Stress, Inflammation, and the Vagus Nerve

The vagus nerve actually directly inhibits inflammation in the body. There's an inflammatory reflex and what they discover is that the vagous nerve directly innervate the intestinal lining, the liver and the spleen and dampens macrophage activation of inflammation.

If you have a lack of vagal 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 killer over time. This is Dr. Talks. Welcome back to the conversation today.

I have Dr Peter Kahn. 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 bring my friends onto 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 neuro metabolic integration. It's a science based program that identifies the root cause of autoimmune and other chronic conditions, which is precisely why I am bringing here today because you 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. Sound 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 say engaged or unengaged.

I wanna 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 get rid of all of the toxins in your body, solving the mold issues, the metals, and the environmental toxins.

And if you don't get yourself into a parasympathetic healing state, then 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 where really a lot of these chronic illnesses either starts or this become a factor that is impeding people.

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

This autonomia nervous systems divide into two branches. We have 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 we can fight or flight and get away from the tiger and gets things done.

And we have the parasympathetic branch, which is our feed and rest and digest system.

Sympathetic vs. Parasympathetic Nervous System

So that after we are done fighting the Tiger, then we get into the healing stage. We can digest our food and push blood to our organs into our reproductive tract so can make babies.

Now keep in mind that this two systems. They are both tonically firing. What that means is that they're both firing at the same time all the time. So essentially they are pushing against each other all of the times.

It's not that you're either or. Right? It is not you are in parasympathetic or you aren't. You're in sympathetic or not. We're constantly both in parasympathetic and sympathetic at the same time.

It's 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 times 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 or are you 60% or you 50%? So that's important to understand the gradation of it.

So it is not all or nothing. But it s important that if you are 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. 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 the Fight-Or-Fly state literally the way you access information in your cerebral cortex, the ways you perceive things, The way the different areas of your brain gets activated is different in a fight or flight state versus when you're in parasympathetic.

So in the fight-or-flight state, everything is basically focused on immediate danger and survival. Your priority there is not to think rationally. Your priority is something's going to eat me, I better run away and I'd better make a memory of that.

So wires my limbic system so that I get emotional, emotional about something that's really stressful. Next time when something is going eat, me I can get really emotional.

That'll spur me into action. Literally your brain functions differently when you're in fight or flight versus in parasympathetic mode. that just the brain structure itself.

Now that in addition to all the neural hormones that's secreted through the HPA axis, the hypothalamus pituitary adrenal axis. Through the secretion of stress hormones like adrenaline and cortisol.

These hormones also changes your neuro-metabolics, which means how your brain use energy, right? It might shift you out of a fat-burning mode into a carb- burning mode.

So you can get glycolysis and glycogenolysis to break down glucose in your reserve so you get more energy into your system so we can fight the tiger, run away from the Tiger.

So your energy uses change, 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 patterns that can get wired. through negative plasticity, so literally that even if you don't have the stress anymore, your body still act like this, the stresses still there.

So that's called negative plasticity. It's kind of like how PTSD happens. You're continuing to put out these stressful neurochemicals and stressful physiological states, even though the stressing no longer there So you become wired into that stress pattern and now you've become easily sensitized.

So next time, you know, something come along and stresses you out, You have less capacity to handle the stress. You don't, uh, y-you have, shorter capacity, your, Your temper is shorter.

you can't handle 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 either they don't secrete as much cortisol because adrenal glands completely fatigue, so then they can't secret enough hormone.

Or they're secreting way too much cortisol and now you have cortisol downregulation. Cortisol that's circulating doesn't work anymore. So it's almost like they have high cortisol, but their symptom is expressing as a low cortisol symptom.

This is called receptor down regulation, which means kind of like insulin resistance, you've cortisol resistance. Then the circulating hormone is not helping you to fight the stress.

All this is very degrading and inflammatory. It drives inflammatory cytokines. So you know that stress response is, again, two-fold. It's a chemical response through hormones, cortisol, adrenaline, but it's also a neurological response because your sympathetic nervous system fires through the spinal cord.

In your spinal core, you have the sympathetic chain ganglion called the intermediolateral cell column. These are nerves that literally fire the signal to get the blood vessels to constrict so you can have higher pressure, to sweat more, get your pupils to dilate.

This is all neurological. They have nothing to do with cortisol. It's literally a straight up neurological response. So stress physiology is multi-pronged and it's very damaging long-term.

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

Modern-Day Stressors and Paper Tigers

You know, I want to go back to something that you said right at the beginning that we're not either or, we are not in parasympathetic or sympathetic, were in both and you know what comes to mind is actually a teeter totter and I'm sitting here thinking it's like we were on a Teeter Totter, right?

When you're on a teeter-tot, either you are up or you down, and sometimes you 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 and analogy there to explain this. Could you talk a little bit more about, you mentioned you know, your fleeing from the tiger.

What is today's tiger? Cause none of us are fleeing from tigers. So what is that? 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 really gets down to like how we're designed. Really human brain is a big old antenna. We're an antenna, we are stimulus response machines, and we were a meaning interpretation machine.

So basically based on our perception, so perception is reality. How do we perceive? sight, sound, taste, touch, right? So these afferent signals from our environment, it tells us, hey, is too cold, put some jacket on, or it's too hot, take some clothes off, there's food, go to it, Or there is danger, run away from it.

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

Sometimes these meanings, We can create meanings that We create stories basically, right? Sometimes the stories help us to understand things and sometimes the story doesn't help 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 things in your environment that you're exposed to. So these are called expozones, all the things we get exposed in the 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… to fire more sympathetic response, or to put us back into a parasympathetic response so that we can calm down from the stress. And too often, living in the modern day environment, there's too many paper tigers, too much signal to fight a sympathetic, and not enough signal, to help us to find the parisympathy.

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, 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 that 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 world, I mean, nobody's immune to what We've Been Through with the pandemic over the last three years longer.

I Think we got a lot of paper tigers, what I'm trying to say. We got So how now 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 Yeah, let's talk about the vagus nerve a little bit. So just to kind of get that foundation in there. so the Vegas nerve is one of your 12 cranial nerves.

There's two pairs, one on each side of exiting the brain stem. And this is the one, the longest nerves in the body.

How the Vagus Nerve Supports Healing

It goes all the way from the brainstorm and innervate our heart, our lungs, digestive tract, all way down to really even down into through the ileocecal valve in a large intestine.

And the vagus nerve is one of the nerves that control the parasympathetic function. Now, there are other nerves control paras sympathetic function, for example, cranial nerve 3 innervate the pupil.

There's other cranio nerves innervates other saliva glands in our mouth, so we can digest food. But the vegas nerve, is the major contributor to parisympathy function So when we talk about the gas pedal break pedal, the Vegas nerve in important in that regard.

And it drives all secretory function of digestive enzymes, secretions for bile secretion, for example, pancreatic enzyme secreton, stomach acid secretition, as well as GI motility and valvular control or various sphincters and valves in our GI tract.

And also has innovation to the heart and lung, and as I mentioned, so controls are kind of heart function as was respiratory function. So it's really intimate involved in very basic like function and the vagus nerve has the.

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 contain neurons, right?

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

You're passing the batons from the one cell to the next nerve so then the nerve signal becomes propagated from a 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. So when you have chronic inflammation, one of the first things that actually gets impacted is your nerve cell.

So some nerve cells are myelinated, so they have an outer covering to help it to transmit message more efficiently. And then some nerves cells, are unmyelinating.

So many of our nerve, cells that innervate the autonomic nervous system are actually un-myelinated. Okay. so there are type C fibers that are small diameter in their size, and they're un myelinating nerve fibers.

and these type-C, un Myelinate nerve Fibers that most of your autonomics nerves, are very sensitive to 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 damage. They're sensitive fuel fluctuations, they are sensitivity to inflammatory consequences, sensitive infections.

Specifically, viruses love nerve cells. They're tiny and they can get into neurons and travel up through the axons and dendrites up the nerve and into different places in the body.

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

So then these toxins get stored in the nerve tissue. That becomes a really easy target for various sources of chronic inflammation. Nerve cells get damaged, including the vagus nerve.

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

How important is this vagous 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 it's role in firing the parasympathetic system so that you can get into a state of rest and digest.

What does that really mean? It means that again, the motility, GI motility, secretions 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 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.

Now you say, what is, that? Well, a macrophyse are these immune cells that basically go out there and perform phagocytosis. They eat up bad guys and pathogens.

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

What Damages the Vagus Nerve

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

So that's the intrinsic body's anti inflammatory mechanism that is built in through a neurological pathway 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 vagos nerve functions. And this can contribute this basal level of chronic inflammation that builds up and can become a silent killer over time.

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

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

Usually when you are sympathetic dominant, just look up an anatomy chart. You're going to see sympathetic function, your going see pupils dilated, so you might be sensitive to light.

Your going gonna see that you may be sweating more. because your sympathetic is going to cause more sweating so that you can kind of evaporate heat better.

You're going have decreased digestion because all the blood's going into your muscles, so you're gonna have a decreased digestive function. you may have urinary issues, you might 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 sugar's 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.

So then, your thyroid, adrenal, 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 that fight or flight response. Your brain's constantly firing that signal. That can really drive a lot of people's neuropsychiatric symptoms of anxiety, of emotionality, depression, things like disturbed sleep, short-term memory issue, and lead to brain inflammation as well, which leads to the 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 get yourself into more of a healing parasympathetic state.

We'll also explore a lot more about the nervous system. Let's talk about how 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 right of parasympathetic, and just at the That's a million dollar question.

So, you know, in healing anything, I think the first question is what's causing it, right? What's the mechanism, and then what the cause of that mechanism?

So when we say mechanism that means on a cellular level, on the neurological level what is driving that particular

tissue or area to behave the way it is that's creating a symptom.

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

And then beyond the mechanisms, then there's root cause for that mechanism, right? So for example, somebody can have anxiety. The mechanism of that anxiety could be autoimmune to gas 65 antibody, glutamic acid decarboxylase, and this is an enzyme that's involved in producing GABA.

So if you have auto-immune attacking gas-65 antibody you can't make GAFA, you may have anxiety. In this case, anxiety is caused by the mechanism autoimmunity.

Then we ask, what's the trigger for the autoimmunity? Then the triggers for auto immunity could be gluten reaction, gluten sensitivity, right? So the root cause of gluten, but the mechanism is autoimmune and the symptom is anxiety.

So then trying to treat anxiety without addressing the mechanisms or even removing the roots 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.

When it comes to vagus nerve, and as I said earlier, vagous 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 chiropractic neurologic training, module one, is basically neuron theory.

First requirement, the first thing we hear is what's the requirement of a neuron?

Fuel, Oxygen, and Brain Activation

What do they need to survive and thrive? Well, they needed fuel. What's fuel for neurons? The preferred source of fuel is glucose, and oxygen. If your brain doesn't have oxygen, give it four minutes, you'll pronounce 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 constantly firing just to maintain autonomic function.

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

Now some people argue with me about ketone, ketones super fuel. Yes, ketone is super fuel for the brain, but ketones is something that's produced in the absence of any carbohydrate intake.

Usually happens in fasting or starvation mode. You know, when we talk about regular people diet, usually people are consuming some level of carbohydrates.

So we're burning glucose first. There's some circumstances where ketogenic diet is beneficial and we do that, But it's not, you know a lifestyle or something you live on forever.

Glucose is a 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 most severe degree. And so something can show up differently. Can you just give us some examples really quick of what would cause lack of oxygen and lack 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, no low hermetic rate.

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

When you will have an anemone, that means you don't have enough red bull cell or you do have hemaglobin to carry oxygen and your neurons gonna suffer without a hostagen.

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

And that has to do with circulation. That has do it with proper blood pressure. Some people have low blood-pressure hypotension. So people will have orthostatic hypotenion where it's associated with position change.

Any type of hypotension means that you're not getting enough blood pushed to your brain or to a tissue, your tissue is going to suffer. It's kind of like having a lawn that's not water enough, so you getting like brown spots.

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

And that's a very negative situation. In fact, that can 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 brain, and then you end up getting dementia as a result of lack of blood flow to the brain.

So that is oxygen. Now on the Blood Sugar side, you can have disruptive blood sugar from having poor blood-sugar control. And that usually comes from several mechanisms.

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

So you have blood-sugar instability. That's the number one reason why I 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 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 intermediolateral cell column. So then you get a neurological firing of your nervous system.

And when you're constantly firing your neurological system into a sympathetic state, you actually create what's called neurogenic inflammation, which means you literally from neurological stress create a chemical stress response where you are actually producing 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 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 your having chronic cortisol.

That becomes a vicious cycle. So that's another, and then another mechanism, people have autoimmune disease to the pancreas. I have type one diabetes, so they have Autoimmune to their adrenal glands causing, you know, fluctuation cortisol.

So all these leads to these fuel delivery problems, but most common reasons really through lifestyle. People just

not eating early. You said fuel activation and lack of inflammation is what the neuron needs to be healthy.

Let's talk about activation next. Yeah, activation means you got to fire your neurons, right? So this is what what chiropractic neurologists do. What we learn is that neurons they need to be firing, they needs to working, you don't use it, and 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 elbow is put in a cast.

so you have immobility of the right. 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 from studies, we know that when you stop a nerve cell from firing, from getting any signal, the nerve cells would gradually degenerate.

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

This is why brain injuries, right? 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 that time.

Okay. So, so again, you know, with brain cells, You have to have fuel and you have activated brain cell. Now activation could simply just be exercise.

In fact, that's actually the best way to activate your brain cell, movement. Movement is the, I consider movement a nutrient for the brain. Like if you want to, people ask like, what food do I eat?

I say exercise. They say, no, What food I do eat. No, exercise, That's a new trend for your brand.

Reducing Inflammation and Activating the Vagus Nerve

If you're not exercising, you are leaving tons of gangs on the table. Not only that, You're leaving yourself open for neurodegeneration and various diseases.

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 is 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 the research has shown that, you know, increases 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 is different, Right? An Olympic athlete may be able to a lot more than somebody who's really sedentary, just trying to get back into it.

So everybody has to find their sweet spot, but it's as much as you can, do without. Okay, is there more on activation? Well, you know, doing mental activity is activation, right?

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

So I have to see the concept, see how the different concept interrelated. This is all frontal, parietal, all different integrations. I moving my arms, so the cerebellum being fired.

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. Well then you are not going to build new neurons to help you to make new connections.

That is called neuroplasticity. So doing novel tasks, your brain loves novel task requires the brain to making new connection to other neurons, to a new pathway for that new particular activity.

So learning a new language, for example, learning to play an instrument. If you already play instrument, learn to a play a song. Or if you're doing Sudoku, don't just do Suduku.

Do some other concentration game. 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 can do more. Oh my God, I do get to the gym and I lift weights and 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 activation, activation activation. A great way to fix that Laura is to have a massage therapist standing right behind you and massage you every day because sensory input is also activation gin.

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

But stimulation is stimulation, okay? So, you know, massage is a modality that can be used as well. And see a chiropractor? See a Chiropractor, physical therapy.

I mean, that's why these things work. Why do people feel better after massage? Why did people fell better at 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. is literally your brain is getting a nutrient of sensory stimulation and proprioceptive movement.

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

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 five 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, and 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.

And so, you know, for some, some people, the real cost of inflammation can be the fuel delivery thing that we talked about their diabetic or they have insulin resistant, they can't get glucose to their brain.

So the nerve cells are literally generating from lack of fuel for another person. It can. leaky gut that's driving gut permeability and inflammation that causing blood brain barrier breach, therefore brain inflammation, that is driving decreased brain function.

For another person could be heavy metal toxicity that causes 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.

Therefore it is 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 information.

And okay, Peter, in the final minutes that 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 of, you know, courses and topics on that discussions around that.

I, think for people to know that activating, the Vegas nerve can be very, very simple. It can't be simply just doing meditation. it can, be, simply, just taking some time off for yourself during the day, have some downtime.

having an attitude of gratitude and write in 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 regus nerve, including, you know, gargling exercises, humming exercises using electrical stimulations.

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

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

It's always a holistic issue. And if 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 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 You have 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 an immune masterclass. The official title is still in flux. We're trying to think of something that's really meaningful and 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 is a master class that is going really deep specifically into the immune systems about how it helps with you to ward off infections and decrease inflammation so you can have better quality of life.

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

Kon, K-A-N, right? That's right. Okay, amazing. I'm sure they can find you all over the place on your website. Is there any other places they could find?

Just Google Dr Peter Kon on the interwebs. You'll find a bald-headed Chinese guy, pretty easy to narrow. My favorite bald-headed Chinese guy ever. Thank you so much, Peter.

I can't thank you enough. Neurology is a really tough thing for people to understand. When people start talking neurology, it's easy to zone out. It's like a foreign language, right?

Something about the nervous system is pretty complex. You just make it so easy. Make it easy for our consumers of healthcare, you make easy it for practitioners.

you're easy to interview. Like let's just face it, easy button all the way around. So everyone make sure that you go check out Dr. Khan's website. And again, thank you for being here and until next time everyone take good care.

Bye Peter. Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your well-being.

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