it's like probiotics were amazing. That was, you know, one of the, not it was it was not talked about often, but you could find it at a health food store.

And they were very effective. and they still are. And I know you've done a lot of research. We've had conversations about probiotics. you're one of the few practitioners that really likes to talk a lot about probiotics.

Used to be real popular 15 years ago. you know, in the natural health space now, people are talking about all kinds of other things, kind of overlooking.

Yeah. Some of the great benefits of probiotics. But what are you seeing with probiotics and what are some of the mechanisms for how probiotics help improve small intestinal health?

Right. Well, firstly, I wish I was in your boat because when I was going through my gut health disarray, it didn't really come up. It was antimicrobials, antimicrobials, antimicrobials, which is all fine and good.

And that's a part of the toolkit, an important part. But boy, to your point, yeah. Like it was just not really discussed, at least in the circles that I was in, which is unfortunate. Right.

But now, you know, probiotics are getting much more recognition. And also, I agree with you that other things, you know, there's always a thing of the thing in vogue, whatever it is.

How probiotics support small intestinal health

but man, there's a lot, a lot of research on probiotics. There's hundreds of clinical trials, dozens of meta analyzes summarizing these clinical trials.

And they work in a few different ways. The one thing that I think is underappreciated about probiotics, they're antimicrobial. They fight Sibo over ten clinical trials have found that probiotics can eradicate Sibo, which is amazing, right?

You don't necessarily need herbal antimicrobials or an antibiotic. Yeah, most people think Sibo oh it's too much bacteria right. So with Sibo, you know, like you had mentioned earlier, it's like we have a high propensity of bacteria in our large intestine.

We should have a much lower population of bacteria in the small intestine. And when the bacterial levels increase in the small intestine, that's going to contribute to a lot of these symptoms that we talked about.

So the idea is, hey, if we're throwing more bacteria in there, that that shouldn't be good, right? If we're trying to, you know, if we already have too much in the small intestine.

But like you said, it's got this antimicrobial effect where the probiotics in there are actually helping either. Either it's the probiotics killing the bacteria or maybe they're stimulating the immune system to reduce bacterial populations.

Yeah. I mean very well said. And thank you for defining Sibo. Sometimes I just jump right into the nitty gritty. and ironically, the probiotics might be the most needed in the small intestine for the very reasons that you're raising, which is not only are they antibacterial through release of things like bacteria sins, but they also modulate the immune system.

We have all these receptors, as I know, you know. Right. But things like toll, like receptor for that regulates leaky gut that can be positively stimulated.

And you can resolve leaky gut also with probiotics, which has been shown in a meta analysis in Frontiers in Immunology, published just last year, 2023.

Super exciting. and then along with that, they seemed to improve probiotics. That is food tolerance. And that's part of the immune system. And this is where most namely in lactose intolerance, it's been demonstrated that probiotics can improve lactose tolerance.

And part of this might be due to the fact that inflammation in the intestine may impede your local release of enzymes, and this might be why the lactose tolerance improves.

This is more theoretical, but at the lining of the intestine is damaged where you release these enzymes and part of the enzymes come from the brush border or the sort of villi.

If they're damaged, they can't release the enzymes. If you can't really see enzymes, you can't put down the food. If you can't put in the food, the bacteria end up breaking it down.

Right. And this is why people can have things like diarrhea because of excess fermentation and gas. And this sort of causes, this purging sort of effect.

and motility. There's some really impressive research showing that probiotics are pro motility, and then coming back up to the brain. And in some of the research that has found improvements in activation of the limbic system, one really elegant study, and this is the one by Ford, they found that giving people probiotics improve their IBS symptoms.

So less digestive symptoms. But at the same time the amygdala was less activated. So this part of the brain inside the limbic system that regulates the fear response.

And I think for a lot of us with gut symptoms, that fear response is a big deal. Meaning you care about your health, but you're motivated. So you're reading books, you're watching videos or listening to podcasts, and you hear about lectins, oxalate, salicylates, FODMAPs, gluten, dairy, processed foods, you know, sweeteners and before you know it, you're just afraid of almost everything.

And it's the limbic system that's regulating that fear. And it can be turned up too much. So what's really interesting is that probiotics also seem to have a mechanistic benefit in the brain by attenuating this limbic system that kind of keeps people both psychologically on guard, but it also keeps her immune system too much, of sort of being on this alert status and can be part of the reason why people have food reactivity.

So that's that's just a few. but I think some of the more salient mechanisms regarding probiotics. Yeah. And, have the researchers identified a mechanism for its impact on the limbic system?

I know when I think about brain inflammation or inflammation in the brain, which can very much be tied to gut inflammation, I think of a distorted glutamate to Gaba ratio, meaning glutamate, which is the excitatory neurotransmitter.

Basically, like the gas pedal, which is important because that helps us think sharply and quickly. But we need it balanced by the brakes, right? Just like we're driving a car and that's Gaba and so when we have brain inflammation, we end up with over excitation or hyper excitation in the nervous system, which can then cause obsessive thinking which can cause anxiety or debility, things like that.

So I guess just my hypothesis would be perhaps balancing that glutamate to Gaba ratio, right, by bringing down the brain inflammation and creating more of a balance. There.

that might be the mechanism for stabilizing the limbic system. Yeah. And part of what's involved in that might be the barrier systems tend to function together.

The gut barrier in the blood brain barrier. So all part of this same sort of cascade of when things are good, they're good, and when they're bad, they're bad.

But thankfully the empowering takeaway is there's a lot we can do to make things better if they're currently not good. Yeah for sure. And then you also have endotoxins like for example, lipopolysaccharide, which are known when that gets to a certain threshold in the blood to for for many individuals, not necessarily every individual, but to to open up the blood brain barrier and cause more brain inflammation and, you know, probiotics have been shown

to reduce LPs levels in the blood.

Yeah. And that's the meta analysis from Frontiers in Immunology. They tracked a few different markers of leaky gut. They looked at LPs. They looked at cytokines, and they looked at both blood and stool.

So different ways of test, all different ways of testing leaky gut. and maybe I'm just jumping the gun here, but they didn't find that stools online was inaccurate marker.

So whenever you want to sort of unpack that because it has implications, obviously, for clinicians like us who are doing stool tests. And that's an offering.

The stool on urine test, apparently that's not a very accurate marker. Yeah, it's good to know. And Xinyu Lin is a so it's a protein that's associated with creating more permeability in the gut, meaning kind of opening up those tight junctions, which, you know, if you're in a time of famine that helps you absorb nutrients.

But again, going back to that idea that in our society, we're not we're we're consuming plenty of food, we actually have to protect ourselves from all the chemicals and toxins that are in the food.

So we want, in a sense, less permeability. Right? So that would be the idea there, higher zonal and more permeability. What you're saying is testing stool zonal and really not it's not showing, consistent results.

Is that is that where you're going there. Well, yeah, that's what was insightful about this study because they looked for agreement across all these measures.

Right. Did did the LPs or they measured the actual leakage of particles, did the LPs and the cytokines or the inflammation, inflammatory markers and the bloods on and and the stool is uneven today I'll change Pre-Post intervention.

You know, was there a good correlation? And they didn't find that the stools aren't even correlated, which was news to me. Right. but this is why we do many analyzes, right?

Because you can have a single clinical trial and it can be really interesting, but there may be other clinical trials out there that when you summarize them, it shows, you know, it seems the larger body of data is not consistently finding, as in this case, that stool is vanillin tracks with improvements in leaky gut.

So because of that, I've stopped doing this tools online. And I just try to share that because testing, in my view, can be such a double edged sword, it can clarify certain things and give people solace in terms of, oh, here's the thing that's wrong.

But there can also be tests or markers that just aren't accurate. And this is where people say, oh, you know, I, I thought I had Sibo, I tested and I don't have Sibo and I'm kind of stumped.

Or maybe you had Sibo and then you treated Sibo. You feel better, but your labs are still positive. So I try to share these tidbits just so people don't make the mistake, if nothing else, of kind of having tunnel vision where they only treat the lab marker at the exclusion of the person and how they're feeling.

Testing, meta-analyses, and SIBO nuance

Yeah, that's that's important to do. And you mentioned meta analysis and just, you know, remind people like when we look at studies, you know, there could be there's a whole there's basically a hierarchy of studies, a meta analysis is going to take, you know, all the different studies, all the different, randomized, placebo controlled studies, all the, you know, studies that are relevant, take all that data and then come to conclusions.

So it's taking, you know, sometimes 50 studies, sometimes, you know, 2050, sometimes 100 studies and coming to conclusions based on the results of all of those studies.

And so you're going to get more accurate representation of what's taking place there. It's a huge gift to have. And you don't have the luxury of this much research in many areas that clinicians could, grapple with in the treatment of mold or Lyme or M Cass, there's really a paucity of research.

So we have to do the best we can with anecdote or observation or mechanism. But when we have all of this amazing research that answers the questions, we should take heed of that.

And this is one of the reasons why I've been such a proponent of probiotics for Sibo, because we also have a meta analysis there, and yeah, I mean, the data in the data are clear, but you still have some people saying, you know, you shouldn't use probiotics for Sibo.

And it's I'm sure it's coming from a good place, but it's just so scientifically illiterate. And why that is unfortunate is just the hours and hours and hours and hours researchers have spent trying to answer this question.

And after years, it's like, here, here's an answer. You know, hundreds of man hours of work. Here's the answer. And some people go, oh, well, I'm not going to believe that.

It's it's unbelievable sometimes that, yeah. It's it's important consideration because, you know, I was never diagnosed with Sibo and I had irritable bowel.

But looking at my symptoms, I may very well have had it. And probiotics really helped me significantly. But then when I was learning, when I was going through functional medicine courses years later and I was learning about it, the idea was don't give probiotics right off the bat, right?

Because again, going back to the idea, there's too much bacteria in there. And if you do give probiotics, only give this one particular strain right. Like don't definitely don't give lactobacillus and Bifidobacterium, you know, which are the most common and most well studied bacteria because those are the ones that in particular, you know, this is kind of this was this was the thought back then.

They aggravate Sibo. Right. But if you give maybe a spore former right or a Saccharomyces pylori, that's going to be more well tolerated. And so what are you seeing in the research with that?

You see evidence that any of these types of probiotics can benefit Sibo. The weakest evidence for Sibo directly is probably with the lactobacillus and before bacterium blends.

But it's it's a comparison of all of the studies are showing benefit. It's just there are larger and more well-performed studies with the other two types of probiotics.

But conversely, there's the best data for the Lactobacillus, Bifidobacterium and then probiotics for the symptoms of IBS. And that's what I think most people care about.

and not to get too into the weeds on this, but another recent meta analysis found that 36% of people with IBS had Sibo, but 28% of healthy controls also had Sibo.

So it doesn't do an awesome job of discriminating between people with symptoms and people without symptoms. So, you know, I don't mean to be overly contrarian, but one of the things that the field does well is listen to people, care about people and tailor recommendations to them. Yes.

One of the things that I feel does not do good is be self-critical of hypotheses, like if you have IBS, you almost for certain have Sibo, right? And you know, now that we have five more years or so of research from when that hypothesis was initially kind of thrown out there, I think we should be reexamining that because and I'm sure you see this, some people will come in and it's like their whole life is about Sibo and, you know, they they end up just really tunnel visioning on everything about Sibo.

And, you know, in a lot of cases, they're doing the wrong thing because they're focusing on just a lab marker and

not listening to their body. Yeah. And there's so much overlap.

A lot of the symptoms of an H. Pylori overgrowth may, you know, there's a lot of overlap between that and Sibo. Right. There's a lot of overlap between large intestinal bacterial overgrowth or fungal overgrowth. Right. And Sibo.

So it's hard to diagnose just based on symptoms right now. What are what are some of the things we can do to help improve small intestinal health? I know for me, in my journey, this was just really, kind of a trial and error.

I didn't actually I wasn't actually working with a practitioner. But, you know, I, I, had read a book called the No Grain Diet. And so I went on a essentially it was a lower carb, more of a paleo style diet.

and and at the time when I had irritable bowel, I was eating a lot of whole grains. Right. more I was, I was actually more of a vegetarian. So eating a higher Fodmap diet and basically what I did was going more of a paleo diet, more meat, lower Fodmap in general.

I started doing intermittent fasting, which I was just more I was eating a higher protein diet, so I was more and more better blood sugar stability. I wasn't trying to fast.

It was more of, just having satiety. And then I added in probiotics. And those three things made a huge difference for me. Now, it doesn't mean that's going to happen.

It's going to work for everybody. But what are some things that you're seeing, that that tend to work or areas that people can go down to get improvement in the small intestine?

Well, your case, it's such a beautiful case study because it had so many of the things that tend to be true. None of these things are probably gonna be true for everyone.

but certainly for some people, if they're eating too much Fodmap, which is a certain type of carbohydrate, it's really fermentable, too much carbohydrate in general, then that can be a problem for them.

Now, I should also clarify that if people are a standard American diet and they're not eating much in the way of fruits and vegetables, then upping their fiber and eating more of those foods is a good move.

But I'm assuming most people watching or listening to this, their diets not standard American diet. And so then it's in the spectrum of, well, do I want to be sort of higher carbon fiber or maybe a little bit more moderate to lower with a touch more protein, kind of as in the paleo diet.

And that's one thing that for people can be quite helpful, is just being cognizant of the foods they're eating. But to restrict their carbohydrates to lower Fodmap so that they don't feed, what could be an overgrowth?

Or if it's not an overgrowth, even in people without Sibo, it seems that just feeding the bacteria kicks up inflammation, activates the immune system and is problematic.

Diet strategies and elemental diet reset

So this is, something I think you and I both have struggled with, where, you know, too much plant matter in the diet seems to flare us. I'm not saying you'll go carnivore, because I think that's too far in the other direction.

But there might be a spectrum of, you know, lots of carbs and lots of vegetables and grains or being a little bit more minimalist. So certainly a elimination diet and maybe a low Fodmap trial is a good place to start.

Probiotics, as you said, I think they're just such a I shouldn't say. I think the evidence is pretty clear, based upon randomized control trials and analysis, that they can help IBS, inflammatory bowel disease, Gerd, constipation, Sibo, leaky gut.

So definitely probiotics. Something to to trial. and then another thing that we use in the clinic is a reset with an elemental diet. This is essentially a low Fodmap complete meal replacement that's hypoallergenic.

And the way I think about this is if you had a back injury, healthy activity would flare. You like going for a run. Otherwise, healthy movement is going to cause pain because there's an injury similar in the gut in that a healthy diet with the healthy gut will be okay.

But there's a gut injury. That's when even otherwise healthy food can flare, bloating or diarrhea. And this is where the elemental diet is nice. It's a it's akin to kind of doing, time off of a sprained ankle.

It allows things to heal because it's liquid and it's designed to be very easy to absorb. And therefore the intestinal tract has a chance to rest. Yeah, it makes a lot of sense, right?

If you're running on a sprained ankle, it's not going to heal properly. So you got to get the mechanical stress off the gut. You could do that through fasting, right?

Of course with fasting you're not getting any nutrients. Right. So perhaps or something like for example, like you mentioned, the elemental diet where it's full of nutrients.

Basically, on a multivariate and in there it's got protein, you know, amino acids, things like that. But it's very minimal stress on the gut because these things are all in the most easily absorbed form.

So once you consume it, you drink it, right. It's going to basically no stress on the gut. And then, you know, immediate absorption right into the bloodstream.

Right? Right. And it doesn't have the fermentation properties. Right. So a lot of people will say that's one. Of the biggest aspects. Exactly. Yeah. It's a lot of people will make a protein shake.

And you can go on a liquid diet, which is kind of like a like a, like a semi elemental diet. but you might throw avocado in your protein shake and that's got a lot more fermentable properties to it.

as opposed to the elemental drink shake and I and I've seen people that were, you know, when I was seeing clients regularly, I would say the elemental diet for, you know, the real extreme cases is these people reacting to everything, right?

Anything they ate, it was like a flare up every time they. And so then I'm like, okay, you go to the elemental diet, which back in these days before your company came out with, elemental diet shakes, that actually taste good.

So I was like, you know, unfortunately, these are not going to taste great. You guys did a good job with that. But, but people go. On X plus that does have a pretty rough taste profile.

Yeah. Yeah. And so they were desperate for help for help. So they would they would do whatever they had to do. And I saw remarkable changes. So when people started consuming that just, you know, basically getting the stress off the gut, but getting some sort of nutrient absorption that they needed because they were already, you know, very catabolic.

Their body was already in a very catabolic mode because they weren't absorbing nutrients. So elemental diet can be really, really powerful. Right? Right.

while we're on Dei, there is one thing I wanted to sort of connect because I recently put a few puzzle pieces together, and I think it may help some people because whenever we're talking about diet, I think it's crucially important that we don't lead people to believe that all of the things that we mentioned, everyone should avoid all the time.

And I think it's sometimes just easy to misinterpret what various educators are discussing as it pertains to gluten.

really seminal paper by volt. they wanted to study and better understand non celiac gluten sensitivity, and they found a prevalence of 3% in the population, which is I think validating.

It shows like yeah you know there's not celiac reactivity. It's not oh it's all in your head. You know if you don't have celiac. And what does that mean for our audience.

Not all of our audience has heard of and KGS non celiac gluten sensitivity. Yeah. If you don't have the diagnosis of celiac disease but you notice you have a reaction to gluten.

This could be non celiac gluten sensitivity. There's diagnostic criteria but they're they're pretty laborious. So what most providers do is if celiac has been ruled out and someone notices they have reactivity they assume non celiac gluten sensitive.

and this is what what validated with 3% prevalence. Other papers have shown anywhere between a little less than 1% maybe up to about 10%. So it's a legitimate thing.

But there's one really important caveat. In that same paper by Volta, they found that about 40% of the people with non celiac gluten reactivity also had IBS.

And when we overlap that data point with the fact that people with IBS tend to be really Fodmap intolerant and the fact that gluten is high Fodmap, it makes me suspect that it's more likely the FODMAPs that people are reacting to.

And when they remove gluten, they improve from withdrawing. And what's empowering about this is that Fodmap tolerance tends to be able to be regained over time.

and so what I think people should start closing the loop on and maybe experimenting with is if you went gluten free and you noticed you improved, you may want to reintroduce gluten and see how you do, because the research literature in Low-Fodmap shows that over 50% of the time, foods that were a trigger before, once you heal and you're feeling better, can be reintroduced, and it's more likely that only a small percentage of people, maybe that 3% that both are found had this sort of lifelong antigenic intolerance to gluten.

And I just say that because some people don't do well on lots of fruits and vegetables, but they might do okay. And things like white rice, which means they may also do okay and other grains.

So it's just that some people all the information so they can make a like an informed decision and not just say, oh, I went off gluten and now I'm going to avoid it forever because I felt good when I did that.

That's important to know because white rice is low Fodmap right? So it's not very fermentable. Whereas fruits and vegetables you're eating broccoli cabbage Brussels sprouts.

Right. All nutrient dense foods. But they're very fermentable. So you may actually feel worse. In fact, you know, you and I have both had people I've had I had people where they'll say, I actually feel better when I'm not eating healthy.

Oh, so they associate it with like, eating healthy is eating these big salads, and they're getting all this, all this fermentable fiber that their body just not able to tolerate at that particular moment.

and that's why they're feeling that way. Yep, yep. Exactly. Yeah. So important. So and I think it's across I think it's, you know, a spectrum. Like there's people out there that have had their life changed by going on a carnivore diet for a period of time.

And then there's people that have had amazing breakthroughs going on, a plant based super high fiber, you know, vegan diet for a period of time. And I look at it when it comes to FODMAPs or the fermentable categories, you know, these fermentable fibers that are in are a lot of plant foods.

It's like it's like a bell curve. Right? And so most people are somewhere in the middle of the bell curve, but there are outliers that are kind of more of the extremes.

And these are the people that, you know, one outlier, that person can do a carnivore diet for six months or a year and feel great, right? Because their body, just for whatever reason, they don't do well with the fermentable fibers, but they can break down protein and fats really effectively.

Another person on the other side of the bell bell curve, you know, they they're really good at breaking down FODMAPs and fibers and things like that. But maybe not as good breaking that with their stomach acid and breaking down hard, hard to digest proteins and fats that you're going to find in more of the animal foods.

But a lot of times, those people on the the far outskirts, those outliers will then say, well, everybody should follow this diet because look what it did for me.

Right? Yeah. And that's why, if nothing else, I just want to get people sort of a list of options to sort of navigate so that you can find what works best for you.

And also bear in mind that usually with time, dietary tolerance improves. So kind of your point, right. If you did do well on carnivore, let's say you likely don't need to be staunch carnivore forever as your gut heals.

I mean, it's it's routinely observed across different elimination and reintroduction studies is that once people reintroduce offending agents and things heal just like rehab.

Right? Just like the low back rehab or the ankle rehab, the tissues get stronger and you can go back to some degree of activity. Now, you know, depending on the extent of the injury, you may never be able to do really extreme sprinting.

Or maybe you need a knee brace. So there's caveats in there. But the general trend is people really tend to regain function with the right support. Yeah.

And actually adding back some of these foods in small quantities and kind of gradually stressing your body. But in but not overstretching your system is is beneficial.

It's kind of like think about like physical therapy. Like if you have a sprained ankle, right, right. As you get back, you're doing some physical therapy.

You're stressing the joints in that ankle, but not over stressing it, but stressing it just kind of the right amount to wear. Now that joint is going to get stronger progressively right each and every day to wear it.

Now you're back running, you know, after whatever a few months. Just kind of like that with your gut as you start to reintroduce these things, small quantities at a time, observing how you feel.

And over time you're going to kind of find what your, your threshold level is.

Gluten, FODMAPs, and reintroducing foods

Exactly. Yep. Well said. Yeah. Super important. Now let's go back to the limbic system. You had mentioned how probiotics have can play a role with improving limbic function.

Can you talk more about the limbic system and how that plays into chronic inflammation in general? Yeah, there was one really interesting study that found that people who had hyper activation of the amygdala, or let me say it this way, they took two groups of people, they put them all in functional MRI, scan their brains, and they can see the activity of the amygdala.

And they had people who were either anxious or depressed and then otherwise healthy controls. Did the MRI

confirmed? Yeah. There's a correlation between how you feel and the amygdala activation.

Then they drew blood from everyone, and they exposed the blood to various antigens that can trigger an inflammatory response. And they noticed that in those who had higher amygdala activation, there was a much stronger immune and inflammatory response in their blood.

So there does seem to be this direct cause. This is, you know, observational and correlation data, but nevertheless pretty compelling in the sense that the amygdala seems to some extent, at least influence the tone of the immune system.

Now, the empowering thing about this, if, you know, if you're saying, well, I'm already stressed, anxious and depressed, this is making me feel worse.

Not intended to do that. There are other studies showing that simply going for a walk in nature can have a remarkable ability to reduce activation of the amygdala, and I picture a person and I've been there not feeling well, searching for answers.

So you're spending time on your phone and you're searching, you know, my symptom. Does this mean oxalates sensitivity or I mean inflammatory bowel disease or whatever?

And you're in this place where you're just kind of heads down researching, focusing on your health. And part of that you need to do to find your way to an answer or health care provider. Yes.

But it's really important not to slip over kind of this event horizon where you stop doing things that we know are really health promoting for your emotions and for your limbic system, like going for a walk in nature or just spending time with friends and family.

So, you know, that's one of the main points I want to make, is that we have to balance to health research, and I'm sure using the same thing where sometimes you just recommend a health research detox for people.

It's like, all right, for the next month, you have to greatly cut that out. It's almost like, you know, taking the social media away from your kid, right?

They're going too fast, but they're going to go outside and start playing and probably going to be much better for their mental health net net. so it's similar to that.

And for some people it really makes a, palpable and noticeable impact. So I you know, I know it's such a basic recommendation, but nevertheless, coming back to your point about our ancestral roots, obviously we evolved predominantly in nature and we need that.

It truly is medicinal for us. Yeah. I always like to think about the mechanism for it. I know, you know, our ancestors, for example, they walked 5 to 8 miles a day, average Americans not even walking a mile a day.

So just that movement, improving oxygenation, that's going to have a positive effect on, neurotransmitter functions. So just moving in general, but then also in nature, you have a healthy electromagnetic frequency.

So we're all exposed to electromagnetic frequency from our computers or cell phones. That's all very new. Like that form of wavelength is new. So it's a stressor on us.

Whereas, you know, humanity has has grown and adapted to the electromagnetic frequency from the Earth. So it's very calming and parasympathetic. And then also, have you heard of horizontal gaze?

Right. Basically just going out and looking in the horizon. Right. Which is easy to do when you're out in nature. You know, I take walks around my neighborhood.

I'm always looking out horizontal gaze where you're able to look out, let's say half a mile or a mile ahead of you. That actually stimulates your vagus nerve and your parasympathetic function, helping that calm your heart rate.

Right? Yeah. Versus, you know, looking at your your cell phone or a computer right in front of you that's associated with a potential danger which increases sympathetic activity.

Yeah. And the analogy I've heard there that I like is, is before a lion's about to strike, you know, they get really, really focused. And that's, that's kind of like, you know, if I'm trying to solve a problem, I tend to be that I'm a really, you know, really kind of hunched over and zoomed in and thinking as compared to watching a sunset that that divergent gaze.

Yeah. totally. Yeah. So there's, there's all these really rich sort of mechanisms that are fed by nature. Couldn't agree more. Yeah. So powerful. So obviously a lot of people in our society may have had trauma in the past.

they're dealing with a hyperactive limbic system which trauma? I mean, certainly, you know, early childhood trauma. you know, I know there's the what is it?

Adverse childhood, experiences, the ace score.

The limbic system, stress, and inflammation

associated with higher levels of chronic inflammation all cause morbidity and mortality. So the more trauma you had early in life, you know, the higher risk you're going to have these kinds of issues.

and then, of course, you know, people experience trauma at any stage in life. and so these are some strategies to help improve that. What else have you seen outside of obviously these really low cost easy interventions like going outside, getting in nature, being around loved ones, me laughing right, watching a comedy or something like that.

Yeah. do you mind if I take a quick tangent onto the score? Yeah. so Abigail Schrier wrote a book called Bad Therapy, and I'm going to paraphrase, I may have some of the nuances here.

So the you know, the general statement is true. And she criticized it was for any parent. I would highly recommend this book by Abigail Schrier called Bad Therapy.

and part of her criticism is that there might be this skewing where when children have any condition, you know, I don't even like using our condition if they're hyperactive, if they're, you know, troublemakers, if they have constipation or what have you, people may go looking for an adverse event.

and there may be a skewing in that data set where there may not be enough sampling of otherwise healthy population. And her criticism is that when you look for something, you find something.

And we don't have enough sort of cohort studies that are factoring out for noise. And her, you know, criticism follows that we may be preemptively labeling kids as having a traumatic event when they may not, and then giving them therapy, which may actually make some of these things worse.

It was a really insightful read. So anyway, just just, for parents, I think it was a pretty, you know, eye opening, perspective. But coming back to your point, one thing that's helpful is having a non dire perspective on someone's health. Right?

And I know I said that a moment ago, but I think it's really worth echoing because sometimes it's the people who have health as a hobby, who tend to learn so much about how your body can be malfunctioning, and that starts to have a negative impact on them.

It's been shown that medical students tend to think they have a disease that they're studying, right. Just, you know, whatever you whatever you're looking into, it's like, well, maybe I do have myasthenia gravis because sometimes

one of my eyelids droops a little bit, right?

I mean, I remember thinking that when I was learning about that myself. so this is why I think it's really important to pick up or dust off hobbies, spend time with friends.

I mean, loneliness is, according to one study I have, in fact, is this firsthand? But as bad as smoking? according to that one seminal paper that kind of made all these media waves a while back.

so time and nature, hobbies, time with friends, exercise is also phenomenal. Then sometimes I think we forget that in serial assessments of the microbiome, it gets healthier when people go from being sedentary to exercising.

And sometimes you'll hear people say, well, a health care provider told me they think I have adrenal fatigue and therefore don't exercise. And boy, I think that advice really needs to be reexamined unless someone notices exercise causes them to be fatigued for days, which in a small subset of people there is post exertional fatigue as a real thing.

But that's a really small subset of people. Otherwise, get out there and exercise, I would say at least four days per week. I like a split of two days cardiovascular, two days resistance.

That's contestable. But looking at some of the research studies, that seems to be at least in the model of anxiety and depression, that sort of two and two or half and half splitting seem to have the biggest benefits.

Again, in the model of depression. but yeah, I mean, that would be another one, just, making sure to commit to exercise because, boy, that is a super high ROI investment in one's health.

Yeah. All really, really good stuff right there. And then there are also limbic retraining systems that do you have any experience using them like the Gupta and I do.

Yeah. And we've been recommending these a little bit less for some people. They are very helpful, no doubt. we've been recommending an app lately called clarity.

It's, CBT or cognitive behavioral therapy app, and it's just a little bit less involved to get started than Gupta. Or let's say, DNR, as they want you to do a full course and they ask you to do an hour of this meditative rewiring per day, which again, can be great, but for some people it's it's just a lot an hour.

And we've even said 20 minutes will suffice. But one of the doctors from our office, and, you know, we're we're all sort of both clinicians but also patients ourselves.

And, you know, we've been on the other side. He tends to health catastrophize. And in our we do you know the podcast as you know. And we review research as it's being published weeks on a study on the CBT app clarity and he decided to try it.

And he had a good response and he walked me through it. You know, Michael, I tend to overreact like you, Michael, if you give me feedback on this research paper we're trying to write, I'll think this means Michael hates me.

I'm going to get fired, right? Or I'm having bloating. This means I have leaky gut. It probably means I have inflammatory bowel disease. And the clarity app is designed to unwind or dismantle those negative thoughts.

and it's kind of like, well, what else could this mean? You know, is there any information that reinforces the more, you know, positive hypothesis on why Michael's mad at you or why you're bloated?

and it's I think it's $7 a month for the app.

Limbic retraining, exercise, and closing thoughts

And again, it's it's much easier to use because when you're having one of those negative thought cascades, again, to kind of walk you through disarmament protocol.

so. Gupta great. But, clarity, I think is nice because, again, it's much easier to get started with. Yeah, it's really good advice. And a lot of these apps and programs a lot of people have gotten help with, but ultimately you're only going to get help if you use it. Right.

And so when someone is an hour a day, right, it can be a little labor intensive. So you want the low hanging fruit, something that you know isn't stressful to actually implement into your lifestyle.

So that's key, right? Yeah. Well, Dr. Ruscio this has been a great interview. we could talk all day about, you know, all of these topics. Any last words of inspiration for people and what are you excited?

What are you working on right now that you're excited about that our audience should know? Yeah, well thank you. I always enjoy chatting to you, and I do feel like we could just chat for hours.

a few things I would say. Don't give up. Right. I've. I've had some pretty dark moments myself on my health care journey, and you just got to keep going, keep working the problem.

And it's going to suck until the day when you solve the problem, and then your life's going to be so much better. So just hang in there. Keep with it.

Even the healthiest people I know have had some trying moments. So you're not alone. I know it stinks, but just take a deep breath. Go for a walk in nature.

reorient and keep working the problem. And understand that when people have the right supports, their system will improve and it'll improve, you know, fairly steadily.

So the healing can happen. You just need to find the right therapeutics, the right approach for you and for your system. So, you know, hang in there and, stick with it.

In terms of things that I'm excited about, we currently have a paper under peer review, so hopefully it'll be accepted and published soon in the treatment of Sibo and Sibo biofilms.

So that was something we wanted to test. Coming back to my earlier comment about being self-critical, I wasn't sure if treating Sibo biofilms really mattered.

So we did a split assessment on different people and a retrospective chart review where you look back in time through your data. And so we're publishing on that, and we're also working on a sort of all purpose probiotic protocol, looking at the probiotic randomized controlled trials and meta analyzes on IBS, on Sibo, on inflammatory bowel disease, on depression and anxiety on a topic conditions like seasonal allergy or skin rashes.

to try to come up with a okay, here's the three different formulas or so you can use. Here's the dosage and here's the duration. Because one of the things that I think is holding back probiotics.

And you'll see this criticism from like the AGS is an example, the American gastroenterology Association is always a mouthful to say that, that they say something along the lines of, well, we don't know what the best, best air quotes probiotic is, so we're not going to recommend any, and so we're trying to get people a well, okay, like this isn't that hard.

We have all these clinical trials and then analyzes and sure, they're finding different probiotics work, but let's just summarize those. And to sort of here's an average of what you can use with a dose with a duration with a few checks for quality assurance.

And just give some direction. Because right now one of the problems again is there's so many favorable studies

that all differ slightly, that some people are having a hard time knowing where to start.

And so that's what we're hoping to publish. You know, maybe, maybe late this year, depending on how long it takes. Well, that's great. Once, once you publish those, I'd love to have you back on and, talk through those as well.

Yeah, that'd be great. All right. Thanks so much, Dr. Michael Ruscio. Guys, check them out. drruscio.com and check out his podcast. It is Dr. Ruscio radio and we'll see you guys in a future interview.

Be blast everybody.