Introduction and Guest Background

If your vagus nerve is not functioning up to par, then you can have a decreased ability to naturally dampen inflammation in your body. Therefore resulting in chronic inflammatory response.

That's higher at baseline compared to people who have good vagus nerve function. So this this could be a reason why some people have chronic inflammation.

And they can resolve it because they have this decreased vagus nerve issue. This is doctor talks. Welcome back to a reversing Marseille activation and histamine intolerance summit.

I'm your host, doctor Meg Mill. And today I'm joined by my esteemed colleague, Doctor Peter Kan. Doctor Kan is a board certified integrative medicine, functional medicine and chiropractic neurologist.

He's also the creator of neuro metabolic integration. I'm so excited to dive in today to all the great information that you're going to share. And then we're going to talk about.

But I wanted to first start by just getting a little bit of you're sharing a little bit of your story. I know we all have these personal journeys that sort of bring us to where we are.

And and I just want to kind of shine that and see how what brought you to this point? Thank you so much for having me, Meg. It's a pleasure. When I was in chiropractic school, my father was diagnosed with, liver cancer stage four.

And, you know, he was older, you know, an older parent, you know, basically, he had me later on in his year or so. By the time he was diagnosed with cancer, it was already 75.

And so they basically say, you know, there's not much we do for that. You know, we don't do liver transplants for someone that elderly. So six months and just get your affairs in order.

And you know, my brother was also is also a chiropractor. So at that time, you know, I was just still in school agreeing. So would you just trying whatever little things that we knew with supplements and diet change and with the little things that we did, my father was able to live five years symptom free.

And so doctor was like, what the heck are you guys doing? How's he still around? So that taught me a lot. That taught me that there's always something that we can do to improve quality of life.

And then when I got married and have kids, my kids all have some type of allergy, severe problems. So I had to figure out how to help them. And at that time, I still don't know very much about nutrition or functional medicine, so I had to learn.

I mean, mind you, this is, you know, 16 years ago, so information wasn't as you know, common as it is now with summits like this that you're doing. And so through that experience, I had to figure out, you know, gluten sensitivity, autoimmunity and how to help people with really chronic, severe issues.

And I translated that knowledge into my practice. And that's what I've been doing, you know, in the past 15 years or so, helping people with really chronic autoimmune, inflammatory in being system reactions.

And this is where, you know, we get I get to share this with people. So I'm very blessed. Yes. Well, great. Thank you for being here and sharing with us today.

So let's just start a little bit talking about just the overview.

What Mast Cell Activation Is

I know we're talking about this a lot, but just about the how the mast cells work. And you know what happens in muscle activation syndrome. Yeah. So mast cell is a type of immune cell.

So your immune system makes a whole bunch of different kinds of white blood cells. And these white blood cells all serve a different function. Right. It's kind of like on a football team you have a guard, a running back, a receiver.

And they all sort of hand function. Same thing with your immune system. Right. And then so mast cells are a specific type of white blood cell that does a specific function.

And specifically what they help with is that they are kind of a sentry or the guardian in the entry points of your body. Right. What are these entry points?

Well, these are called the mucosal surfaces. The mucosa is any internal lining of your body that's in direct contact with the outside world. So for example your mouth you have the oral mucosa right.

If you look in your sinuses that's another mucosa because things can go through your, your nose. The lung is a mucus because once it gets through the nose, your airway, your lung have to process whatever allergen is in the air.

And then you have your gut as a mucosa, which is a continuation of your mouth, and then the vaginal track and so on and so forth. So these mass cells are lined in those mucosal surfaces as well as on your skin.

Right. Because your skin is an interaction with the environment. If you cut your skin things can come in. So mast cells are there to protect you in those entry points.

And this is also the reason why when you get mast cell issues, if the mast cells are, you know, too active, then you can have symptoms in a lot of different places, right.

So you can have dermatological symptoms like hives, urticaria. You can have gastrointestinal symptoms like cramping, abdominal pain and GI upset. You can have neurological issues because there are actually three receptors within the central nervous system.

So Marcelle and histamine can actually impact your nerve function and brain function. And then you also have mass interacting with other parts of the immune system.

So then they can actually promote a two dominant immune response, which means that your immune system gets out of balance and gets into more and more of that entrenched pattern of allergies and sensitivities.

And this is the reason why people with nasal issue, it can seem very confusing to them, because they feel like they have like 20 things wrong with them.

And it's not that they have 20 things wrong with them. They probably have one major thing which is this issue manifesting as 20 symptoms because mast cells live everywhere.

You know, connective tissues and stuff like that. Yeah, we see that all the time where it can be so confusing it's hard to diagnose. It seems like, you know, you're jumping a lot of times from doctor to doctor.

It's giving different symptoms. And unfortunately being told you're fine because they're not relating all of these symptoms. So that's why I wanted to share this because a lot of people are confused and it's complicated.

So I know your specialty is the brain and the vagus nerve and and all of those connections. So let's talk a little bit about how this is a specifically affecting our brain.

Yeah absolutely. As I mentioned earlier Brian. Well mast cells release mediators. Let's back up a little bit. They release these chemicals that controls these inflammatory response.

Right. So it produces things like leukotrienes and prostaglandins which controls inflammation response. And just for the audience to know that inflammation is not a bad thing, inflammation is needed.

Right. It's our body's way of getting rid of things that we don't want. Like pathogens and allergens. So inflammation is not bad. Mast cell is not bad.

You know, the mast cell response is what we call it allergy. So if you get exposed to some kind of dust in your eye, mast cells are activated. So you create a river of tears and mucus so you can rinse the stuff out.

It's all fine. And normal until it's excessive, right? Anything in the body, it's all about balance. Two little is bad. Like imagine if you have some kind of dust or allergen in your sinus and you don't have enough mast cell activation.

Then the stuff just stays there and irritates you. And that's not very comfortable. But if it's too much mast cell activation, that's also a problem. So we don't want to, you know, give any value.

Judgment right is good and bad as is. Like, you know, this is humans passing judgment on things, but the body doesn't know it's good or bad. It just does what it does. Okay.

How Mast Cells Affect the Brain

So in your brain specifically, you have these H3 receptors that respond to histamine, which is one of the chemicals released by Marcel. And, you know, the inner central nervous system, specifically the histamine actually plays a very important role.

It's actually a neurotransmitter in the brain. And this causes us to be alert and awake. Right. And this is the reason why when you take antihistamine, it induces drowsiness because a block the histamine receptors.

And then you know, you're less awake in the brain. It leads to this state of awareness and alertness. And so when you have mast cell issues, mass owl release can actually decrease the production of acetylcholine norepinephrine and serotonin.

So these are again other neurotransmitters that play a role in your mood play a role in in memory play a role in again a weakness and alertness. So if you have histamine activation in your brain it decreases these neurochemical production.

So this is reason why people with, you know, histamine intolerance or mast cell activation syndrome often experience brain fog. They often experience depression or even anxiety.

Could be both, could be either. And they often may experience fatigue because the role that mast cells and histamine play on a central nervous system.

Now furthermore, acetylcholine is a very important role transmitter that plays a role not just in memory, but also controls circadian rhythm, specifically in the hippocampus area of the brain.

The hippocampus is where the long term memory is formed, and acetylcholine is used in the hippocampus for its own neuronal neural function. But the hippocampus also controls circadian rhythm.

So when you get disruption of this acetylcholine pathway in the hippocampus, you may experience sleep issues, trouble falling asleep or staying asleep.

And then lastly, acetylcholine is the primary neurotransmitter used by the vagus nerve. Okay. So the vagus nerve is one of the major nerves that carry out parasympathetic function.

And so if you have acetylcholine issues then your vagus nerve function may be disrupted. And that can impact, you know, anything. And everything controlled by the parasympathetic which includes digestion includes, you know, your ability to stay calm includes blood flow and and things like that.

So, you know, there's definitely a huge connection between mast cell activation, histamine responses and how your brain and your nervous system functions.

Yeah, it's all fascinating. I mean, it really does show how all of these systems are connected and how this is an overall body issue. Now you do a great job explaining the vagus nerve and how that's affecting our body and controlling all of our functions in the parasympathetic.

And we actually know that stress is another, you know, where that starts to happen as we start to get cycles where stress is actually another trigger of mast cell activation for a lot of people.

So their mast cells are going to get more activated when they're under a lot of stress, and then they're going to be in that sympathetic nervous system.

And we need to really work on that regulation. A lot of times we're working on nervous system regulation to bring them back into that parasympathetic nervous system.

So can you give us a little bit of a background on the vagus nerve, the parasympathetic response and some of that dynamic. Absolutely. So the vagus nerve is one of your 12 pairs of cranial nerves.

And cranial nerves means that these are nerves that excite your cranium. Your skull and vagus nerve is a nerve that begins in the brainstem, in a lower brainstem, and then from there travels down through a long wandering path.

That's why it's called a vagus nerve, Latin for vagabond, which means lone wandering, and then go through and innervate muscles in your throat, the swallowing muscles.

It goes on to have a branch that goes up to your heart and lung, that has an impact on heart rate and respiration. And then the rest of it goes to go on to innovate the entire digestive tract, really from, you know, your gallbladder to your, you know, your stomach acid production to intestinal motility all the way down to the skull valve.

So the vagus nerve controls these is the primary contributor to parasympathetic function. So and then to back up slightly, you know, in your brain your brain is divided into two primary branches.

You have the central nervous system and you have the peripheral nervous system. And then further divided into the autonomic and a somatic control system.

So the somatic control system is a part of the brain that controls everything as a voluntary. And then the autonomic nervous system controls everything that's on autopilot.

And then within the autonomic nervous system, you had the gas pedal and a brake pedal, which is a sympathetic which drives fight or flight response, and the parasympathetic, which calms you back down for a fight or flight response.

80% of your parasympathetic function is really contributed to vagus nerve function.

The Vagus Nerve and Parasympathetic Function

So that's a very big part of that. And we know that the vagus nerve through that cholinergic pathway, which means cholinergic means using acetylcholine, actually directly has an inflammatory reflex that dampens inflammation in the spleen, liver and intestine.

So to put another way, your body is hard wired to use the brain through the vagus nerve to dampen inflammation in your body. Okay, so what that means is that if your vagus nerve is not functioning up to par, then you can have a decreased ability to naturally dampen inflammation in your body, therefore resulting in chronic inflammatory response.

That's higher at baseline compared to people who have good vagus nerve function. Okay. So this this could be a reason why some people have chronic inflammation.

And they can resolve it because they have this decreased vagus nerve issue. Now of course then we have to find out okay. How do we know somebody has vagus nerve issue or otherwise.

And so you know usually it's through a neurological exam or there's telltale symptoms that'll help you to identify that you may have a vagus nerve problem.

Some of these telltale symptoms would be you have a lot of digestive issue that's across the board. Meaning it's not just with FODMAPs. It's not just with fat.

It's not just with protein. It's like with all of it. Why? Because when your vagus nerve function goes down, then digestion overall is compromised. So it doesn't matter what you eat.

Everything doesn't digest well. Right? If somebody just have problem with fiber and FODMAPs, okay, that might be Sibo. If somebody just had problem with fat digestion but not protein digestion, maybe they have a gallbladder problem.

But if it's all of it, that may be a clue. It could be vagus nerve. And then if you add on top of that they have a lot of sympathetic overdrive type of symptoms.

They're anxious and restlessness and can't sleep well, you know, the pupils are always dilated. You know, the palate doesn't elevate when they say, because the vagus nerve control the palatal muscles.

When you put that picture together, then we may have somebody that have vagus nerve dysfunction. If there's a lot of symptoms that's cluster around there, then we can say, okay, let's do some vagus nerve stimulation and see that can help them.

That's really enlightening. I know that. And you know, some of these things again, like we're saying with the mast cell it's hard to distinguish. So I know what you're saying of somebody will maybe hear a lot of information online and just think, okay, I have Sibo or I have, you know, just different things.

But looking at I think a key point here is just looking at the whole picture. And I think that's where in the functional medicine integrative medicine approach, we're trying to put all of those pieces together to really see that whole picture of what's going on with your whole body.

Absolutely. Yeah. Not just see the whole picture, but also right to kind of step back and then be able to zoom back in as well, meaning when the symptoms overlap, we have to say, okay, you have gut problem, you have neurological problem, you have inflammation, you have all these things.

But like which one is the primary driver. And what things do we go after first. And you know that's something we can discuss later. So let's talk about now where you start because that that's what people want to know.

Yeah. And the where to start. It's really context dependent. Meaning everybody may have a different starting point. Right. So what we don't want to do is to say everybody is exactly the same.

Because if everybody is starting the same, then then we're assuming that everybody had the same exact problem. They may or may not be so because even though for people with mast cell activation syndrome, which really, you know, nasal activation syndrome is a syndrome, which means that there's a cluster of symptoms.

And what that means is something is causing the symptom. So Marcel activation syndrome is not necessarily the cause of the problem is the end result of some other problem.

Right. So for now that doesn't mean we can treat the Marcel activation problem and reduce histamine tolerance and and make things better. Right. To control the symptom.

There's nothing wrong with treating sometimes right to to give someone the patient more comfort. But we also want to look at what's the root cause that's driving the symptoms.

We're not just spinning our wheels, doing the same thing over and over again to get a temporary relief. So the point is, everybody may have a different, you know, constellation of what's causing the problem.

But in general, though, what's causing mast cell to get activated in the first place are, you know, things in the environment. As I mentioned in the very beginning, mast cells live in the junction of where our body interact with the environment, our mucosal surfaces, our skin.

So whatever we get exposed to is what potentially can drive that mast cell to become sensitized and activate excessively. So that could be things that you're eating right.

Food reactions that could be gut infections, gut inflammation, leaky gut. And in fact, research showed very strongly that gut inflammation is a very strong promoter of cell responses, because in your gut, you literally have these epithelial cytokines.

So these are cytokines are specifically live in your mucosa and epithelium. For example you have these thymic stromal. Then 4.9 proteins and you have interleukin 35.

And these are specific cytokines cellular messengers of inflammation that live in your gut and your mucosal lining. And they are really good at triggering mass.

Our response if you piss them off in any way, they're going to tell the mast cells to like, hey, go make these mediators because we got something that's coming in.

We want to dissolve it and digest these allergens and whatnot. So your gut essentially is an inflammation factory is designed to be. So that's not the problem is designed to protect you by becoming an inflammation factory.

Root Causes and Triggers of Mast Cell Activation

But if you constantly put that into your body, something that's going to stoked a system, then you are asking and inviting Marcell activation. So gut inflammation is the big one.

Now. It could be coming from food that you're eating or gut dysbiosis. Environmental toxin is another thing. We know that many of these endocrine disorders and chemicals and toxins, environmental toxins are very strong promoters of to a new cell, which this is the branch of the immune system that drives algae and mast cells and eosinophils are your two immune cells.

So we know toxins can do it. Stress, as you mentioned earlier, can drive this fight or flight response dampen the parasympathetic which decreases vagus nerve function, therefore decreases your ability.

Dampen the inflammation overall. And then we have things like, you know, just other sources of inflammation. So what does these other sources of inflammation or if your blood sugar is out of whack that can cause inflammation.

So people with insulin resistance, they're going to be much more inflamed than people who are not insulin resistant. And then you have also people who have autoimmune disease, right?

When you have autoimmune disease, you're more inflamed at baseline because your immune system is constantly

attacking your own tissue, whatever tissue that might be Hashimoto's, thyroid, shoguns, you know, tear ducts and whatever it is.

This is where we must identify the underlying factor that's underlying each person. And and, you know, go after the most significant thing for that, I agree with you.

And I really don't see resolute tree resolution unless we're really identifying and finding that root cause, like you're saying. I mean, you can dampen the symptoms and you can kind of create symptom relief.

And I think that that's part of a factor where that's sort of the approach when you're going to your conventional doctor, you know, they're looking a lot of times this is a newer thing.

This diagnosis really didn't come about until 2016 when the research started coming. You know, it's not mainstream all the time. So you have to be your own advocate and really finding that root cause and finding the right person to find it and identifying it and not really going after that symptom relief. Totally.

But finding the root cause because we're not really going to see complete resolution in this mast cell activation unless we can put those pieces together and find it.

Right. I mean, so much of the the treatment from a medical perspective, if you have inflammation and whatnot, they're giving you say glucose, glucose, corticosteroids.

And interestingly, you know, for people with asthma, which is considered a nasal disorder, often time they're using asthma inhaler, which are steroid inhalers.

And we know that these steroid inhalers can actually dampen that one immune response, which promotes Th2 dominance, which drives your body more into. Marcel.

So research actually shows that chronic steroid overuse actually exacerbates mass cell activation syndrome. So makes the person more dependent on that Mets to even keep it going, but progressively work less.

And if I'm a natural medicine model, you know, you have Marcel okay. It's course often you know, like, well, yeah, of course this thing is great. Marcel stabilizer.

But this giving course attend to every single person with Marcel, resolve the Marcel activation. I will say, from my experience. No, that's a that's a piece of the puzzle. Right.

So we have to. That's why I say we have to step back, because I have tried. Just keep giving people of course, a ten. And does that work on everybody?

It may dampen the symptoms. Symptoms. But if we don't address the gut dysbiosis, the stress physiology, the environmental toxin exposure, the, you know, the more toxicity, you know, that molds as potent to immune system driver and Marcel Driver.

So if we don't address those underlying issues then you know that person is going to have a really tough time resolving the issue completely. Yeah I completely agree.

And it is amazing, I think to see with some people that are really have been struggling a long time, once you start to look at these root causes, how you start to see the mast cell activation go down and just the whole body calm.

And it's really a nice to be able to see that change for people who have been so sensitive for a long time is impactful. Yeah. So can you give us a little bit?

I know one of the things we brought up is the vagus nerve in the mix. Sometimes people don't know what to do. They want to turn and they want to get in the parasympathetic.

They they tell me, oh, you know, I can't avoid the stress. And we work on a lot of those exercises. And I know that you have some exercises that you use often.

And really train people on vagal nerve toning. Would you be able to give us some of those exercises or just a little explanation on that? Yeah, absolutely.

So we really in functional neurology, when we're talking about building up a function of a nerve or to strengthen a weakened area, what we're talking about is activating the the function that nerve controls.

So if you were you had a bicep weakness because C6 is not getting to the bicep.

Vagus Nerve Exercises and Stimulation

And to make that nerve fire better, then you activate C6 by doing the bicep exercise. Right. If you're if your bicep is weak, the thing to do to make it stronger is actually strengthen the bicep by exercising it.

Same thing with the nerve. And the vagus nerve is not functioning well. Then you want to do things that will activate the vagus nerve, which are the very thing the vagus nerve actually controls.

So what does a vagus nerve control voluntarily. Right. Because there's autonomic functions that you can you can like hey intestinal motility. Let me will it into more motility. Right.

You can control that because it's autonomic. But you can control things that are under your conscious control. So that would be like the muscles in the throat because that's areas that you have conscious control of.

And the vagus nerve also innervate that through the motor pathway. So these will be throat activating exercises. Now some of these are sensory as well.

So for example you can do gag reflex. So when you do a gag reflex you can use a tongue depressor or simply a toothbrush. When you're brushing your teeth.

And what you do is you just push down on the back of the tongue. Then not the motion is not poking the throat because you hurt yourself poking your throat.

But it's really put it at the back of the tongue and depress and push down, and that'll induce a gag reflex via a sensory pathway and afferent pathway, which is a pushing down.

So you're sensing the the pressure on the tongue and induces a motor response, which is the gagging. And that's very much a vagus nerve mediated response.

So you can actually do a gag reflex and stimulate a vagus nerve. Another thing that we teach people to do is doing, you know, things like gargling. So when you're gargling again, you're activating the throw by motor, right?

Muscle movement by oh, you're gargling so you can just drink some water while you're brushing. You can do this while you're brushing your teeth. Do the gag reflex by pushing down with the toothbrush.

You can drink some water to rinse out the toothpaste so you just gargle. So those are two things you can do while you're brushing your teeth. And assuming you brush your teeth twice a day, you got two opportunities to do it.

And really the key thing is how much do you do it. Because most people they just gag reflex. So they they gag one time and there's the undone I activated my vagus nerve.

No, just inducing a gag reflex doesn't necessarily bring that muscle stronger. It's kind of like your right bicep is weak. So you lift the dumbbell one time and you put it down.

Done. My bicep is a completely strong now, right? It takes multiple reps and multiple sessions and multiple weeks and month to get that bicep to become stronger.

It's the same idea. So most people are not doing enough. Okay, so how do you know it's enough? Well, it turns out the vagus nerve, the nucleus of the vagus nerve.

With that the cell body comes from in the brainstem, lives right next to the cell body. The nucleus of this nucleus elevator track ants, which stimulates tearing.

So when you do the gagging and the gargling, if you feel tears coming out, you know, sometimes you gag is like that to your tongue. Then you know you done enough because you activate the vagus nerve that fired off a nearby neuron.

So that's one way to know. But the key is to do it intense enough and strong enough and frequent enough. So how much is that approximately? Well, everybody's going to be slightly different.

But usually I will say when you gag, do it, you know, maybe 8 to 10 reps. Kind of like doing the set of exercises in the gym. So you might want to get okay.

Like if I do it again, you know, do that 8 to 10 times. And then when you do the gargling again you have a cup of water. Then you take a sip, gargle and you gargle as intensely as you can.

It's not like no, it's like take a deep breath in water. That's what I'm talking about. Right? So I mean, you got to do it so intensely that if you post that video on, on, on social media, it'll go viral, like that's how strongly you got to do it, because if you don't, you just simply not doing enough.

And that's one rep. Then you might do several sips just to finish that cup of water, and then you do that twice a day. That's what I call enough. Okay.

So that's those are some of the ways. But you know, certainly a deep breathing exercise prolonging the exhale make the XL longer than an inhale. Even cold plunges or splashing cold water on the face.

Meditation. There's a many other things that you can do to stimulate the vagus nerve. But, you know, gargling, gargling is probably a more direct hit to that.

We also, you know, teach people how to use, vagus nerve stimulation using electrical devices. That's kind of the next level thing. But, I think in general, there's a lot of things you can do for the vagus nerve, but we always want to look at what's driving that.

Right? What's the root cause of the root cause so to speak? Well, thank you so much. I'm going to challenge everyone to go try to do that. Try to do the gargling, let's say, and give it a try.

Closing Remarks and Where to Find Dr. Kan

Those are things like I tell people every day, those are things you can do every day and just see if they're starting to make a difference for you. And they're easy and free.

So you can so challenge everyone to go out and try some of those exercises. Well, thank you so much for being with us today. You've given us so much helpful information.

Can you tell me one where they can find you? Yeah, absolutely. So, good. Good place to find me is on social media. Just Google doctor Peter Kan Kan, on YouTube, a very robust YouTube channel with a lot of free education.

Instagram, TikTok. And then my website is as drkan.com. Well, thank you so much. Thanks for joining us today.

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