Introduction and Guest Background

Welcome back. We're continuing our conversation on Reversing Crohn's and Colitis and these Chronic Gut Conditions that can shape your life. I'm your host Sinclair Kennally, and today I am joined by my wonderful friend and colleague, Dr. Peter Kan.

Peter is an amazing expert on the gut brain immune axis, and I really wanted him to share and contribute with you for this event for a number of reasons, which are going to become clear in a minute.

So I'm just going to tell you all about how special he is, and then we'll dive right in. So Dr. Kan supports and manages patients with chronic conditions using a comprehensive approach by merging the exciting advances of functional neurology and functional medicine.

He's a board certified in integrative medicine, functional medicine, and a board certified chiropractic neurologist. He is the creator of neuro metabolic integration, a science based program that identifies the root cause of autoimmune and other chronic conditions.

Over 6000 patients from across the country have come to seek out his holistic approach. It's changing the lives of those suffering from chronic conditions.

Born in Born in Taiwan and immigrated to America at the age of 13, Dr. Kan has deep appreciation of the Eastern wisdom and Western advances in natural healthcare.

He believes in the God given ability of the body to heal and regulate itself. So true, and with such compatible approaches, welcome, Peter. It's wonderful to have you here.

So great to have you, doing this interview with me, Sinclair. It's always great to have great conversations. And can I just have that intro so that I can play when I sleep?

Because it's, like, so soothing. It's good for my vagus nerve. Yeah. Totally. Right. Well, you know, I believe in you, buddy. So thank you. You're not the first one to say that. That's funny.

Okay, so I really wanted you to help us zoom in today on the gut brain immune connection. And specifically, you know what does that mean for somebody who's been suffering from IBD, Crohn's and colitis for quite some time?

What does this mean for them? Yeah, I think when people have IBD or bowel disease, which can take on different forms Crohn's, irritable bowel disease, ulcerative colitis, even lymphocytic, this is kind of lumped into as a colitis.

What they have is an inflammatory and often autoimmune problem of the intestinal tract. Right. So when it's inflammatory what that means is it's the immune system trying to kill something.

Right. Inflammation is a tool used by the immune system to a lot of people vilify inflammation. But we must understand inflammation is that immune system reaction is the weapon of destruction for the immune system to kill pathogens with.

So if you have a pathogen to kill, inflammation is absolutely justified, right? It's a justified use of force if you have a pathogen. However, if that inflammation starts to run out of control and becomes over excessive, then you're going to have too much tissue damage.

And that could be your own tissue. And when you damage your own tissue, you're going to have self tissue debris that could be potentially floating around, that can be picked up by the immune system.

And you can develop auto immune to the self tissue then becomes autoimmune disease. So at the end of the day we have two components or two key mechanisms for people with irritable bowel disease.

There's an inflammatory component that may be either the starting point or it may be an ongoing trigger for them. Because once you have irritable bowel disease already developed, the process of the immune system damage the gut lining is going to cause continual continual inflammation.

But then, on the other hand, we also have this loss of immune tolerance where you start to develop autoimmunity. So that's really at the the core or the the underlay lining mechanism that's driving the disease process.

Understanding IBD, Inflammation, and Autoimmunity

But that also means that it could be a target for us. That could be something that we can dampen with nutrition, with supplements, and in fact with allopathic medicine that that is the target, except they're using biologics and these immunosuppressive drugs to basically shut down a certain inflammation and response, right.

Immune response, thereby just quieting down the whole thing. But the problem with those drugs is that when you shut down the whole immune system, then it can't do its regular job, which is to protect you from the infection.

So this is the reason why those medications come with pretty serious warnings, right? Black box labels sometimes because if you take those immunosuppressant drug, it can dampen your immune system so much that you can be susceptible to just common infections.

And that's not something we want. Furthermore, these medications, they work only 50% of the time, right, at best. And that's great for the 30% of the people that it works for.

It really alleviate the symptoms. They feel better. They have quality of life back. What about the other 50% of the people the drug doesn't work for? What do they go if the medication don't work?

What do you do after that? When you have the strongest medication there are and it doesn't work for you? So then you have to start to really dive into the stuff that you're presenting.

And there's a summit for people to understand the root cause and the different mechanisms, so that there may be other options for them to help themselves.

Yeah, I really appreciate you highlighting the complexity of this and how we don't want to vilify our body's own mechanisms for healing. There's a reason for all of this, right?

I would love for you to unpack that further. first, by helping our audience to know what are some signs and symptoms that your immune system is actually trying to use the inflammatory response to heal, and some of them are digestive, we know.

But also, given your expertise in neurology, it'd be fun to help highlight some of those lesser understood symptoms as well. For folks right now, inflammation can happen anywhere in the body okay.

So inflammation just a natural response. So the inflammation can be in the gut. And remember inflammation is your body's attempt to try to heal something typically pathogens.

But if it's killing your own tissue then you're going to have tissue damage. That's really what's happening here with ulcerative colitis or Crohn's, right?

Ulcerative colitis means that means your mucosal tissue in your intestinal lining is ulcerated. That means there's a hole in it. Why is it a hole? Because your immune system literally is chewing it up, damaging that tissue, causing the ulceration, therefore bloody stools and diarrhea and so forth.

So inflammation can be an intestinal track. It can be in your muscle, in your joint, if it's in a joint as arthritis, if it's in the muscle, it's called myositis.

So we have people who have poly myalgia, rheumatic, which is an autoimmune disease where the immune system's attacking their muscle and connective tissue and joint.

So they have chronic pain. And you can have your immune system attacking your brain. Right. That's multiple sclerosis. But that's just one such autoimmune where the immune system can attack brain.

There are many, many different brain targets. In fact, your immune system can make autoimmune autoantibodies against any tissue in the body. Right. So we're thinking just major organ brain, thyroid, pancreas, intestine.

But you can make autoimmune antibodies to any tissue in the body, which means you can have autoimmune to a hormone like you can have insulin antibodies.

You can have autoimmune to your DNA. That's the anti-nuclear antibody and antibody. You can have autoimmune to like an enzyme in your body. You can have autoimmune to a specific enzyme or tissue in your intestinal tract, like the intrinsic factor.

That's a protein that helps to absorb B12. So therefore become pernicious anemic. So the bottom line is that you can have autoimmune against any tissue.

And the problem is there's not a test for every single tissue. Autoimmunity. Right. Because you can literally have hundreds if not thousand different types of autoimmune targets.

But we only have about 100 known different kind of autoimmune diseases that are known. Right. So then people can have mystery symptoms where they have autoimmune attacking certain part of the brain that can cause symptoms like brain fog or fatigue or balance problems, or vertigo or neuropathy or strange weaknesses of the eye muscle or of their certain other parts of the body.

And this can be seen like, oh, you have some kind of weakness, go see a neurologist. And they're doing nerve conduction studies, but that's not where it's at, because the nerve conduction study is simply measuring muscle function, which will be the last part to be affected.

But what's upstream from the muscle is the nerve that innervate the muscle. So they're not looking for antibodies or autoimmune to the nerve that innervate the muscle.

The muscle could be functioning or not functioning. It doesn't matter because it's not telling you about the root cause. So this is where Western medicine is very much focused on the end result, a symptom of that.

But what's upstream, what's causing it? It's often ignored. This is why you can have GI symptoms gas, bloating sometimes maybe even people have bloody stool, but then they go in for a test and the test is normal.

It's normal because you may be in an early stage of autoimmunity where you don't have enough tissue damage yet to be picked up on a medical imaging test, but yet the autoimmune reaction is already taking place.

So the only way you could see that might be doing some type of lab tests. And even then, sometimes the lab test could be late stage, or sometimes there's just not a specific antibody for that particular tissue that's being attacked in your body that it's available.

So it can be very difficult for a lot of people. This is reason why most autoimmune disease can take years before they get diagnosed. The average about 7 to 10 years before somebody actually get diagnosed with autoimmune.

So it's almost like if you get a diagnosis of autoimmune, you're like the lucky ones. At least you know what it is. But having the diagnosis of autoimmune tells you nothing about what's causing the autoimmune, which still doesn't

help.

So people end up just taking, you know, immunosuppressant drugs. I would say this even if you take immunosuppressant drug and your your symptoms are better, it does explain to you what's caused the autoimmune in the first place.

Right. So if you if let's just say someone is sensitive to gluten and that's what's driving the autoimmune to the gut, you can take immunosuppressant drug to shut down the inflammation as a result of the gluten reaction.

But if you keep eating gluten, then you're still going to have problems. So that doesn't solve the real issue. Now I'm using gluten exact as an example, but it could be mold exposure.

It could be any number of things that you're continuously being exposed to. The point. The point is that if you're just taking medication to resolve a symptom that's not necessarily doing the right things for the right reason, we always want to do the best for our body, and the only way to do that is by really go deep and find out what's actually causing it.

That was such an excellent overview of what has gone wrong with our medical system, in our attempt to find out, you know, for for the patients journey, of course, like for me, it took me many, many years as you're describing.

Oh, okay. Now we finally have a couple of diagnoses and, you know, two of them are autoimmune. Okay, fine. But but again, it doesn't highlight the root causes.

Then also there's something fundamentally wrong with a system that not only cannot diagnose you until you have suffered for years and or and at the same time, once you finally have a label, it doesn't actually point you to assessing for root causes.

You just now have a label and, you know, potentially some drugs to manage it.

Immunosuppressive Drugs and Pathogen Overgrowth

You said something really interesting about the immune suppressive drugs, and I would like to unpack this a little further with you before we dive into root causes.

So what what I see in our practice is when people have been on immunosuppressive drugs, whether or not they created some relief and symptoms because you have dysregulated and basically held the immune system's hands behind its back, so to speak, you tend to have a major pathogen overload because the immune system was not able to properly target them in the first place as they came into the body.

So what what I have seen over and over again at Ulcerative Colitis and IBD and Crohn's is this huge pathogen overload, which may or may not have been there in the first place.

We'll never know the chronology for sure, but if you've been on immunosuppressive drugs, they seem to be so much worse and take longer, you know, to clear them out.

What are your clinical observations about that? Yeah, absolutely. If you're on immunosuppressant drug you're suppressing immune system. That means normal day to day bugs that you'll just be able to get rid of, that you don't even know.

You might start to accumulate them, right. That these pathogens may start to or we shouldn't call them pathogens. They may be just commensal organisms that are normally there as part of your microbiome.

But now your body cannot mount an immune response to maintain those regular everyday bugs that you just handle. So now the bug is overgrowth, right? So call an overgrowth bacterial overgrowth pathogen Candida overgrowth bacteria small intestinal bacteria overgrowth.

The key word there is overgrowth right. It's not that Sibo. You call it the bacteria. It's the bacteria that's already there is overgrown Candida overgrowth.

It's not that you caught Candida. You already have candida. It's overgrowth. Why are they overgrown? Because your immune system is not able to keep the pathogen in check.

So here's an important concept in immunology. There's this neutrophil pathogen by stable balance okay. So neutrophils a type of white blood cell. It's a most abundant white blood cell in your body.

If you do a CBC complete blood count the regular blood tests of your regular doctor order. You're going to see. Neutrophil is one of the numbers on your white blood cell count.

That neutrophil should be about 60 to 40% of your total white the cells. That's it's this basically the neutrophils there to kill extracellular pathogens.

Extracellular pathogen means just your regular everyday bacteria okay. Can also kill parasite. not parasite I'm sorry. candida yeast in it has some action against virus but primarily bacteria.

So in your body you have this certain population of neutrophils. And then you have certain population of all these bacteria viruses Candida that's living in your body.

Right. So then the key is how are we able to manage that balance. If your neutrophil number is outnumbering the pathogens then the neutrophil has an upper hand in a bug.

Basically just kind of keep it like in their own little pockets. But if a neutrophil is less then the bugs then the bug will be like, oh, there's no cops on the tree, let's get crazy.

So then you start to grow more themselves. That's when you have the overgrowth. So really the problem here is that it's the immune system doesn't have to squash the pathogen.

Right? It's impossible to have a sterile human being. Neither is that the goal. Like we're not trying to you know, you wouldn't want a sterile human being because we have, what, 10 to 1 more bugs DNA than human DNA.

So the fact that we have bugs, these bugs help us as part of our, you know, commensal existence. So it's really how our immune system to control the bugs.

Now, you mentioned the immunosuppressive drug, where you're seeing more people who are on immunosuppressant drug having more pathogen overgrowth. And I will say that, yes, that's what I observe.

And there are some people who are not on immunosuppressive drug that have immune suppression. Their immune system may be suppressed due to chronic toxicity.

They may be immune system suppressed due to chronic inflammation. Their immune system may be suppressed due to chronic stress, and there are specific ways that your immune system can actually be suppressed from chronically chronic inflammation.

There's specific pathways of physiology from stress to immune suppression. So we know this to be true. So a lot of people are literally walking around with this pathogen expansion and overgrowth because their immune system is compromised, not because of their taking immunosuppressant drug, but simply just being overloaded with toxins, stress, inflammation.

And this is really what we do a lot with, with our patients and clients is to help them identify these things and gradually work these things out of their system so that there's less of these things as weighing down the immune system so the immune system can give back up to right as majority rule in there.

It's like your immune system just got to be like 51% the pathogen, 49% the immune system, kind of like, you know, the majority rule, they can keep the pathogen under control.

We're not trying to get the pathogen to 0%. We just want to keep it at below majority. And then that way we can, you know, keep our immune function. Yeah, that's a great way to say it.

We want we want to get back to the tipping point where the immune system is in charge. I love that. Absolutely. Yeah. And you and I are so concerned about that.

The, you know, the heavy emphasis on environmental stressors and looking at total body burden like this is really essential in today's day and age. I still think as we are getting more and more, you know, fluent in, in those environmental toxins and stressors that there's an underdeveloped understanding of that brain gut axis dysfunction that you specialize in.

And I would love for you to name anything that you think we haven't covered about, you know, the ways that brain gut axis dysfunction can actually lead to IBD and these other chronic gut issues?

Yeah. So, you know, your brain function is vitally important in controlling immune function, right? Most people think about immune function. Hey, I want to support my immune system.

What they're saying and the things that they're actually doing are stuff to help them to kill pathogens. Right. They're taking echinacea. They're taking astragalus.

They're taking, you know, oregano oil, right? They're either antimicrobial because oregano oil and garlic or, you know, just killing the bugs on contact by colloidal silver, or they're taking something that support their immune system.

But remember, supporting a new system is a big category, right? Because there's multiple players, multiple different type of cells in the immune system.

So we can't just say supporting a new system. We have to say what part of the immune system are you trying to support. So it gets much more specific okay.

But in general, people think about immune system. They're thinking about how can I prevent myself? I'm getting sick. Meaning I want to increase my immune function.

So then the pathogen are kept low. So I don't express symptoms of illness. But I think people don't understand how important the brain actually drives immune function.

Because the brain through fire to bring firing.

Brain-Gut-Immune Axis and Vagus Nerve Function

Okay, if your brain's working good, it's constantly creating signals, right. Because it's taking environmental cues from the five senses. Right. Sight, sound, taste, touch.

And then it's converting that into a meaning. That's perception. And then based on that meaning, then our bodies say, okay, how do we want to respond to that? So we want to stress out.

We want to be in fight or flight or we just chill. It generates a response. That response is autonomic response is voluntary response like motoric response.

So our brain is basically a big antenna that creates meaning and then generates an output. So we can go to war pleasure or go to war food or run away from danger.

Now part of that immune response, part of that brain function, is driving immunity. Now, there's some literature that shows that a brain is, you know, well, this is not in the is is a fact that our brain has two hemispheres.

But some literature shows that the left brain is more like your go brain is more your pursuit brain, while your right brain is more of your, you know, pay attention would draw brain right.

So pursued brain would be like, oh, there's food. Let's go for it would draw a brain would be like, woo, sounds like there's an animal or be spot behind a bush.

Let's walk back. So our left brain, right brain kind of work like gas pedal, brake pedal to help us to manage these situations. So our human brain is kind of unique that way.

In fact, that is lateralized. Our left brain is a little bit different than the right brain. We're in, you know, lower primates, left brain, right brains, pretty much the same meaning there.

There's no monkeys that are accountant monkeys, and there's like artist monkeys. They're just monkeys. Where humans. We have some people who are really good at as engineers and other people who are really good as artists.

Now, this leopard right brain also drives immune function. For example, the left brain tend to be more immune driven. It's like a one immune function, so drives innate immunity to make us to be able to fight pathogens.

The right brain tend to drive more antibody production, which is our adaptive immunity for long term memory. So how does that work out clinically? Well, sometimes we'll see people with a left brain deficit weakness.

They may experience less if they get up and go because that brings the go brain dopamine brain. So you make me feel more depressed, less motivated. And then at the same time, they may have an immune weakness because left brain is your innate immunity.

So they may just get sick easier. And on the other hand, people with a right brain deficit, these are the people that tend to have, you know, ADHD because right brain is your attention brain, right?

You're paying attention to the environment. Oh, there's a tiger, there's dangerous, you withdraw and then so then that's attention. So then you may have more ADHD, you may have troubles, you know, staying organized.

You may have trouble with focus. And at the same time, these people may have be more inflamed because of the left brain. Right brain works as a teeter totter.

When the right brain is weaker, that means the left brain is automatically out of balance stronger. So if you're promoting too much innate immunity, that's going to promote inflammation, right?

So on one hand, the left brain, weak people may have more infection prone, while the right brain weaker people may be more inflammation prone. Right. So that's just a general right.

It's not like a, you know, diagnosis that we can label somebody with. But as a general observation that we, you know, in my practice it's very useful because, oh, you have these cognitive and mood issues.

You know, maybe you have a tension problem and you don't you can't focus. And then we also see that they have, you know, major allergies. They have major inflammation.

And so that can line up, say, oh, there's some right brain stuff going on here. Then we can do some right brain activity to stimulate the right brain, along with supporting immune system and getting them to eat right and diet and exercise and so forth.

So that's how that brain function. Now for this talk, I just want people to know that brain plays a big role in your

immune system. Right? So, you know, unless you work with a functional neurologist, we can look at the left brain.

Right brain that may not be, you know, as, readily usable for you, but know that your brain function is important for your immune function. Now, another way this plays out is that your brain function drives a vagus nerve function. Right?

So vagus nerve is that cranial nerve that exists the brainstem innervate the gut. And people all most people understand the vagus nerve is a parasympathetic right function nerve, which promotes relaxation and helps to calm back down from fight or flight response.

But obviously it has roles in autonomic function specifically and driving motility, GI motility, secretions of digestive enzymes and, you know, ability, bile function, and so forth.

So everybody's very familiar with the vagus nerve role in digestion. But what may not be, as familiar to people is that the vagus nerve actually has a neurological reflex that directly dampens inflammation.

This is, in fact, in the literature just called the inflammatory reflex. Now, why is that important that we that just called a reflex in neurology, a reflex is something that you have no direct control over.

Meaning you tap the knee with a reflex hammer, your leg kicks, right? Because it's a mono synaptic reflex that goes that signal. The tapping goes straight to the spinal cord, and then you take the leg, whether you want to kick the leg or not.

That's why people are kind of like, hey, my leg's kicking because you're tapping my knee. The doctor exam. But this is called a inflammatory reflex, meaning if the vagus nerve is working, it literally directly dampens inflammation in the intestine, liver, and spleen.

That's a three primary area that the vagus nerve dampens macrophage activation. So that macrophage is another type of white blood cell that basically is out there chewing out bad guys and creating cytokines that can trigger inflammation and turn out that your intestinal tract, your liver and spleen are three major sites of macrophage production and activation that can drive inflammation.

Again, inflammation is all good if you're trying to kill a bug, but not so good if you have autoimmunity because you're already inflamed at baseline. So if you have more inflammation, that's going to create more autoimmune destruction.

Vagus nerve can dampen that okay. So if you have poor vagus nerve function you can dampen inflammation as well. You're more likely to be more inflamed and you're more likely to have autoimmune flare up.

Now the key thing there is that you can stimulate the vagus nerve. But where does vagus nerve get a signal from? A lot of people just want to like stimulate the vagus nerve, which, you know, comes from brain stem.

There's a branch coming out of the year here. Going down the front of the neck. There's a pair of them. But vagus nerve is not just about stimulating the vagus nerve itself.

You know, people think it's like a guitar string. You can just like going through doing you need to tweak it and it's going to stimulate it because vagus nerve get a signal from above, which is your cerebral cortex.

So yeah, poor brain function. Then the vagus nerve is not going to get the signal from the boss to drive that vagus nerve output. So then how do we know if the brain's not working.

Good. Well, very simply, do you have any brain symptoms? So what? Our brain symptoms fatigue, brain fog, depression, anxiety, short term memory issue.

Can't concentrate, can't focus. Lack of motivation. Right. These are all brain symptoms that tells you that hey you

may have brain compromise. And then that's going to lead you to not be able to stimulate the vagus nerve and dampen inflammation down below.

And that can make IBD worse. this is so revealing because I agree with you. We've totally oversimplified vagus nerve function. And also, you know, its capacity to restore balance in the body.

So it's not calling people out. all of our so-called vagus nerve experts basically twanging it like a guitar string, of course, is so much more complex than that.

So what would you say for people who are starting to, like, really have light bulbs go off during your talk today? Oh my gosh, Doctor Peter, I absolutely have those types of neurological issues that you're describing.

And I totally see the relationship between that and what's been going on with my gut for maybe years. And maybe that's why it's been so hard to diagnose me or it took so long.

All this is making so much sense. What should I do about it if I'm already on probiotics, if I've been on these immune suppressive drugs and I'm trying to get off of them, if I'm trying to tackle my environmental root cause stressors already, what can I do to neurologically support my healing right at this point?

That is a great question. And, I'm going to answer that by starting with giving this little tidbit that might be very useful for your audience to just learn.

This tidbit is that when you have IBD, irritable bowel disease, which is autoimmune of your gut, right. This autoimmune, we know that. But one thing is that what do you autoimmune two well you're assuming your autoimmune two your mucosal lining, your large intestinal lining.

That's why it's ulcerated ulcerative colitis. So but sometimes it's actually autoimmune to the gut microflora. You can have Crohn's disease and irritable bowel disease where you're actually autoimmune to your own gut bacteria.

That is one way you can have irritable bowel disease and Crohn's disease. It's in the literature okay. So then if you are having autoimmune to your own flora, what do you do there.

Well it's kind of like you have autoimmune to your own thyroid. What do you do like cut out the thyroid? I mean that's not the standard of treatment for Hashimoto's right?

Yeah. So so at the same token, if you have autoimmune to your gut flora, you can't remove your flora, right? So the problem here is that it's an immune system dysregulation whereas loss tolerance.

So how does it loss tolerance to your gut bacteria. Right. Because I don't think people think about that because. So does that mean you can't take probiotics.

But the reality is that most of the probiotic you take it doesn't make it down. They're alive. Right. Most of the probiotics, they get killed out by the stomach acid.

They just they're not enough of them that's actually alive. So where you think you take a pill and that pills like growing into, like this, you know, ten times in your gut, most of the probiotics are dead on arrival.

But that's okay, because some do make it through. But and also the dead bacteria that's dead on arrival, they still serve a purpose. They can serve as signaling molecules to kind of, you know, dampen inflammation.

And they can help with just become food for other bacteria. They become fodder essentially. The point is though, you lost immune regulation and after time is starts with inability to dampen the inflammation from the brain.

Now it can also be instead of the brain could be just locally in the gut. You have gut dysbiosis, right? Dysbiosis is a term that's really important for IBD folks because dysbiosis means the imbalance between the different population.

The flora people think dysbiosis means you have a gut infection. And as I already pointed out earlier, most people don't have a gut infection like an acute food poisoning episode where they say something bad.

Most of the time, it's an imbalance between the immune system and the different bacteria. Right. And then what happens is this different population, if certain population of bacteria is of growing too much, I mean, we have like a thousand plus different species in the gut.

They all play together, all these different species of organism. And they're some are meant to be like the United States, 300 million people. And some of these bacteria species are like the Bahamas, maybe a couple million people. Right?

So they all kind of play together in a certain ratio.

Root Causes, Dysbiosis, and Neurological Support

But if it, let's say if Bahamas grown to be like there's like 300 million Bahama and then the US population only have 2 million, well, that's going to create a major problem with resources and fuel and just inflammation level.

Your immune system doesn't like that. So gut dysbiosis can actually drive your immune system to want to attack that bacteria. The Bahamas, that's grown to way too much, too many of them.

So they want to control it. And that can drive this excessive inflammation. And then if your brain cannot dampen that inflammation response, that can just make it a perfect storm for someone to develop IBD.

So back to your point. So I want to offer that little tidbit because you can be auto immune to your own gut bacteria okay. So what do you do there. I think for people with IBD you want to think about it.

There's a lot of things we can do. Okay I think the two biggest thing that that could really help them. Number one is address that dysbiosis. Because there is this case where the bacteria balance of all the guys that are supposed to be there, they're just out of balance.

Some guys are growing way too much and some guy's not going enough. And that in itself is an inflammatory signal to the gut. So what do we do there? Well, it's kind of go back to our initial conversation.

How can we support the immune system in a way. So the immune system is doing its own job to control the bugs, right. Because it's not like you can just take like 2.79 capsules of this supplement, and it's going to get rid of 3.879% of this bacteria.

It's it's more like you're you're influencing the conversation. It's like a busy high school cafeteria with a bunch of different conversation going on between all these bugs with cytokines, and you just find a like over the loudspeakers.

Hey everybody listen up. And hopefully some of them listen. And your influence, the conversation. And that's all doing with nutrition. Right. It's not as decisive as a drug.

What we're going to shut down the whole immune response. So it's going to take time. But what we're doing here, we're influence the chemistry and the conversation that the immune system so that it can calm down over time.

That's how you address a root cause. So number one is focus on dysbiosis. That means maybe we have to support the immune system. Maybe we have to give us some exogenous help. Right.

Some antimicrobials to kill some bugs so that your immune system doesn't have to do it all alone. Once we can get to get the bug down, you know, just below that 55% mark, whatever.

So the immune system has a majority. It can start to take over. So I will focus on the dysbiosis. The second thing is

if you do have brain symptoms such as brain fog, depression, memory issues, any type of mental, cognitive, emotional type of symptom, consider the fact that there may be some brain symptoms or brain inflammation.

Then you need to identify what may be causing that. There's two primary categories of what may cause brain problem. Number one is a fuel delivery problem.

You're not getting enough fuel to your brain. That could be a blood sugar dysfunction. That could be a lack of blood flow to the brain oxygen problem.

So you're not getting enough fuel to the brain. Second problem could be that your brain's inflamed because of toxins and infections and autoimmunity, whatnot.

So we have to look at what's causing it and address some specifically. So improving brain function. Because when we improve brain function we're going to be able to improve vagus nerve function and improve vagus nerve function.

We can have that kind of background dampening of that noise, of the inflammation. That can help you to just make it easier for you to control all that inflammatory response.

So I think those are the two primary area I will offer for people to really look at and focus on if they have dysfunction in those area. Yeah, I think that's an excellent place to start.

I really appreciate you bringing that down for people. I think it's going to be really illuminating. So for people that are really resonating with what you're saying and like, yeah, I've been on the back foot with this for a long time.

I've been dysregulated, you know, at the digestive level and of course, neurologic. Like, all this makes so much sense that there'd be such a strong immune component between the gut brain axis.

What? Since we did poke a little bit of fun at the guitar string players, and how they approach the vagus nerve, what would you recommend for vagus support?

You know, given the complexity of this, how can people support themselves at home to incorporate some kind of neurological support? You know, given the complexity of this?

Yeah. And I don't think it's wrong to, plug the string on the banjo to get it going a little bit. Right. It can just be a starter. Right? It's not wrong to do it.

And often, you know, it's pretty hard to I don't want to say it's impossible, but it's hard to do it, to make it, to mess it up. You know, you can stimulate because the things that we have people do to stimulate the vagus nerve specifically, oftentimes are the activity that the vagus nerve control, which are your throat muscle because your vagus nerve have branches, the motor nerve that control your throat muscles.

So often time is humming is gagging reflex. It's, gargling exercises because those things activate the motor component, the vagus nerve. So then that could be one way to do it.

That's the the plucking, the guitar strings, obviously very specific using the vagus nerve because the principle of neuro rehab is whatever. Nerve is not working so good.

How do you get the nerve to work better? Well, you stimulate it. You exercise it right. If your bicep was weaker, what do you do to get the bicep stronger? You.

If you lift weight to get the bicep stronger on the right. If the right was weaker and left, same thing in the brain. You stimulate the part that's weak in how you stimulate it.

You stimulated by doing exactly what that nerve actually does. So the vagus nerve is stimulating the throat muscle.

That's one way to do it. Now you can also stimulate the vagus nerve because it's involved in parasympathetic by doing things that put you in a relaxed state.

So that would be meditation, deep breathing mat deep breathing exercise that's really prolonging the exhales. And if your exhale is prolonged longer than inhale that tend to promote heart rate variability which is a measurement of parasympathetic function.

And in fact the HRB Hari variability is really primarily controlled by the breathing. So breathing is a gateway to relaxation. Right. Because when you breathe in inhale your your kind of, pulling the diaphragm down to get the air in and that creates more space for the heart to move.

And then so then your heart kind of responds by moving a little bit faster. And when you exhale, the diaphragm pushes up, creates a little bit less space.

So your heart kind of slows down a little bit. So you'll see that when you're doing these breathing exercises, if you actually measure your heart rate, you see that on exhale, your heart rate was slow down.

And on inhale you half speed up a little bit. So it's kind of got the signs way wave going. So deep breathing exercise could be a way to drive that parasympathetic state which then influenced the vagus nerve.

And there's other things you can do like you know, whole plunges and you know, temperature and things like that. But I think the primary thing will be just put yourself in that relaxed state mentally meditating, breathing, exercise and just remove stressors.

You can plug the strings by stimulating the vagus nerve itself. There's also electrical stimulation as well. In research. They, they use, auricular transcutaneous auricular vagus nerve stim where they use an electrode on the triggers of the year.

So they deliver electrical activity. And that can stimulate the vagus nerve directly. And as we've shown in various study, to actually does stimulate the vagus nerve.

And then they also do electrical implants, which is pretty invasive. But they'll put an implant inside a chest that wraps a wire around the vagus nerve.

And doctor can use an iPad to control the electricity. And they actually doing a clinical study to see how that helps people to control literally IBD.

However, the problem with that you have an implant. Some people react to the implant. So we're trying to work that out. but there's, you know, there's various ways natural to invasive.

Always start with the natural ways. First. Totally agree. Cool. So any last words of wisdom for folks that have been dealing with this for a long time?

And like Dr. Peter, I resonate with everything you're saying. But I feel like I've tried a lot of this. What's your what's your advice for those guys, my beloved summit junkies?

Yeah. And I think, we all work with people who's, you know, been through a lot and, and that's that's unfortunate, right? That people have to suffer. And, for people who's been through a lot and they're still seeking for answer and they're not all the way there yet.

I think sometimes it's it's helpful to listen to the Summit. That's why you want to own this recording so you can listen to it. Because oftentimes when you really listen to it, something is download it to you.

Right? Maybe you didn't hear the first time, and the second time you hear you get something that's really useful for you that you can action on. But for a lot of people, if you have, if you think you have tried everything, most likely

you either have not tried everything or you actually tried everything, but you tried everything in the wrong order, right?

Because having all the parts, but then putting them together in a wrong order. You may have all the pieces, but you're not implementing it correctly.

Practical Vagus Nerve Support and Closing Advice

So that's where maybe consulting with someone that can help you to really take a deep dive into your symptoms and your history and understand it and explain to you what those symptoms and maybe coming from what's the mechanism and then use lab tests as a way to validate or confirm that.

Remember that lab test doesn't tell you everything. I think the mistake for a lot of functional medicine, doc, even patients, is to over rely on the lab tests.

And I think, sometimes, you know, doctors and patients, it's removing critical thinking and interpretation when you're just ordering tests and let the test tell you what to do, you have to be able to think for yourself, what's the mechanism, what's the physiology?

And actually for the doctor to be a doctor, a real doctor, which is what's normal physiology and why are things breaking and then work our way back from there, doing one step at a time, instead of just throwing everything in the kitchen sink at it, and a form of supplements, that's that's one way to fail.

Thank you for saying that to the person, not the lab, I totally agree. So window of information at best. Well, you are always a light in the dark, and it's so fun to be able to highlight your genius and.

What are you saying, light in, You're talking about my head. Yeah. Oh, well, you know, there's some reflective properties there, but they really benefit everyone.

I don't need lights. I have generate my own lights. Yeah, exactly. Yeah. it's such a joy to be able to unpack this topic with you. Where can people find you and learn more from you?

Thank you for letting me share Sinclair, people can just Google Ask Dr. Kan and you see, the ball had a Chinese guy pop up pretty easy. Arrow. that's my website.

And that's also all of my social media handle is askdrkan.com. Awesome, wonderful. Thank you.