Introduction and Nervous System Overview

Welcome back to the conversation. Today I have Dr. Peter Kan. Welcome, Peter. Thank you so much for having me, Laura. Yes, I'm so glad that we get to do this again.

I love it when I get to bring my friends on to these projects. But our audience, you know, in case they don't know you, let's let them know who you are.

You're a board certified integrative medicine, functional medicine and chiropractic neurologist. You're the creator of NeuroMetabolic Integration It's a science based program that identifies the root cause of autoimmune and other chronic conditions, which is precisely why I'm bringing here today, because you are a root cause expert and you understand how important the nervous system and the neurological system is to healing.

So today we're going to have a good talk on vagus nerve and all things neurological. Sounds good. Let's do it. Okay, so first off, I want to start by really digging into the concept of being able to heal versus not heal when the nervous system is either.

Well, I don't want to say engaged or unengaged. I want to say overreactive or able to actually get into a calm, healing state. In other words, you could have all the perfect supplement protocols to solve parasites and bacteria and fungus.

You could be eating all the perfect food. You could be detoxing, you could be getting rid of all the toxins in your body, solving the mold issues, solving the metals, solving the environmental toxins.

And if you don't get yourself into to a parasympathetic healing state, you will be on a hamster wheel. Could you explain that further and unpack this for our audience?

Why is this absolutely critical to solving this problem? Well, that's a great question, Laura. I think that's where really a lot of these chronic illnesses either start or become this become a factor that's impeding people.

So let's start from the beginning with our nervous system. We have what's called the autonomic nervous system. That's the part of the nervous system that regulate everything on autopilot.

This autonomic nervous system is divided into two branches where the sympathetic branch and the parasympathetic branch. Now the sympathetic branch acts as a gas pedal so that we're propelling us into action so that we can fight or flight and get away from the tiger and get things done.

And we have the parasympathetic branch, which is our feed and rest and digest system, so that after we're done fighting the tiger, then we get into the healing stage so we can digest our food and push blood to our organs and to our reproductive tract.

So we can make babies. Now, keep in mind that this two systems, they are both platonically firing. What that means is that they're both firing at the same time, all the time.

So essentially they're pushing against each other all the time. So it's not that you're either or. It's not that you're in parasympathetic or you're not you're in sympathetic or you're not.

We're constantly both in parasympathetic and sympathetic at the same time. It just to what degree, which side is firing more to get more of your body function into that particular state.

So that's really important to understand because a lot of people just think like, well, I think I'm in fight or flight. Well,

it's more like relative degrees of fight or flight, right?

Are you like 100% fight or flight? Are you 60% or are you 50%? So that's important to understand the gradation of it. So it's not all or nothing, but it's important to know that if you're constantly in that sympathetic state preponderance where you have a higher state of activation of your sympathetic system, then the manifestation of that is the fight or flight state, right?

That's going to be more occurring often than in a rest and digest state that that's what we're really talking about.

Fight-or-Flight, Stress, and Paper Tigers

And the more you're in that fight or flight state, what happens is this constant surge of not just a neurological firing, because we know from research that when your brain is in a fight or flight state, literally the way you access information in your cerebral cortex, the way you perceive things, the way the different areas of your brain gets activated, it's different in a fight or flight state versus when you're in parasympathetic, right?

So in a fight or flight state, everything is you know, it's basically focus on immediate danger and survival. So then your priority there is not to think rationally.

Your priority is, oh, my gosh, something's going to eat me. I better run away and I better make a memory of that. So wires my limbic system so they get emotional, emotional about something that's really stressful.

So next time when something's going to eat me, I can get really emotional about it. That'll spur me into action. So literally, your brain functions differently when you're in fight or flight versus in parasympathetic mode.

So that's just the brain structure itself. Now that's in addition to all the neural hormones that secretes through the HPA axis, the hypothalamic-pituitary-adrenal axis, through the secretion of stress hormones like adrenaline and cortisol.

This these hormones also changes your neuro metabolic, which means how your brain use energy, right? It may shift you out of a fat burning mode into a carb burning mode so you can get glycolysis and glycogen releases to break down glucose in your reserves so you can get more energy into your system so we can fight the tiger, run away from the tiger.

So your energy use has changed your brain function change your hormones change. All in a sympathetic state and long, short term. This is vitally crucial for your survival.

Long term, though, if it's unabated, it leads to these accumulation of these pattern that can get wired hard through negative plasticity, so literally that even if you don't have the stress anymore, your body still act like this.

The stress is still there. So that's called negative plasticity, kind of like how PTSD happens. So you're continuing to put out these stressful neurochemicals and stressful and physiological states even though the stress is no longer there.

So you become wired into that stress pattern and now you become easily sensitized. So next time you know something, come along the stresses you out, you have less capacity to handle the stress you don't.

You know, you have know shorter capacity. Your your temper is shorter. You can handle the stress as well. That's what comes with a chronic stress issue.

But more importantly, chronic stress is going to suppress your immune function. Many times I see people with chronic stress will have low white blood cell count.

They may have cortisol that no longer work, meaning the eater. They don't secrete as much cortisol because adrenal gland, adrenal glands completely fatigued.

So then they can secrete enough hormone or they're secreting way too much cortisol. And now you have cortisol downregulation. So the cortisol that's circulating doesn't work anymore.

So it's almost like they have high cortisol, but there's symptom is expressing as a low cortisol something this is called receptor DOWNREGULATION, which means kind of like insulin resistance.

You have cortisol resistance. So then circulating hormone, it's not helping you to fight the stress. All of this is very degrading and inflammatory. It drives inflammatory cytokines.

So you know that the stress response is, again, twofold. It's a chemical response through hormones, cortisol, adrenaline, but it's also a neurological response because as your sympathetic nervous system fires through the spinal cord, in your spinal cord, you had the sympathetic chain ganglion called intermediate lateral cell column.

These are nerves that literally fire the signal to get you to get the blood vessels to constrict so you can have higher pressure to get you to sweat more, to get your pupils to dilate.

This is all neurological that has nothing to do with cortisol. It's literally a straight up neurological response. So stress physiology is multipronged and it's very damaging.

Long term. And this can put you at risk for not being able to heal from injury, not able to digest food properly, therefore not able to absorb your nutrients, not able to dampen inflammation and fight infection, which all these to this chronic inflammatory condition that people are trying to solve.

You know, I want to go back to something that you said right at the beginning, that we're not either or we're not in parasympathetic or sympathetic. We're in both.

And, you know, what comes to mind is actually a teeter totter. And I'm sitting here thinking it's like we're on a teeter totter, right? Like like you're never you never know when you're on a teeter totter.

Either you're up or down. And sometimes you're kind of right here in the middle, depending on how well that weight is distributed by your partner on the other side.

Right. And I keep thinking that there's like a connection, an analogy there to explain this. Could you talk a little bit more about you mentioned, you know, you're what you're fleeing from the tiger.

What is today's tiger? Because none of us are fleeing from tigers. So what is that help or help our audience understand? Like when you're on that teeter totter and you lean towards sympathetic versus parasympathetic, what's the tiger we're dealing with?

That's really the ultimate question. And really, you know, it it really gets down to like, you know what? How we're designed really human brain is big on Tanner.

What we're in Tanner, we're stimulus response machines and we're a meaning interpreting machine. Okay. So basically based on our perception, right? So perception is reality.

And how do we perceive through sight, sound, taste, touch, right? So these affair and signals from our environment, it tells us hey is too cool for some jacket on or it's too hot, take some clothes off or there's food, go to on it or there's danger, run away from it.

So this is all based on what we see in our environment, what we sense. So essentially we're a perception machine by human brain is different than animals and that we can make meanings out of things.

And sometimes these meanings we can create meanings that we create stories basically, right? Sometimes the stories help us to understand things and sometimes stories doesn't help us as self-sabotaging.

So then these modern day tigers, I call it paper tigers, right? So the paper tigers are like deadlines. Fight with your spouse, worrying about the future, you know, stressful jobs, your kids and family stress or hanging around negative people.

All these things are also stressor in addition to toxins and chronic infections and and things in your environment that you're exposed to. So these are called exposure zones.

All the things we get exposed to in an environment that basically create this perception in our body, both on a conscious level and the unconscious level, to tell us what to do right, whether to fire more than to fire or sympathetic response or to put us back into a parasympathetic response so that we can calm down from the stress and to often letting living the modern day environment.

There's too many paper tigers, too many signal to fire to sympathetic and not enough signal to help us to fire the parasympathetic.

Vagus Nerve Function and Injury

This is such a good analogy and I am so glad you said we are meaning meaning making. So I worked through a whole leadership, you know, a leadership workshop for and I was in this for like five years and we talked about humans being meaning making machines.

We make meaning out of everything. And that meaning can go two ways. You can make an experience mean something frustrating, angry, scary, whatever, or you can make experience mean something completely benign.

It's like the glass is half full, half empty kind of analogy. And so I think in this day and age and what we've been through as a as a well as a world, I mean, nobody's immune to what we've been through with the pandemic over the last three years longer.

I think we've got a lot of paper tigers. What I'm trying to say, we got a lot of paper tigers. So how can the vagus nerve actually get injured? Let's talk about that.

Can you actually mess it up to the point where it won't come back or you can't get it to work correctly? Can you talk a little bit about that? Yeah, let's talk about the vagus nerve a little bit.

So it's just a kind of get that foundation in there. So the vagus nerve is one of your top cranial nerves, does two pairs, one on each side of exiting the brainstem.

And this is one of the longest nerves in the body. It goes all the way from the brainstem, innervate our heart or lungs or digestive tract all the way down to really even down into through the ILIO skull out in the large intestine.

And the vagus nerve is one of our the nerves that control the parasympathetic function. Now, there are other nerves that control parasympathetic function for example, cranial nerve three innervate the pupil.

There's other cranial nerves that intervene other, you know, saliva glands in our mouth so we can, you know, digest food. But the vagus nerve is one of the major contributor to parasympathetic function.

So when we turn on the gas pedal, brake pedal, the vagus nerve is important in that regard. And it drives our secretary function of digestive enzymes secretions for bile acid secretion, for example, pancreatic enzyme secretion, stomach acid secretion as well as GI motility and valvular control are various sphincters and valves in OGI try and also has innovation to the heart and lung, as I mentioned.

So controls are kind of heart function as well as respiratory function. So it's really intimately involved in some very basic like function. And the vagus nerve has the A has the capacity to become injured.

Yes, absolutely. Because if you think about the vagus nerve, it's a nerve. So any nerve in the body containing

neurons, right. There are nerve cells. And the way neurons work, nerve cells is that they transmit signal from one nerve cell to another nerve cell, kind of like passing signals through a relay baton.

You passing the baton from one nerve cell to the next nerve cell to the next level. So then the nerve signal becomes propagated from the brain through the vagus nerve down to our gut, so we can have GI motility and nerve cells are exquisitely sensitive to inflammation and oxidative stress.

And so when you have chronic inflammation, one of the first thing that actually gets impacted is your nerve cells. So some nerve cells are myelinated, so they have an outer covering to help it to transmit message more efficiently.

And then some nerve cells are on myelinated. So many of our nerve cells that innervate the autonomic nervous system are actually on myelinated. K So there are type C fibers that are small diameter in inner size and there are myelinated nerve fibers.

And these type C on myelinated nerve fibers that are most of your autonomic nerves are very sensitive damage because they're really small and delicate.

Now the vagus nerve is not immune to that. So the point is that all neurons are sensitive to damage, are sensitive to fuel fluctuations, they're sensitive to inflammatory consequences, they're sensitive to infections.

Specifically, virus does love nerve cells. There's tiny and they can get into neurons and they can travel up through the axons and dendrite up that the nerve and into different places in the body.

Toxins tend to have a propensity because many of these toxins are lipophilic so they are attracted to fat and the myelin sheath for the larger nerves are fat based.

So then these toxins just store in the nerve tissue. So that becomes a really easy target for various sources of chronic inflammation. And so nerve cells get damaged, including a vagus nerve.

Okay. Can you in the last few minutes that we have in this first part of our interview here is, you know, you've you've described the sympathetic parasympathetic nervous system, and we've talked about the vagus nerve and how important that is for, you know, communication in the body through the nervous system.

How important is this vagus nerve to healing? So if you can answer that in this last part of the interview here. Yeah, absolutely. Vagus nerve is tremendously important for healing, not just because his role in firing the parasympathetic system so that you can get into a state of rest and digests. What does that really mean?

It means that, again, the motility, the GI motility, the secretion of enzymes and all of that, but importantly, the vagus nerve actually directly inhibits inflammation in the body.

So there's an inflammatory reflex, as it's called in the scientific literature. And what they discover is that the vagus nerve actually directly innervate the intestinal lining, the liver and the spleen, and dampens macrophage activation of inflammation.

Okay, so what is that? Well, that macrophage are these immune cells that basically go out there and perform phagocytosis. They eat up, you know, bad guys and pathogens.

They also clean up cellular debris. And these macrophages are actually the primary producers of inflammatory cytokines. And the liver, spleen and intestine is a primary site of production of these where these macrophage lives.

So if you have systemic inflammation, most of it is coming from your GI tract, from delivering from your spleen. And interestingly, vagus nerve directly innervate those organs to dampen inflammation in a reflex pathway, meaning every time the vagus nerve fires those, those macrophages that the inflammation pathway are dampened.

Vagus Nerve, Inflammation, and Sympathetic Dominance

So that's the intrinsic body's anti inflammatory mechanism that's built in three neurological pathways, not a chemical pathway. So if you have a lack of vagus nerve function, then you can effectively dampen inflammation in a neurological level.

Your baseline level inflammation is going to be higher than somebody else who have proper vagus nerve function. And this can contribute this basal level of chronic inflammation that builds up and can become a Silent Killers over time.

How how often do we see people stuck in this cycle of being in a parasympathetic state more than their arm? Excuse me? Less than they're in a sympathetic state.

So how often do we see people more in a sympathetic state than a parasympathetic state being kind of one of the underlying reasons that they can't get?

Well, how often do you see that in your practice? Well, it's extremely common. And I think people can actually you know, you can actually take a just inventory, you know, to find out whether you're in a fight or flight state.

Usually when you're sympathetic, dominant, you can just look up the anatomy chart. You're going to see sympathetic function. You're going to see pupils dilated.

So you might be sensitive to light. You're going to see that you might be sweating more because you're sympathetic to the cause, you know, more sweating so that you can kind of evaporate heat, better.

You're going to have decreased digestion because all the blood is going to your muscles. So you can have decreased digestive function, you may have urinary issues, you may have constipation, various GI disturbances as a result of poor digestion like gas and bloating.

All could be coming from this fight or flight response, not to mention disturbed sleep, disturbed energy metabolism, metabolic. So then your blood sugar is off.

And when your blood sugar is off and your cortisol is out of balance because of chronic sympathetic state, then that's going to start to impact your hormones as well.

Studying your thyroid adrenal or sex hormone all become affected. Not to mention your brain gets wound up, so it becomes chronically wired into that sympathetic state.

So now, even in the absence of the stress stimulant, you're still stuck in a fight or flight response. So your brain is constantly firing that signal.

So that can really drive a lot of people's neuropsychiatric symptoms of anxiety, of emotionality, depression, of things like disturbed sleep, short term memory issue and later brain inflammation as well, which leads to brain fog and memory issues.

Oh, my gosh. So in the next part of our talk here, we're going to get deep into how to solve this and how to get yourself into more of a healing parasympathetic state.

We'll also explore a lot more about the nervous system. And I want to thank you so much, Dr. Cohen, for joining us today for this talk on the vagus nerve and inflammation.

And to our audience, I hope you found our conversation insightful and helpful. If you're a summit purchaser, stay right here, because we're about to dove even deeper into this discussion with Dr.

Kahn. If you're not, click on the button on this page and get access to a continuation of the conversation and many others, and really get the tools you need to reclaim your health.

If you're watching this continuation of my talk with Dr. Kahn, thank you for being a valuable member of our community, and we're going to dove right back in.

So, Dr. Kahn, let's talk about how to fix this problem. What do we do to heal the vagus nerve, to get into a rest and digest and repair state, to balance that teeter totter? Right.

How do we get that balance there so that we've got just the right amount of sympathetic, just the right amount of parasympathetic, just at the right time.

Laura, how much time do we have? We have a long time before we do it. That's the million dollar question. So, you know, in in healing anything, I think the first question is what's causing it right?

What's the mechanism right? And then what's the the cause of that mechanism.

How to Heal the Nervous System

So when we say mechanism, that means on a cellular level, on a neurological level, what is driving that particular tissue or area to behave the way it is that's creating a symptom.

The symptoms, the end result of something. There's a cellular or biological mechanism that drives that symptom. So we don't want to treat symptom one to address the mechanism.

And then beyond the mechanism, then there's a root cause for that mechanism, right? So for example, somebody can have, you know, anxiety. The mechanism of anxiety could be autoimmune to gas.

65 anybody with stomach acid oxalate. And this is an enzyme that's involved in producing GABA. So if you have autoimmune attacking gases by antibody, you came together, you may have anxiety.

So in this case, anxiety is caused by the mechanism of autoimmunity. Then we ask, what's the trigger for the autoimmunity? Then the trigger for autoimmunity could be gluten reaction, gluten sensitivity, right?

So the root causes of gluten, but the mechanism is autoimmune and the symptom is anxiety. So then trying to treat anxiety without addressing the mechanism or even removing the root cause is fruitless.

This is where a lot of people don't get anywhere because they're not prioritizing what the body's needs are. So when it comes to vagus nerve, and as I said earlier, vagus nerve, just like any other nerve cell, their nerve cell, the collection of nerve cells that form a nerve, right?

So what's the primary requirement of a neuron? Well, all nerve cells require fuel and activation and lack of inflammation. So remember when I took my neurology board?

You know, my chiropractor neurology training module one, you know, is, is basically neuron theory first requirement. The first thing we hear is what's the requirement of neuron?

What do they need to survive and thrive? What they need fuel. What's the fuel for neurons? What the preferred source of fuel is glucose and oxygen, right?

If your brain doesn't have oxygen, give it 4 minutes. You're pronounced brain dead. That's it. So oxygen is critical for brain function and then glucose.

Your brain is very energy intensive, right? Even if you're sitting there doing nothing, your brain is constant firing just to maintain autonomic function.

All the things that you don't have voluntary control that your brain's maintaining for you. So it's very energy intensive. So it needs a lot of glucose.

Now, some people argue with me, you know, say about ketone ketones, superficial, yes. Ketone is super fuel for the brain, but the ketone is something that's produced in the absence of any carbohydrate intake usually happens in fasting or starvation mode.

So, you know, when we talk about regular people diet, usually people are consuming some level of carbohydrates that we are burning glucose first. There are some circumstances where ketogenic diet is beneficial and would do that, but it's not, you know, a lifestyle or something to live on forever.

So glucose is a glucose is a sort of preferred source of fuel. So in saying that if you have any disruption of fuel delivery of either glucose or oxygen in any way, shape or form, your brain cells will stop functioning properly.

Okay. Now, this happens in degrees, right? It has mild degree all the way to a most severe degree. So something can still out differently. Can you just give us some examples really quick of what would cause lack of oxygen and lack of glucose fuel?

Yeah. So clinically speaking, people may have low oxygen state because they're anemic. Right. Anemia is defined as having low red blood cell, low hemoglobin, low hematocrit.

These are markers tested on regular complete blood count, complete blood panel. And if you have lab values below the reference range, then that's considered diagnostically anemia.

And when you will have anemia, that means you don't have enough red blood cell or you don't have enough hemoglobin to carry oxygen and your neurons going to suffer with our again.

Okay. And then another way this can show up is poor perfusion. Perfusion meaning the liver delivery of blood flow to your tissue. Right. How well are you able to deliver blood to your tissue?

And that has to do with circulation. That has to do with proper blood pressure. Some people have low blood pressure, hypertension, some people have orthostatic hypotension where it's associated with position change.

Any type of hypertension means that you're not getting enough blood pushed to your brain or to your tissue. Your tissues are going to suffer. It's kind of like having a lawn that's not getting water enough.

So you're getting like brown spots. Well, imagine that happened to your brain, not enough blood to your brain. You're going to get some brown spots. That's not good. That means brain cells are dying.

And that's a very negative situation. In fact, that could be associated with vascular dementia. Vascular dementia is where you get these mini strokes in your blood vessels.

So the blood vessel cannot deliver blood to your tissue, to your brain, and then you end up getting dementia as a result of lack of blood flow to the brain.

So that's oxygen. Now on the blood sugar side, you can have disrupted blood sugar from having poor blood sugar control. And that usually comes from several mechanism.

It could be lifestyle like your diet is not good. You're eating too much carbs, eating too much processed food and sugar. You're driving your blood sugar drop, causing insulin resistance and then causing therefore leading to reactive hypoglycemia.

So you have blood sugar instability. That's the number one reason why you see most people having issues with their brain is actually due to that particular reason.

And then secondarily, people can have blood sugar issues because they have chronic inflammation, because when you're chronically inflamed, your body's producing various inflammatory cytokines, which all triggers your body to get into.

Number one, a neural hormonal state of stress, which is cortisol release, adrenaline release. Secondarily, it causes a neurological state of stress, which is firing the sympathetic nervous system through the intermediate lateral cell column.

So then you get a neurological firing of your nervous system. And when you're constantly firing, you know, logical system into a sympathetic state, you actually create what's called neurogenic inflammation, which means you literally form neurological stress, create a local stress response where you actually produce inflammatory cytokines.

And all of this is going to cause your body to produce more stress hormone like cortisol. And cortisol has the effect of raising blood sugar. So now you get get this chronic high blood sugar state because you have chronic high cortisol, even if you don't eat too much carbs.

But you're having high blood sugar because you're having high chronic cortisol. So that becomes a vicious cycle. So that's another and another mechanism.

People have autoimmune disease, too. The pancreas. I have type one diabetes, so they have autoimmune to their adrenal glands causing, you know, a fluctuation of cortisol.

So all these leads to these fuel delivery. But most common reasons really through lifestyle, people just not eating properly. So fuel is a fuel activation and lack of inflammation is what the neuron needs to be healthy.

So let's talk about activation next. Yeah, activation means you've got to fire your neurons, right? So this is what chiropractic neurologists do. What we learn is that neurons, they need to be firing, they need to be working. Right.

You don't use it, you lose it. That's very apropos for the brain cells. And so what happens is like, say, for for example, somebody has a right elbow that's broken.

So the elbows put in a cast. So you have mobility of the right elbow. Well, guess what? The neurons that innervate that right elbow to detect movement after about four weeks, they're going to start to die off.

Right. So then that's that's good. That's from study. We know that when you stop a nerve cell from firing, from getting any signal, the nerve cell would gradually degenerate again.

But the good news is that if you fire it again, they can come back, but only if you do it in a specified period of time. So if you have a nerve damage that's been there for way too long after a certain amount of time, there's no capacity for dead neuron to come back in more.

This is why brain injuries by somebody with spinal cord injury, they become paralyzed for life because at this moment in time, we haven't developed technology to be able to regenerate neurons at this time.

So so again, you know, with brain cells, you have to have fuel and you have activated brain cell activation because simply just the exercise, in fact, that's actually the best way to activate your brain cell movement.

Movement is that I consider a movement a nutrient for the brain. Like if you want to people ask like what food do I, I say, exercise, there's no food.

Why not? I say, exercise, that's a nutrient for your brain. If you're not exercising, you're leaving tons of gains on the table. Not only that, you're leaving yourself open for neurodegeneration and various diseases so you can exercise.

I'm sorry, do you care what kind of exercise people do? Or is it just like move your body? Like what? Is there any particular thing that's really good?

It's whatever exercise people are willing to do right that they will consistently do. But yes, there are certain parameters that in research has shown that, you know, increase neuroplasticity or increases longevity in general is the most amount of exercise someone can do that they can tolerate without feeling worse.

Right. And for that, different people. Different right. An Olympic athlete may be able to do a lot more than somebody who's really sedentary, just trying to get back into it.

So everybody have to find a sweet spot, but it's really as much as you can do without feeling worse. Okay. Is there more on activation? Well, you know, doing mental activity is activation, right?

So like just us having a conversation right now and activating the the part of the my cortex that's dealing with language production. Right. I'm also activating a part of my brain that deals with concepts because I'm discovering I'm discussing different concepts in my brain and are able to verbalize that.

So I have to see the concept, see how the different concepts are interrelated. So this is all frontal parietal, all different integrations are moving my arms, so the cerebellum being fire.

So when we're thinking that's a great way to fire. Now again, exercise movement trumps thinking any day. But you also need to think, what do I mean by that?

Well, if you have a job where you're doing repetitive tasks every day, the same thing, nothing new about it, it's all the same every day. Well, then you're not going to build new neurons to help you to make new connections.

That's called neuroplasticity.

Masterclass and Closing Remarks

So doing novel task your brain loved now goal task because novel task requires the brain to make new connection to other neuron, to make a new pathway for that new particular activity.

So learning a new language, for example, learning to play an instrument if you already play an instrument, learn to play a new song. Or if you are doing Sudoku, don't just do Sudoku, do some other, you know, concentration game.

So always change it out and that's how you activate your brain. I feel like I'm lacking in the Department of Activation. We all could do more. We all can do more.

Oh, maybe I do get to the gym and I do lift weights and I do some heavy workouts, but I need to move my body more. I can get stuck here at my desk working a lot and I'm like, Ooh, activation, activation, activation.

I love a. Great way to fix that. Laura is have a massage therapist and and right behind you and massage you every day because sensory input is also activation.

Now you're activating the sensory pathway by someone touching you, right? It's different than activating the motor pathway where you're actually moving, but stimulation is stimulation.

Okay, so, you know, massages as a modality that can be used as well and secure rechter, a chiropractor, you know, physical therapy and that's why these things work.

Why does people feel why do people feel better after massage? Why do people feel better after an adjustment? It's literally a stimulation into the brain.

Don't think of it as like, oh, they work on my muscle, so I feel I'll lose. It's literally your brain's getting a new train of sensory stimulation and proprioceptive movement.

That's what's driving your brain to like, Whoa, I'm feeling all this stuff and that's fire. That's activating a certain region of the brain. And therefore you feel better because it's normalizing things.

Oh, so good. Okay, so the final topic of keeping your neurons healthy, fixing the parasympathetic nervous system, stimulating that vagus nerve to do its job is lack of inflammation.

So in the last 5 minutes that we have here, what do you want to say about reducing inflammation? And this part really relates back to the beginning part of our conversation, which is what's the root cause of the inflammation, right?

So I'm sure you have a lot of speakers that's talking about all the various different types of root causes. And Laura specializes in looking at root causes and so forth.

For some people, the root causes of inflammation can be the fuel delivery thing that we talked about. They're diabetic or they have insulin resistant.

They can get glucose to the brain. So the nerve cells are literally degenerating from lack of fuel for another person. It can be leaky gut that's driving gut permeability and inflammation that's causing blood brain barrier breach.

Therefore, brain inflammation as a driving, decreased brain function for another person could be heavy metal toxicity that's causing oxidative stress and causing neurodegeneration.

So I think it's important to look at specifically what's causing that person's problem and then do the right thing for that. So then therefore it's not cookie cutter for everybody.

Yeah. So the message here is listen to all the interviews on this summit because we're talking about the root causes and the underlying reasons that we have inflammation and.

Okay, so Peter, in the final minutes that we have here, final words and message to our audience of what you would like to cover, anything we didn't cover that you think is just really important pearls of information that they need to know.

Yeah, I think a lot of people are interested in activating the vagus nerve. Certainly I have a lot of, you know, courses and topics on that discussions around that.

I think for people to know that activating the vagus nerve can be very simple. It can be simply just doing meditation, it can be simply just taking some time off for yourself during the day, have some downtime.

It can be simply just having an attitude to gratitude and writing a gratitude journal. But remember, gratitude is not just about writing it or saying it, it's actually about feeling it, right?

So it can be very simple and there's many other ways that we can activate a vagus nerve, including, you know, gargling exercises, humming exercise is using electrical stimulations.

Again, you can start to activate a vagus nerve by doing very simple things like deep breathing and even some exercise, even meditation. So don't let that stop you.

But remember, activating vagus nerve is great. But if your fuel is compromised and if you're inflamed and your perception is that you're always being chased by paper tigers, then that's going to stop your progress to healing the vagus nerve.

So it's always a holistic issue. And if you're not activating and if you're not activating, oh, my gosh, this has been so good. Okay. So, I mean, I know this is one of the reasons I love, love, love, love interviewing you.

And I just keep having you back, back, back with every project that I do, because you tend to pack a ton of really useful information. I know people are going to be rewinding and listening to this and taking notes, but you've lots of ways that our audience can actually get in touch with you, work with you.

And at the time of filming this, we're talking about it when this airs live the very same week that we end this summit. You've got a masterclass coming.

So I want you to share what that's about and how people can get access to it, because I know people are going to watch this and want more from you immediately.

Thank you so much, Laura, for letting me share. Yes, we do have a an Immune Master Class. The official title still in flux. We're trying to think of something that's really meaningful, impactful.

But it's going to be focused on immune system as it relates to brain to the gut and how that all impacts together as well as vagus nerve. So it's going to be a very it's a masterclass.

Let's go really deep specifically into the immune system about how that helps with you to ward off infections and decrease inflammation so we can have better quality of life.

The best way to find out about that, just go to our website at askdrkan.com and you'll be able to find information about that upcoming masterclass. And that's Dr. Kan, right?

That's right. Okay. Amazing. And I'm sure they can find you all over the place on your website. Is there any other places they can find you? Just Google Peter Kan on the interwebs.

You'll find a bald head, a Chinese guy. Pretty easy to narrow. My favorite bald headed Chinese guy ever. Thank so much, Peter. I just I can't thank you enough for breaking.

Neurology is a really tough thing for people to understand. I think when people start talking neurology, it's easy to zone out and just it's like a foreign language.

Write something about the nervous system is pretty complex and you just make it so easy. You make it easy for our consumers of health care. You make it easy for practitioners, you're easy to interview like, let's just face it, easy button all the way around here.

So everyone make sure that you go check out Dr. Kan's website. And again, thank you for being here. And until next time, everyone take care. Bye, Peter.