The Brain Pain Connection Explained Transcript

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Introduction and Summit Welcome

Hi. Welcome to the Freedom from Fibromyalgia Summit. I'm Dr. Roger Murphy, and I'm delighted to be your host. I've got my friend and colleague, Dr. Peter Carne.

Peter is a board certified chiropractic neurologist and a board certified functional medicine practitioner. He practices in Arizona, but he has a telemedicine practice.

Like I do. He works with patients all over the world. We've been on numerous podcasts and summits together, and so today I really look for our conversation because it can go some different directions that we sometimes get off on a tangent.

But there's always a lot of material that comes from our conversations that people can use right away to help them in their quest to feel good again. So, Peter well, here we are, back at it again.

Thanks for joining me on the summit. Thank you so much for having me. Roger. I think yeah. I mean, I think it's a it can be a big, you know, multiple rabbit holes.

You know, I feel like it's off tangent, but in fact, they're all kind of connected. So let's see if we can help these people connect the dots. You know, that's what I love about you is is when we have these conversations, we kind of wrap it all up to where it all comes together.

And hopefully we'll do that today. Hey, but let's talk about let's talk about nerve pain and and what we see with fibromyalgia, this whole central sensitization pain syndrome.

Let's talk a little bit about that. Can you explain, you know, some of your work with neurology and what you see in fibromyalgia patients? Yeah, absolutely.

So, you know, in the nervous system, we have the central nervous system, which is your brain's brainstem and spinal cord, everything midline. And then we have the peripheral nervous system, which is from the spinal nerve root and out all the way to your fingertips that controls your sensory information as well as motor information.

Central Sensitization and Fibromyalgia Pain

So when we say central sensitization, we're referring to sensitization of, you know, your body to pain in a from a central perspective, meaning brain, spinal cord.

So you can have central sensitization because those area have a ways to naturally dampen pain. For example, in the spinal cord you have within the spinal cord regions that can actually produce serotonin, within the spinal cord that locally mediates pain.

That's how your body's naturally pain blocking mechanism. In fact, you know, a no exception, which is a sensory sensation or a type of input that generates pain.

No C-section is actually the norm. Like we're constantly generating nociceptive inputs. And so as long as that no C-section, that pain input is not greater than the threshold, then you don't really feel it.

It's almost like there's noise, right? You have this background noise, you can tune it out, but the noise gets too high. Then slides started, you know, you start to hear it and you start to notice it.

So we have a certain amount of threshold for for kind of blocking all this background noise reception. But when it

pokes above that threshold, that's when you experience it as pain.

So pain is actually a an emotional phenomenon, Olympic phenomena. It's a central nervous system perception, but really no C-section is the raw data that comes in.

But you don't notice the raw data until it pokes through a certain threshold. Now you experience as a pain and there's an emotional component to that pain as well.

So central sensitization means that that threshold has been lowered. So it's easier for you to feel pain, as Roger has talked about many times in fibromyalgia, there's this condition of hyperalgesia, right?

So then even normal pressures will make it make this person hurt with fibromyalgia or other people wouldn't. It's a same concept where you just become sensitized.

Now, why would you become sensitized to it? Well, it turns out that your cortex, your brain is constantly firing. Right. It's constantly receiving information as well from the environment.

That's what the brain does, is a big ol antenna to pick up sensory cues from the environments which side taste, smell, touch and then so these sensory input tells the brain that, okay, we need to do something to avoid danger or go find food.

So the brain found that sensory input is creating output, right? Stuff comes in and your brain say, okay, we interpret this, we generate output that outputs going to be more toric like meaning movement to get you to move away from danger or move toward food.

It can be autonomic function to get you to shiver or to get you to digest food and whatnot. But the output of the brain is really important because that cortical output ultimately is what actually controls your brain stem parasympathetic and sympathetic function.

In fact, 90% of your cortical output of what your brain generate as far as signal going back out to the body, 90% of it goes to your brain stem to control autonomic function.

In fact, actually 90% of it is really to help support that parasympathetic function and by by virtue of firing into the parasympathetic, you're inhibiting inhibiting the sympathetic because as a teeter totter, so 90% of your all your brain does is to fire, to parasympathetic, to generate that rest and digest function so you feel relaxed and calm.

And by virtue of having that function really good, you're inhibiting the sympathetic. So when you start to lose cortical output, you lose the inhibition or the brake on that sympathetic system.

So the sympathetic sort of creep up. Now you're in more of a fight or flight response, even though when there's no reason to at baseline and we're constantly fighting off that firing off that fight or flight response, a lot of things happen.

Your type-c fibers, these are little tiny pain fibers can become sensitive in your you may lose integration and modulation of the spinal core serotonin production so that you can modulate pain as well.

So these are just some of the reasons why that will happen now. So then people may ask, what's the reason why your cortex don't fire? Well, that's because there could be inflammation in the brain or lack of fuel or activation to the brain.

So I took to kind of put neurology in there in a very simple way. Brain cells, really, any type of neurons, not just in the brain, but invented the peripheral nervous system.

Neurons survive when they have fuel, and fuel comes in the form of glucose and oxygen. Of course you can burn ketone is an alternative fuel, but glucose is a preferred source of fuel.

And then you need fuel. You need activation. That means your your body has to move. In fact, movement is one of the things that can inhibit and block no deception.

Right. We talk about this gnosis at there, but it has to get above a certain threshold before you experience that this pain move and actually can dampen that.

So we need to but on a neurological level, your brain cells and these moves needs to have movement because that activates brain cells and that keep the brain cells healthier.

So we need fuel activation. We have to and we have to have absence of inflammation because inflammation damaged brain cells, which all of those things, if you don't have enough fuel or activation or inflammation, you're going to decrease the frequency of firing of the cortex, which means the brain cells can't fire at a normal pace is slower.

Then that's kind of slowed down the overall firing of the vagus nerve, the parasympathetic which will cost us some sympathetic overdrive. Now you get this whole situation that can kind of look like someone with fibromyalgia, right?

People with fibromyalgia have paying sensitivity. They can't sleep, perhaps partly due to the fight or flight response. They may have light and sound sensitivity.

Now, light and sound information goes into the midbrain, misses the phallic area that is an area in the brainstem and light and sound fires into the area in a superior calculus and an inferior calculus.

And so that's all in the brainstem fight or flight center. It's called the Midbrain Mizan satellite. So in people who are already very fight or flight dominant, then that area's already over firing because you have lost cortical function and lost parasympathetic.

So your spine flies over, over firing. Then the excess light and sound come in will be too much for them because that area is already being charged up.

So then that's why a lot of people with fiber will have light and sound sensitivity, and then they may have digestion issues because the vagus nerve is not being controlled properly and then they mate.

So they may have gas and bloating, they have leaky got like a blood flow to the gut. And then they may have constipation, they may have bowel troubles, and finally may even have urinary issues.

Because, remember, the parasympathetic extends all the way down into, you know, urination, defecation and sexual function. And that's controlled by the sacred plexus, sacral parasympathetic.

So if you don't have good some parasympathetic function that extends all the way down into the sacral area that innervate the bladder, and that an erect so that you may have like frequent urination or you may have UTIs because things like urine just sitting in there too long.

Gut-Brain Connection and Digestive Dysfunction

So fluid sits there. You get bacterial infections. You may have, you know, again, constipation issues or you may have sexual dysfunction. So I think so now so fibromyalgia.

Right. So people are treating a lot of the Western telepathic doctor treating fibromyalgia like it's its own entity. The fibromyalgia really just the end result of all these things going wrong.

Yeah. So great, great explanation. He went into a lot of detail and I want to I'm going to want to piggyback on some of that. But I had Dr. Rob Downey on here last week or two weeks ago.

I did an interview with him and he gave this analogy about central sensitization pain syndrome, where you go to

this crowded ballroom and there's hundreds of people in there and they're all bunched up and little bitty bands of conversation, you know, four or five, six, seven, eight people there.

You walk into that room and you're overwhelmed with all this noise, all these different conversations coming at you at once. It just, you know, it's all this this noise and, you know, can be kind of stressful.

But then you get into your own little group there and you start carrying on a conversation five, six people. And eventually you tone everything out and all you're hearing is the person right here in your little circle.

And that's kind of what our nervous system is doing right? But with fibro, you can't tune it out. So you go to get in this little, you know, little group of people here to have this conversation.

And you can't tune all these other conversations out. It's it's overwhelming. And then from that, your nervous system becomes, as you said, becomes, you know, complacent.

It can't balance itself. So you've got we know if I imagine the sympathetic nervous system is overly hyper, you know, aggressive, and the parasympathetic nervous calms everything down is being to kind of turn it off.

And so these people walk around wired and tired all day. They have all this nervous energy that's going on. They can't handle stimulation, bright lights, loud noises, things that, you know, you and I would take for granted to them.

It's just overwhelming. And it all comes down to the fact that they just don't have this balanced nervous system. Right. Many times it is, if not the root cause, it is a part of the picture.

There's other ways that that can that you could create that situation as a byproduct of other things. Yes. Right. And so a fibromyalgia, which is just a name given to describe a group of common symptoms, you know, and then we're really as a functional medicine practitioner, we're trying to look at, okay, what are the underlying causes of these symptoms?

And you mentioned numerous one. So let's talk a little bit about the gut brain connection, a little bit about that and the role that that plays in our health.

Because with fibromyalgia, we know that 70% as fibromyalgia have some type of irritable bowel syndrome diagnosis, you know, bloating, gas, indigestion, lose prominence, constipation.

There's a common denominator with central sensitivity sensitization pain syndrome. That's a mouthful this morning, both with fibro and with irritable bowel syndrome.

We see the connection there, right? Yeah, absolutely. And remember, from the perspective of central sensitization, as I explained earlier, Central means the central nervous system brings spring stems spinal cord and the brain brain stem is going to be responsible for a lot of that parasympathetic because 90% of the output of the cortex is going to fire into the point of medullary formation, which is in your brainstem that controls parasympathetic function.

So if you don't have good function, there, then you are going to have decreased parasympathetic because of that decreased vagus nerve output. The vagus nerve is one of the predominant nerves that come out of the cranium, the one of the cranial nerves that fires into the parasympathetic.

Now you have other parasympathetic nervous, you know, you have facial nerve that controls from Asian and salivation. You have, you know, the ocular motor nerve, that control pupil constriction.

So you have other cranial nerves that control parasympathetic function, but the vagus nerve is the most predominant and the most important one and elevated gut, but also embrace the heart, innovates the lung.

So have roles in respiration and breathing as well as digestion. Inside this vagus nerve, innervation goes all the way down to two thirds of the way through the transverse colon, kind of at the splenic lecture, which is like what a

spleen is on the left side.

So it goes pretty far down. It doesn't go to that all the way down to the rectum. That's again, the sacred plexus. So if you lose parasympathetic or lose vagus nerve output, then secretion of all digestive secretions are going to decrease.

That's stomach acid. That's going to be a pancreatic enzyme. That's going to be a bile from the gallbladder. And then when you don't make enough enzyme, they can't digest food.

So you don't digest food. Well, food kind of sits there and they rot. And as a rod, they can create acid reflux symptoms. So you're mistaken that for too much acid, we don't actually don't have enough because the food is rotting and turning acidic on you.

And moreover, the food that's not digested well has a chance to become fermented by bacteria and fungus. And then that's your SIBO and Candida overgrowth.

So some of these SIBO issue is really an outgrowth of just poor vagal outflow so that you're not digesting and on top of that, vagus nerve also controls intestinal motility, which is a downward beating movement of the intestinal tract to push food down.

Right. Digestion goes from north to south. So then if you can continuously have this wave of action to push food down, then the food kind of can sit there or even regurgitate up, maybe, you know, go going from the large intestine back up to your skull, valve or whatnot.

Then you're going to get again SIBO and these bacteria fermentation. So you get a gut dysbiosis and gut infections that you normally wouldn't get simply because you have poor central control of this digestive function.

Just remember, good parasympathetic right diverts blood to the core in a digestive tract, right? When you're in fight or flight, blood is diverted to the skeletal muscle so you can fight or flight in parasympathetic.

Then the blood is diverted toward a gut to help you to digest food. So if you don't have good blood flow to the gut due to a lack of parasympathetic, you can't you you got lining.

Your gut lining is one less cell layer sake, right. It's it turns over every three days one of the fastest turnover rates in the body as far as cell turnover.

So your intestinal lining needs a lot of nutrients, which means it's going to come from your blood supply. So if you don't have good blood supply to the gut, you're going to get leaky gut more likely and you can't transport nutrient as well.

So then this is where a lot of these digestive issue could be coming from, from a central perspective. Now, certainly you can have low stomach acid because of some other reason, like H.

Pylori, you can have like, you know, low poor bile issues because you have gall bladder sludge because you had you had toxicity or hormonal issues. You can have issues in all those area that I talked about separately.

But we have to keep in mind that the central mechanism is very important. It could be a backdrop for why those things are not happening. So people start to develop leaky gut and so the people are taking supplements for leaky gut.

And if you're not getting anywhere with that, then maybe you want to consider that there may be a neurological component. Yeah. So how do we balance these systems?

Because with fibromyalgia, as I mentioned, the sympathetic nervous system is hyper alert. It's overaggressive. The calming part of the nervous system, the parasympathetic is largely dormant.

And, you know, these folks get in this the state where they just can't get out of it. Stress becomes so magnified that little things that, again, you and I wouldn't be thinking about even the thought of, you know, going out with friends or going to the grocery store or, you know, just little things that we would just be nothing to us.

Just the thought of stressful thought can send them over the edge and put them into a flare. How do you start to balance that nervous system, the sympathetic and parasympathetic?

For me, you know, I always want to calm everything down first.

Reducing Inflammation and Identifying Triggers

So it's a combination of nutraceuticals over the counter supplements, the right ones for them, and then also really trying to get them to do more stress coping things like meditation and prayer and journaling and stretching, just light exercise, things that are really start to bring that overreactive, sympathetic nervous system down a little bit, calming down so we can start to see the parasympathetic rise back up and give them some relief.

Those are all great suggestions as a great cause. Yes, absolutely. Calming down the system oftentimes is one of the better first step because they can get immediate relief from having that first move of just calming the fire down.

So they're not dealing with so much anymore. Right. I see in some people that that is not enough. Most of the time, though, people can make progress by focusing on the important thing, like, as you say, meditation, you know, healing, leaky gut, stabilize blood, sugar.

Right. These things are very and cutting out reactive foods. These are things that we do as a functional medicine practitioner on a day to day basis and we kind of take it for granted.

But to a lot of other people, this may be, wow, you know, like, how do I go about doing that? So this is where talking to Roger and talking to other functional medicine that of practitioners can be helpful to help you create a program.

But sometimes it's not enough because I think people need to realize that the body is complex and it's all connected. We can simplify it, but know that the body is infinitely our creator, done a pretty darn good job creating us.

Okay, so we have multiple redundant backup mechanisms to compensate, to keep us alive, to keep us going despite dysfunction. But what happens is in that compensation, we create multiple vicious cycles.

So so I think the first step, what I would do if someone is not doing very well or not making progress as much, we may have to look at some of these other factors.

So for example, you see some of these people, they're just constantly just not doing well. The brain function is not good. They're tired of fatigue. So that that brings symptom that people get, you know, the fiber or fog or the fatigue, the depression and even the anxiety.

Those are really are a sign of brain inflammation, you know. So when your brain gets inflamed, you get those type of type of brain symptoms, right? So then the question is why does a brain becomes inflamed or the brain can become inflamed because your body is inflamed.

Okay. So when your body's inflamed, your brain's inflamed so that okay, why would the body become inflamed or your body can become inflamed because you have metabolic problems like, you know, your blood sugar is not good, you have insulin resistance, your body can become inflamed because you have leaky gut.

So then here we go. Got inflammation leads to body. When I say body, many systemic right people think gut inflammation. Oh, it's just the inflammation in my gut.

Like you have a rash on your skin that's just right there. That's not how it works. We have gut inflammation, you get systemic inflammation and we get systemic inflammation that all spills into the brain.

You get brain inflammation. So that's why when we say got on fire, brain on fire, really, it kind of goes through the body, right? So so what happens is when people have leaky gut or gut inflammation, that drives systemic inflammation, that drives a brain inflammation.

So now we have kind of the cycle here. And then because they're inflamed and they're hurting, I mean, people in pain and fibromyalgia, they're pretty stressed out about it and rightly so.

So then that stress physiology creates more stress chemistry, right, with stress hormones and cytokines, which further create systemic inflammation, which is that body inflammation.

And then they're going to cause brain inflammation. Now we got to loop some of these people have body inflammation because they have a virus or they have gut dysbiosis or some kind of pathogen.

So then that's driving it. And again, you see this loop happening now I will say this, some people, they have leaky gut because of diet. It's just not great or they're eating reactive foods like gluten, dairy or whatever other food they're reacting to.

And what happens is when you get leaky gut, you're going to create obviously gut inflammation. And there's actually a way for you to get from got inflammation to actually create histamine, which is a compound produced by mass cells.

And the histamine is a chemical that's, you know, necessary when you have an allergy to something. You know, the histamine is part of the mediators produced by mast cells like Luca trains.

And and there is over 100 mediators produced by mass cells. And these mediators are basically enzymes and chemical that degrade pollens and dust and allergens. So then when you have allergies, right?

That's why people take antihistamine because histamine serves a purpose, but it histamine runs too high, then that can create, you know, too much allergic symptom.

And so you think people do stuff to try to make the sun go away, but when you have gut inflammation, you can actually produce this cycle where you can actually have an overabundance of histamine response.

Now that can start to create problem because turn out histamine can actually sensitize peripheral nerve. So we talk about central system sensitive issues central.

So yeah, I'm having trouble saying it just like you do. Roger Central sensitization. Of this and I still can't say it every time. You've got to say a little slower now.

But there's also peripheral sensitization and there's this concept of neurogenic inflammation where your peripheral nerves, when they become inflamed, they can actually produce chemicals that will actually cause more histamine release and then histamine will cause more of these chemical to be released in that peripheral nerve.

So that'll sensitize them to more pain. And this is called neurogenic inflammation. So there's a way for you to become inflamed. They have lower threshold for pain centrally.

There's a way for you to become have a lower threshold for pain peripherally as well. And histamine and leaky gut can be a loop there. Okay. Now, when you have this neurogenic inflammation, it starts to create more leaky, got more histamine response and that histamine can come back and carry more of a inflammatory pattern, specifically at helper to a new pattern where you get a lot of antibody production.

So then that make you more likely to get food sensitivities, more likely to react to things in your environment. More

antibody production means also more likely that you may develop autoimmune because antibody may start to attack cell tissue.

So now you have this again, this pattern of someone with a lot of sensitivity to things in an environment chemically sensitive, food sensitive sense of their own body, which means autoimmunity, and that all is going to drive again, systemic inflammation again, which is going to cause body inflammation, brain inflammation, gut inflammation.

And you have this loop so it can be so how do we come down to sympathetic? So it's we have to look at where it's coming from. Sometimes coming down to sympathetic could be healing leaky gut or getting rid of some gut.

The gut pathogens sometimes called me down sympathetic could be adopting a lower histamine diet or addressing hastening, sometimes coming down sympathetic.

It could be just meditation or doing vagus nerve exercise, right? So it may have maybe a comprehensive approach, but I just I just want to mention that's going to open up the map a little bit wider in case people are just doing certain things and they're not responding.

So they have a backup option that you can go to as well. You know, so I'm listening this and thinking as a patient or an audience member, I'm thinking, oh, that's intimidating.

But as anything can create this overabundance of inflammation which creates pain and you've already got a low pain threshold, so, you know, where do you even start?

And and also there's I think there's a disconnect. People think, well, how can a food cause me to have pain unless it's gut pain, how can it cause me to have pain in my elbow or, you know, have pain in my shoulder and really any type of toxin or any type of any type of viral or bacteria or pathogen bug chemical that the body even a thought that the body thinks is dangerous, it can get caught in this pattern of winters releasing these inflammatory chemicals and they never get turned off.

And I think, you know, what explains that gives people a kind of an idea about that. As you see people that kind of go through life never have a problem with a food allergy.

You know, they eat all the time. The next thing you know, can't eat eggs a month later. Now I can't eat dairy next. The next time you talk to them now, they got seasonal allergies.

Never had a problem with allergies before. Now they start breaking out in rashes and bumps. And and it's because they finally have gotten so toxic, you know, whether even even if you're trying not to be toxic, sometimes you can't you can't escape it.

But the bucket their bucket that's designed to allow them to be able to navigate life, it overflows and it spills over. And now they start to develop the symptoms.

And the beauty of functional medicine is it's not about, oh, you're in pain, we're going to put you on pain pill or Lyrica, gabapentin or something else to cover up the nerve, the nervous system being over aggressive rash.

You got to look at where did all this where did all this start? And yes, it can be a little bit intimidating. But for you and I, that's the beauty of what we do is this detective work to try to figure out what are the triggers that are creating the pain, the fatigue, the irritable bowel, the brain fog, all these things that we see so common in fibromyalgia.

So don't let it intimidate you. Just realize it. We've as you said, you're opening it up and we kind of look at it and realize that it's not always just a simple cause and effect.

It's multiple layers. And the only way to overcome that is to get healthy, which sounds very simplistic, but, you know, it's not because until you are starting to fix these underlying causes, these triggers, you can't get healthy, you can't overcome it.

So it's a process of putting this puzzle back together, you know, with different strategies that we use right? Absolutely. And for me, it's a I see it as a roadmap, right?

Like just like there's a sequence, you know, kind of like unlocking your cell phone. If your cell phone passcode is one, two, three, four and you type in four, three, two, one, or they're the same digits, the same number of digits, even though you're put in the wrong order and it may not work.

So, you know, certainly, you know, in my experience, I've kind of see patterns where it helps me to to kind of be able to see, okay, what do we need to fix first?

And second? So, you know, I gave you a big map, but that's really the framework that I use to kind of see, you know, the lens that I see this chronic condition through, even though is complex. But we can kind of do it one step at a time and that take the complexity out of it.

So I wanted to share this. I have a patient here recently that her CRP this is C up C-reactive protein levels a marker for generalized inflammation although associated with cardiovascular inflammation of heart and blood vessels.

It should never be I mean in conventional medicine should be below three for us.

Food Sensitivities, Leaky Gut, and Oral Tolerance

We really like to sit around one if we can get it down there. So hers was 14 and and, and one of the things that I found that's very helpful for our patients, reducing this inflammation is finding out if they have any food allergies, because this is something that every day, you know, if you've got an allergy, you know, in your and learn a food you're allergic to and you're eating it every day, every couple of days, you're generating more and more inflammation every day.

You're just you know, you're pouring gasoline on the fire for her. It really she we got it down to we got it down to six and I'm still kind of discouraged had her on you know all the things you do high doses fish oil curcumin numerous things and it was just so stubborn.

And then I said, you know what? Why don't you do a food diet journal? We just see four missing something. And sure enough, one of the things that she was having every single morning was this shake that had in their eggs, you know, is like it's way down.

There's a bunch of ingredients. I didn't even think anything about it, but she was telling me she was used to a protein shake. I didn't think anything about it.

Was PB, so I didn't think I'd have eggs in there too. Sure enough, I saw that. I thought, You know what? Let's just do a trial, go off of that. Let's go off of that for two weeks and let's retest you and see what your CRP level of say dropped down to three.

So, you know, there's definitely a cause and an effect from the foods that you eat. You know, they can be helpful, but they also can be harmful. So it's a process of really trying to figure out, you know, what are some of the triggers that are creating this inflammation.

And certainly food allergies are one of them. Definitely a food sensitivity. And you mentioned earlier how people, you know, through the years, they start with once, you know, I can't eat this now.

And then they you know, after a while I can't eat this other thing. Also, that's called a loss of oral tolerance or oral tolerance is how well can you tolerate the things that you put in your mouth like food?

And when people start to lose oral tolerance, this is usually a sign of some type of intestinal permeability or leaky gut. So then these dietary proteins are leaking through the intestinal lining, allowing presentation by the by the lymphatic system to tbe cells to make antibody.

Now I would say the other reason for oral tolerance is that again relates back to the vagus nerve. And a central mechanism is if you had poor vagus nerve output, remember you don't make enough stomach acid or enzyme, then you don't digest food completely.

So think of a food protein. You're supposed to break the protein down into amino acids. So if you can't break the protein down to amino acids, then that protein, if you have a leaky gut at the same time that leaks out, that's why you react to you cannot react to amino acids because once the protein completely degraded into individual amino acid, there's no reaction.

So one of the reason people lose tolerance is that they just not digesting the food. Yeah. So that could be low stomach acid, low enzyme production that could be caused by the vagus nerve issue.

So then you have these dietary protein floating around and it's not supposed to and you can develop a sensitivity to those foods. So if you're progressively getting more and more food sensitivity, it means that you're either not digesting maybe a vagus nerve problem and or you also have leaky gut and or you have a increased immune system pattern that where your immune system's making a bunch of antibodies because got a bunch of other things that's trying to fight like toxins and infections. So I think people, people who have increased flu sensitivity, don't be discouraged.

There's a reason for it and there's a way to address it in that the solution is not to cut out every single food, because at the end of the day, if you develop a more and more food sensitivity, you become more and more restricted in your diet.

Then that can cause, you know, nutrient deficiencies. And that's not good either. So the goal, even though short term we may have to cut out food that you're sensitive to, the long term goal is to build back up the word tolerance so that you can tolerate more food.

So people who get kind of on these diets and they get more and more limited in what they can eat because they're having these reactions. And it can be from different things.

I mean, yeast overgrowth can be a culprit. SIBO can be a culprit, you know, can change your what you can and can't eat and tolerate. But to me, leaky gut, that's it.

So if I have someone that's telling me that I have all these food allergies, my first thought is, well, you know, you've got leaky gut. And typically when and I test just about everybody for food allergies, I think it's it's low hanging fruit.

You know, if we're trying to get the buckets overflowed with all these toxins and stuff, the body that because a person can't handle them, let's at least try to make sure that when they're eating every day, they're not putting gasoline on the fire.

And so what I find is I have I have someone has all these food allergies, you know, 15 or 16 different foods that show up. It comes down to really it's not so much the allergic reaction to the food.

It's the fact that they've got leaky gut. And it really sometimes any matter what they eat is going to generate this this inflammatory reaction. Right.

The you know, so you can have leaky gut, by the way, from the food sensitivity and create a leaky gut and a leaky gut system sensitivity and so on. When we're talking about healing.

Leaky gut, yes, absolutely. There's supplements like L glutamine and different things that we typically would use that's very useful in leaky gut. But I think the important thing is for people to kind of see a bigger picture of that.

Okay, there's other things perhaps like vagus nerve issue that can cause leaky gut, like gut dysbiosis that can cause leaky gut like even high blood sugar problems.

You know, if you have insulin resistance, you're a diabetic. That's a very inflammatory state that can also cause leaky gut. So we want to be aware of those things.

And I'm honored to make one last mention about vagus nerve, because we started this with a central sensitization. So the vagus nerve fires parasympathetic and it fires into the gut to help control digestion.

But the vagus nerve is also really important in dampening inflammation as well. I think people are not knowing that as much by maybe people know vagus nerve is parasympathetic.

Help me to be calm, help me to digest rest digest. Right. But I think people are not aware of the role of vagus nerve on dampening inflammation. There's actually a direct pathway through the what's called inflammatory reflex arc.

So there's actually an axis where the vagus nerve actually can innovate, displaying and the liver and the intestine in small intestine and inhibit macrophage activation.

So you're not producing so much of the cytokines like TNF alpha and interleukin one beta. So that's a direct, direct way of how the brain and immune system is connected through the vagus nerve dampening inflammation.

So if you lose that vagus nerve function or even some increment of it, then you may have a increased inflammatory response in your body and then that can sort of cause got inflammation, body inflammation, brain inflammation, and that whole cycle starts.

So now people might be saying like, whoa, if it's that easy, everybody's messed up right now. Remember, your body has amazing capacity to heal itself.

And sometimes our body, you know, and it depends on genetics, depends on your preexisting condition and how much stress you have. We can't forget the cycle social aspect of it and even, you know, self-talk, right.

I've got mindset is a big thing too. It can it can really create this background of either you going to have problems or you going to be more resilient.

Okay. So so this is where nutrition comes in. This is where exercise, lifestyle, all the stuff that we help people with are going to be really important to help create this tide or this this environment where it's easier for the body to recover.

Yeah. So I think that's one of the points I'd like to, you know, kind of end up with is that you're as an audience participant, you're thinking, okay, where I am star, I mean, this is where do I go?

And really you just start with the most basic things and that is clean your data, you know, clean your health lifestyle, you know, do you want to do things can be just do simple little things that will allow you to have a little more space for this bucket, you know, to be able not to be overflowing.

And that can be again, that can be doing things stress management with, you know, meditation and like stretching and journaling and reading healthy and material that is nurturing, like Joel Osteen or Zig Ziglar, Wayne Dyer, who may deliver.

Or Roger Murphy. I don't know. They'll put him to sleep. They read my books. But you know, I think they need sleep. Yes.

Vagus Nerve Support and Calming the Nervous System

And that's that's a big one. Yeah. I think you got to just realize that it's a it's a culmination of these little things that you can do. They can, you know, give you make make you have a lot of progress.

One thing I want to ask you, how can someone this is something we I think we want to leave them with. What can

they do to stimulate the vagus nerve? Now that we know the importance of it, what are some of the exercises or things that they can do at home to stimulate this important cranial nerve?

And this is a topic that I'm super passionate about, you know, as a chiropractor and religious, you know, we we we seek to understand and come up with as many ways as possible to, you know, to help people to be able to activate the vagus nerve.

So and so the vagus nerve can be that the action or the activity or the firing of the vagus nerve can be promoted by anything that the vagus nerve will control.

And our vagus nerve has a fair of nerves which goes into form that basically the vagus nerve having an innovation that senses the body and then goes into send that sensory information to the brain and then also has efferent, which is nerve from the brain that goes out and control the body.

So the vagus nerve have control over certain motor function muscles of the throat so we can do humming, gargling, singing, and these activity is activating the ether and or the motor component of vagus nerve.

And thereby we're basically exercising that nerve, right? So just like biceps needs these exercise to get bigger. If you exercise the nerve, then that nerve will become more stable and stronger.

Remember earlier we talked about brain cells require fuel activation and know inflammation. Activation means you actually using that part of. The brain you can use the vagus nerve, the motor part of it by doing motor activity, humming, gargling, singing, deep breathing, by the way, is also a motor activity, right?

Because you can control the diaphragm. You have that voluntary control. So breathing is kind of interesting, is voluntary, but so involuntary. If you hold your breath too long, you're going to have to take a breath.

But you can also control your breathing. That's what deep breathing exercises. So breathing really deeply and slowly can improve vagus nerve. In fact, you can measure this on heart rate variability hrb, which is a measurement of parasympathetic activity and really breathing, slow breathing is kind of what contributes to the HIV because the heart rate and the diaphragmatic movement is what kind of contribute to that.

The heart rate rising and falling, which is actually good for your heart rate to kind of go through that cycle. You can also do mindfulness meditation, you know, being aware in a still awareness, right?

Just being aware that you're aware. Right. Kind of ignore the the talks in your brain. You're going to have the conversation. Your brain, by the way, when you have conversation, your brain who's talking to who you know.

So if you're actually observing your own thoughts, talking, then you are not the thought. All right? You cannot observe it and be the thing that you observe.

At the same time. So meditation is really to disconnect from that internal ego talking to itself so that you just being aware of the awareness which is your life.

So meditation and mindfulness is really helpful. Exercising within your capacity can be helpful. You get it during exercise, you may have some sympathetic activity, but after exercise you get a rebound, anti-inflammatory effect and kind of a calming afterwards.

After you exercise, even, you know, a cold immersion, you may say, how does that help? I get freaked out when I jump into Carl, but again, there's the effect afterwards is what we're after.

Other things could be, you know, just even having, you know, certain mindset by having the attitude of gratitude, complimenting other people or being complimented by others, actually being complimented by others is actually more powerful than complimenting others by being being having someone being grateful to you for something that you help them is actually more powerful than you just being grateful for you actually connecting with nature.

Being out in nature is also very helpful here. Listen to music that's more slower. Rather than like techno music that's really fast. So, you know, there's a lot of things that you can do that's noninvasive that can help promote the vagus nerve.

I think the biggest thing is really put your body in a parasympathetic state, which is a calm, relaxed mindset. A lot of us mindset, right? It's the filter that we see the world through.

And if your filter is one way to, everybody's after you, then it's going to be very difficult for you to get into that calm and relaxed state. I remember a few years ago one of my sermons and I can't remember which one it was.

Okay, members of the first one, maybe the second one, but Eva Deco, who did a lot of work of the vagus nerve, she's a naturopath. She she did a presentation all about the vagus nerve.

And afterwards I started making sure all my patients were humming in the morning, you know, and I really encourage them to do that looking in the mirror and sending thoughts of love to themselves and gratitude, which, you know, a lot of people are uncomfortable with that in the beginning, but it can be very powerful.

And so, you know, two years later, I have sometimes just had this picture, Peter, of, you know, hundreds of my patients over the last couple of years, every morning in front of the mirror doing this humming and, you know, it's a it's it's a an exercise.

It can be very, very powerful. And I encourage you to those that are, you know, watching this, just try it, you know, and you may not you might feel uncomfortable looking in the mirror and, you know, giving it, forgiving yourself, loving yourself, seeing yourself gratitude.

But it can be really, really impactful. I love that. Yeah, it's almost a form of self acceptance and when you accept yourself, then you feel safe in your own mind and your own body.

And that's a great place to start. I love that. You know, this, you know, with fibromyalgia, you get so down, you know, because you've got an illness that most people don't understand.

Most doctors can't really help. You don't know what to do. And, you know, it's easy to get really down and depressed, but that just you get in this this maze, you know, where you just can't get out of it.

You're your filter has become so cloud did that you got this black cloud. It's hard to see the sun, you know, here. So anything you can do to kind of get out of that maze where you just stuck and sometimes it's just a matter of being proactive and getting outside and maybe can't walk more than a block and maybe it's just getting outside and getting some sunlight, something, you know, that simple just to start the process to to be able to nurture self and get back in and in the game of life.

Yeah, absolutely. Peter, now your website is Ask Dr. Khan. Is that is that the best website to name? Does that because you've got some resources. I wanted to check out what was your best website for them to find out more about you?

Yeah, our main website is asked to contact Khan and we also have masterclasses that we launch from time to time. And you know, we'll let the we'll let you send that to your audience when we have them, because it's not a you know, I'm. Going to always yeah, I always. Recommend. Yeah.

And then I think another good resource just, you know, free stuff online, which is YouTube. I have a pretty big YouTube channel. People can watch free videos and I think that's a great free resource.

Yeah. Hey, Peter, thanks so much. It's always been been really great to spend some time with you. And for those of you that did that, you know, feel a bit discouraged.

I hope I hope we've shared enough positive message here that you can realize, you know, you can get better, you

can feel better. And so don't give up.

Do not give up. There is hope.