FSM & The Vagus Nerve

Carolyn McMakin, MA, DC

[00:00:00] Welcome to the Friday webinar. And this is the Vagus webinar. I turned it into a webinar because not everybody comes to the Advanced, and I ended up sending out the advanced Vagus presentation so many times that I figured I ought to make it into a webinar so that everybody that wanted to see it could go and see it at any time they wanted. So you're in for a ride, there's 80 slides. I'll try and get it done in 60 Minutes, but I wouldn't count on it. So here we go.

[00:00:38] The thing is that treating the vagus nerve changes everything. And once you see the Vagus, you can't ever unsee it, it's everywhere, it does everything, and you'll see, I hope by the end of the presentation, you'll understand why I say that.

[00:00:59] Think about the nervous system, you know, we know the nervous system responds really well. The FSM treatment, right? So we treat concussion, traumatic brain injuries, brain fog. We treat post-stroke and stroke patients. We treat nerve pain. Central sensitization, thalamic pain syndrome. FSM improves motor coordination. After injury and rehab, it treats RSD and CRPS. It changes pain sensation, numbness, loss of motor coordination. It treats the spinal cord, reduces the pain and fibromyalgia, reduces spasticity, and increased tone in my allopathic and cerebral palsy. And it changes heart rate variability. We have lots of information and actual data that show us and experiences that show us that we're able to treat the nervous system effectively. It responds really well. Vagus is part of the nervous system, so we should be able to change the Vagus right?

[00:01:59] We're going to start with something simple, like why and how you scratch when you, which now this doesn't have anything to do with the Vagus, but it gives you an idea of how connected everything is. There's a little tiny nerve fiber called a pruriceptive. It's an itchy fiber. It's a fiber that responds to things that make you itch. It's a sensory nerve. It's a special type of sensory nerve. And it goes into the spinal cord when it is stimulated generally by histamine and inflammation. Goes into the spinal cord, goes up to Medulla, goes into what's called the Peiraquaductal Grey and the Peiraquaductal Grey is the part of the brain that decides whether or not it's a threat, like, is this a big deal or not? If it is a hornet sting? And it's a threat. It just stops right there

and you respond instantly with a motor response that tells you to smack the hornet itch the spot. If it's just an itch. If it's just dry skin, it goes from the PAG, the Peiraquaductal Grey to the thalamus or midbrain, and it goes to the insula that says, OK, how much does this hurt? Is this pain? Is it an annoyance? How bad is this? That's what the insula does.

[00:03:16] And I spelled it wrong. That's an "I", not a "U". Our frequency for this whole area is 89, for the membrane. So the thalamus, if this itch is constant. Ultimately, the thalamus will respond and make it a chronic pain situation. From there, the signal goes to the anterior cingulate cortex that says, Hey, how important is this? And the anterior cingulate decides if you're just sitting on your own in the family room watching television, you just reach up and you scratch your nose. But if you're lecturing to 200 people and scratching your nose in the middle of a presentation is not a great idea. The anterior cingulate cortex. Has a conversation with the insula and says, are you sure we need to itch this thing? And that conversation, this is part of the limbic system. That conversation happens and you decide, right, then it goes to the prefrontal cortex where there's a decision made about whether or not you should scratch. Now, if you're sitting in your family room, you. There's no decision to be made, you just scratch the itch, right? And so it never gets that far. But if you're lecturing to two hundred people, the prefrontal cortex has to decide in conversation with the anterior cingulate and the insula, whether or not you should scratch the itch while you're in the middle of the lecture. Let's say all those things go together and you decide, No, I'm not going to scratch it or I'm going to wait until I have to turn around and face the screen, and then I'll scratch my nose when nobody's looking, that happens here in the frontal cortex.

[00:05:03] Now, where is the itch? Is it in your nose or your arm or your eye? That this part of the sensory cortex? Exactly where does it itch? Then there's this motor response. This is where the signals go to your hand to say you need to scratch here or here, it's exactly. And then there's this downward signaling that goes from the motor cortex to the well, actually, it goes through the basal ganglia to the cerebellum back down the spinal cord to a motor fiber that makes your fingers usually on the opposite arm, it's your arm or it's your nose. This is what happens when you scratch.

[00:05:56] The take-home message. Why did I just do this slide when we have so much else to do? The take-home message is the nervous system everything is connected to

everything. And as long as you remember that for the next 78 slides, this is going to go a lot easier.

[00:06:11] The Vagus nerve, our frequency for the vagus nerve is 109. How somebody in 1922 decided it was 109, I'm not even going to go there. Well, what is the Vagus nerve do? Well, it connects the body to the brain. That's the longest nerve in the body. It basically goes from your rectum to your brain and everything in between. It goes from the brain, back to the body, it controls your vocal cords, it controls digestion, increases or decreases pancreatic secretion. Well increases pancreatic secretions, digestive enzymes. It increases stomach acid. It regulates the sphincters, the esophageal sphincter, the duodenum sphincter, the ileocecal valve. It regulates all of those things. Sphincters. Regulates your heart rate increases, decreases. Controls the immune system. Suppresses the immune system when the Vagus is active. It affects your blood sugar by fibers that go to the liver and affects kidney function by its response to antidiuretic hormone. And it is no susseption. If you have a bellyache. If you feel the urge that you have to defecate. If you have a cramp in your belly from something you ate. If you have cardiac pain, those pain fibers go up the Vagus. The very last case report is when I'll tell you how I found that out.

[00:07:37] So the Vagus anatomy, we think of the Vagus, and if you read the short version of the Vagus in the in let's say, Wikipedia, it goes into the abdomen and controls digestion. But the Vagus actually has an enormous amount of fibers in the neck. It goes back up into the skull. It controls your vocal cords. And vagal fibers are really profuse in the neck, the chest, the abdomen, it's everywhere. This is these are pictures from an App called Essential Anatomy, and if you don't have it, you really should take a look at it. It's an easy download and you can use it on the tablet to show your patients, or you can use it on your phone. Show yourself.

[00:08:25] Now, when I say it's in the neck. Look at what the Vagus does. There's a fiber of the Vagus that goes up to the dura. There's an irregular branch that goes to your ear. There's a branch that goes to your eardrum. So you know when you get in there with a Q-Tip and you get too far into your ear and it makes you cough. That's this branch. There's an arricular branch that does sensation to the outside of your ear. Um, the Vagus then goes down into your neck, there's a pharyngeal branch, a laryngeal branch that goes to the pharynx. Is why your pharynx goes up, your palate goes ahh

when you go, it goes up when you go ahh, the laryngeal branch controls your vocal cords. So there's a lot of fibers of the Vagus in your neck, and we'll get to that in a minute.

[00:09:16] How do you treat the Vagus? Same way we do anything else. You ask yourself, what tissue is it? Ok, what's wrong with it? Why isn't it working right? And what can you do to change it? There should be a question mark at the end of that.

[00:09:31] What are the fibers? Well, the vagal nuclei are in the Medulla. They're here now. If you have read Steven Porges, you get all excited about the dorsal and ventral nuclei of the Vagus. Those nuclei exist only in the Medulla. Dorsal nucleus of the Vagus is here, the nucleus ambiguous is here, the solitary nucleus is here. Those are the dorsal and the ventral. Dorsals the backside, ventral is the front side. Those are the two nuclei of the Vagus. But when it leaves the Medulla, it's all one nerve. Steven Porges is a wonderful psychologist. It's got the right idea, but he's not a neuroanatomist. So in our world, the Medulla is where the dorsal end, the ventral nucleus of the Vagus exist. Once it leaves, it's 109. So 94 or the nuclei and then 109 is the Vagus itself.

[00:10:30] What goes wrong with the Vagus? Well, the basics. 94, 321, 9. And I'm leaving out 40 because I can't think of a time when you want to turn down the Vagus. Most of the time you want to treat the Vagus for trauma. You want to increase secretions. You want to again increase vitality in the Vagus 109. And as you'll see, if you want to turn up the Vagus, the first thing you have to do is quiet down the stress centers and the limbic system by treating them for trauma.

[00:11:11] And hyperactivity, if you will, they're not really inflamed, or maybe they are. As you'll see further along, that's the midbrain you want to treat, and this is where Porges comes in. You want to treat the Medulla, those two nuclei for trauma and you want to quiet down inflammation in the Medulla. Now the reason that you turn down the midbrain, and the Medulla is there's no point in turning up the Vagus unless you turn down the midbrain and the Medulla first because the midbrain and the Medulla are what turned the Vagus down to begin with. And we'll get to that. So what are the pathologies that affect the Vagus, the Medulla, and the midbrain, the limbic system? EMF, 954 is the frequency we use to reduce the effects of EMF, and David Musnick will tell you all about that in Module two, and almost every time he lectures at the Advanced. That is, that's

one of his important perspectives. Peripheral stress. If the sympathetics are telling your midbrain and Medulla that there is stress, that the sympathetics are turned up for some reason, you have to quiet down the peripheral stress centers by quieting down the sympathetics with 40 and 562. Mold. The Vagus is affected by infection, stress, and trauma. So this takes care of the trauma. Mold is an infection. So 23,95 in the Medulla, the Vagus, the limbic system and even the cortex.

[00:12:44] If you've watched the mold webinar, you'll know more about that. Thats at frequencyspecific.com/webinars. General toxins, 57. Organic toxins affect the functioning of all, everything in the nervous system. The Medulla, the Vagus, the limbic system, the midbrain and the cortex. General anesthesia. General anesthetics, 19. Viruses, 160. Ehlers-Danlos. That webinar is way too much to include here, but when Ehlers-Danlos is a condition that the patient has. It turns the Vagus nerve down by creating effectively nerve traction injuries when all this connective tissue in the gut starts pulling on the vagus nerve. So you have to treat what's wrong with the Vagus, which in this case is torn and broken in the connective tissue. That extra stretchiness in the small bowel and all of the connective tissue here that pull on the vagus nerve and create effectively nerve traction injuries.

[00:13:52] What does the vagus nerve do and why would you want to modify its function? Ok, first, let's look at how it works. The Vagus signals to the Medulla and tells. There are receptors in the periphery that signal to the Medulla and the midbrain. The conditions in the body that create a threat in almost any situation that includes infection, emotional or physical stress, and trauma. So infection, stress, and trauma. The Vagus signals to the Medulla that there is infection, stress, and trauma in the periphery. The Vagus is everywhere, lines the blood vessels. It's in your gut. It's everywhere, it's in the aorta. And it tells the Medulla there's infection, stress, or trauma. The Medulla, 94, signals to the midbrain, which includes the limbic system 89, that there's infection, stress, or trauma.

[00:14:50] The midbrain 89 signals back to the Medulla to turn down the Vagus. So that's the important part. Here's the vagal nuclei. The signal goes up to the limbic system. The limbic system has is its job. The hippocampus, the amygdala, and the limbic system, in general, has as its job to keep you alive. So medulla signals up to the midbrain and says infection, stress, or trauma. The Med brain signals back to the

Medulla and says, Yeah, we don't need the Vagus on. So the Medulla is the source of the cranial nerve nuclei. The fifth, sixth, seventh, eighth, ninth. tenth, which is the Vagus, and the eleventh, the accessory nerve. The Vagus controls respiration, heartbeat, heart rate, blood pressure, vomiting, sneezing, swallowing, coughing, blinking, crying, and voice. It's the source of the parasympathetic autonomic, and the Medulla is effectively the source of the sympathetics, but that's a whole nother conversation. It coordinates the body's autonomic function and stress response.

[00:16:05] The vagus nerve. Here's where it goes. Vagal afferents. The body to the brain communication superhighway. The body systems, to the Medulla, to the midbrain limbic stress centers, notify those stress centers about infection, stress and trauma. Yes, I know I'm repeating myself, but there's a reason for it. The limbic stress centers when this stress lasts long enough increase Corticotropin-releasing Factor CRF, which affects short term memory. You don't need to remember anything except for how you got away from the tiger the last time. And it predisposes the patient to negative long term memory because the only thing you need to remember is how you got away from the tiger the last time. The stress centers affect the cortex and create cognitive impairment. Hypervigilance, ADD, inflammation, brain fog, impaired cognitive function. Stress limbic centers suppress the Vagus, and the suppressed Vagus slows digestion. It stops suppressing inflammation. It stops suppressing liver glucose. It increases cortisol, and it suppresses antidiuretic hormone. This will all make sense. Well, actually, I hope it makes sense.

[00:17:22] When do you treat the Vagus? This is how it works. This is where it is. This is what it does when you treat it.

[00:17:28] Well, let's look at the anatomy. The superior ganglion of the Vagus. It's up here. It passes through the jugular foramen into the posterior fossa, this back part of the skull, and the recurrent branches of the Vagus, so there's this little meningeal branch of the Vagus that goes up into this hole and it follows the posterior meningeal artery. Vagal nerve stimulation is approved for the treatment of migraines. I don't think this anatomy is a coincidence. The blood supply of the dura and the posterior cranial fossa, the meningeal branches, the occipital and vertebral arteries.

[00:18:20] Let's look at the Dural. There's the dura back there. The branches of the trigeminal Vagus in the first three spinal nerves and the branches from the sympathetic trunk all affect the blood supply to the dura, and the dura is sensitive to stretching, which produces the sensation of headaches. So if the patient has headaches with changes in barometric pressure headaches with stress one, I get stress headaches. Well, sometimes it's the muscles at the base of the skull that get tight. Sometimes those headaches are from changes in barometric pressure, so you treat the Vagus to reduce headaches that are related to the dura and air pressure changes. Treat with gentle motion, the Vagus is attached to the dura. So when you treat scarring in the dura as you're doing cranial sacral work, as you're treating the upper cervical, if you're doing supine cervical practicums and you're treating scarring in the dura in the neck, well, there's no reason you can't treat scarring in the dura while you have the patient hold their breath, do a gentle valsalva, and you can adjust their cranial while you're using the frequencies for scarring in the dura. Scarring in the Vagus goes along with it. The same sort of trauma that creates adhesions or scarring in the dura create adhesions and scarring in the Vagus because the Vagus is attached to the dura. They go together. See, isn't that cool?

[00:20:00] This one slide is probably a, I don't know, three-hour lecture. The short version is that the Vagus activates all the good things that you want for your brain and your nervous system and inhibits all the bad things. How does it do that? Vagus nerve stimulation. I don't even know what SPG means. It increases nitric oxide, which dilates the blood vessels, which improves cerebral blood flow, which is a good thing. It increases brain-derived neurotrophic factor. And Neurotropism means that you get more neurons basically, so your nerves are kind of dying and growing back at the same time, and when the Vagus is turned on, you grow more nerves than are dying. Oh, SPG is sphenopalatine ganglion. I still don't know what that means. It increases transcription and it increases serotonin, increases neurogenesis, and it inhibits. The vagus nerve inhibits glutamate, which is the bad guy. Excitotoxicity. There's nothing in the brain that glutamate does thats good as far as I know. It activates serotonin, helps you sleep. Activates norepinephrine. It increases, that looks like acetylcholine receptors, and it inhibits inflammation. Chemokines like TNF-alpha and cell adhesion molecules. So short version is in the brain they activate. The Vagus activates the good things, inhibits the bad things. That would be why Vagual nerve stimulators are approved for the treatment of depression. Now in the literature, it says they're not sure how it works. It is

entirely possible that the people that say they're not sure how it works have not seen this diagram because.

[00:22:15] It's kind of obvious, right? Depression, inflammation in the brain increases depression, increases anxiety, increases anhedonia or lack of pleasure by interfering with all of the good things that you need in your brain. Alpha Stem ,its cranial electric stimulation, has approval for depression. Vagal nerve stimulators. But remember the alpha stem 20-30 years ago? Its cranial electrical stem and the current passes through the Vagus at the ear. The alpha stem had little ear clips that clipped on right here at the edge of the ear. Well, that part of the ear is vagal sensory, so it passes through the Vagus at the ear and increases vagal tone, and it's used to improve sleep and depression. I'm of the opinion that FSM could and does do the same thing. By increasing vagal tone, you reduce inflammation. Inflammation on the brain causes depression. Anybody with HomeCare and a Magnetic Converter can treat concussion and Vagus every single night.

[00:23:25] Vagus, Alzheimer's and cognitive decline. Vagal nerve stimulators have been shown to improve Alzheimer's symptoms and have been shown to demonstrate long-term improvement in Alzheimer's symptoms, so increasing vagal tone reduces inflammation. Inflammation on the brain contributes to cognitive decline. It's kind of a no brainer. Here's the reference If you're interested, you can just google this and see all of the references that are available, but it's any time you stimulate or improve the function of the vagus nerve. This is what you're doing to the brain, improves all the good things, reduces all the bad things.

[00:24:05] Treating the Vagus reduces seizures, so the vagal nerve stimulators have been approved for the reduction of or treatment of seizures and to prevent seizures. So they have helical electrodes are placed on the left cervical Vagus nerve. They don't know why it works. I'm not entirely sure why they'd say they don't know why it works. Kind of obvious. Vagus reduces inflammation. Inflammation makes nerves fire more erratically. It could be a similar mechanism as in depression and Alzheimer's. There are large myelinated A-vagal fibers and small myelinated B-vagal fibers that are stimulated by vagal nerve stimulators. So maybe ketogenic diets work this way. I'm not saying you should use a CustomCare for somebody that has seizures as a prevention measure, but might be worth a try first before you have an implanted device that's worth a try. Can't

hurt, might help. If they're intractable or severe seizures. Obviously, you go with medical advice and do what needs to be done.

[00:25:14] I want you to think about neck range of motion. Look at look at the nerve fibers, the vagal fibers that go along the neck into the vocal cords at the base of the skull where they travel down the esophagus, down the bronchi, into the chest. Now, the cerebellum does not negotiate. Will the cerebellum allow you to move your neck full range of the Vagus, adhere to the fascia. No. Doesn't negotiate. So what would lead to vagal adhesions? Well, heart surgery, right? Any sort of radiation or surgery that involves the neck, whiplash injuries, neck surgery, even sore throats or sinus infections because the lymphatic system in the neck runs along the fascia and they all follow the same sort of cabling system. Any inflammation causes adhesions, so scarring, how would you get rid of it? What tissue is it? What's wrong with it? Well, the tissue in this case is the Vagus 109, 142 is the fascia. When you treat scarring in the Vagus scarring and the fascia, if you've treated everything else you've done, the whole supine cervical practicums and the neck range of motion still won't budge, try treating scarring in the Vagus. It's really magic. It's the final link.

[00:26:44] So Vagus anatomy. The Vagus has motor fibers that start in the nucleus ambiguous, that place in the and the Medulla. The vagal fibers innervate skeletal muscles of the neck and the face. The pharyngeal branch innervates the pharynx, the soft palate muscles, and part of the tongue. Superior laryngeal branch is the inferior constrictor and the cricothyroid muscles of the larynx and the pharyngeal plexus. Recurrent laryngeal branch innervated all of the laryngeal muscles except the cricothyroid. Laryngeal muscles are your vocal cords. Your vocal cords are innervated by the Vagus. All but one. The cricothyroid is down here. And that's the only part of the vocal cords that are not innervated by the Vagus. Then the left recurrent laryngeal branch, the left side goes under the aorta, the right side goes under the subclavian artery and as a motor fiber, there's cardio motor pre ganglion neurons. So basically, one of the reasons your heart has its own intrinsic nodes that make it beat, but the Vagus and the sympathetics neurons regulate heart rhythm, buy these pre ganglion neurons that go down and innovate the heart.

[00:28:15] So the Vagus in your voice, let's look at this because I've had patients that have vocal cord dysphonia. So the recurrent laryngeal nerve one branch opens the

vocal cords, allowing you to breathe. You ever notice that you can only talk when you're exhaling? Try and talk when you're inhaling. It doesn't work very well. One branch opens the vocal cords, allowing you to breathe. Another branch closes the muscles, and that allows us to talk. That's the recurrent laryngeal nerve, the superior laryngeal nerve. One sensory branch to the brain tells you when to cough or clear your throat. So when I, clear my throat, that's a superior laryngeal nerve. One motor branch controls the muscles that raise pitch and allow us to talk or sing higher.

[00:29:04] And the vagus nerve is why you can scream. What dies when the vagus nerve gets turned off, all the muscles that do lower tone go away, and the vagus nerve being turned off is why you can scream. What causes vocal cord paralysis? Well, injury during brain neck or chest surgery, all of which can involve the Vagus. Trauma to the neck from a fall or car accident. Tumor or growth, stroke parkinson's, MS myasthenia gravis, anything that affects the neuromuscular junction. Infections, virus or bacteria. Those are usually temporary. Occasionally, they're lasting. Lyme, herpes, botox. They use Botox to help correct these vocal cord spasms. But there's the fine anatomy of your vocal cords.

[00:29:53] To repair vocal cord dysphonia, why was the biggest nerve turned off? Well, I've seen one patient where it was a serious virus infection. 160 malignant virus in the Vagus, 109 and 55 is the frequency we have for the vocal cords. I have one patient where the vagus nerve was turned off after a vaccine. So vaccine injury, if you use a live virus vaccine, you have 160. 33 and 37 are types of viruses that affect the Vagus and the vocal cords. Physical trauma, interior surgery, trauma, torn and broken increased secretions and vitality in the Vagus. And you run that from the neck to the belly.

[00:30:35] Turn the Vagus back on running concussion and Vagus back to front across the abdomen, and I've used 81 and 109 for up to 60 minutes. I started out doing this with a pulse oximeter on the patient. Those of you that were at the seminar in Phoenix when I did this on somebody, I kept a pulse oximeter on her for the first hour. But after that it was obvious your pulse didn't change and we ran increased secretions in the Vagus for up to 60 minutes along with the virus that started it, all contacts went from the next neck to the chest. We used a pulse oximeter, then we treated the vocal cords directly for trauma, paralysis, allergy reaction, inflammation, chronic inflammation,

fibrosis and vitality in the vocal cords. And when you treat vocal cord dysphonia, this lady had dysphonia for, I think, forty, forty-five years. The voice is controlled by steady breath from the diaphragm. The Vagus joins with C3, 4, and, 5 keeps the diaphragm alive. It joins with C3, 4 and 5 in the spinal cord, at the trigeminal nuclei in the cord, and we used 40/396 from the neck to the abdomen. Then 81/396 with this exercise, to get her to contract her diaphragm. She hadn't used her diaphragm to help her exhale in 40 years. So it was weak and it was disconnected from the nerves that operate the diaphragm and coordinate the diaphragm with the vocal cords. And it, in her case, it was done. I think we did it in three days and at the end of it, she could talk more or less, normally for the first time in 40 years. She sent me an email that said, Yeah, and now my friends can't get me to shut up.

[00:32:22] Motor fibers. They synapse on the ganglia out here. They provide parasympathetic innervation. So the parasympathetics are on the cervical and the sacral spine. Innovation for the lungs and the heart, the gastrointestinal system, the glands of the pharynx. The vagus nerve is why you have saliva and mucus, pharyngeal and laryngeal mucosa. When the sympathetic nerves override the parasympathetic or the vagal nerves. What happens to your saliva, your mouth gets dry, right? You don't have any mucus, you don't need any mucus. So that's how it's all coordinated. And that is these visceral motor pre-ganglionic fibers that produce saliva and mucus. The pulmonary branches intubate the bronchial smooth muscle. The esophageal plexus innervated smooshy muscles all along the entire length of the esophagus. When you swallow something and you can sort of feel your esophagus is trying to move it down. That's the Vagus that does that. If you have a patient who's had radiation damage to the Vagus, what's wrong with it includes not only radiation to the esophagus, but radiation damage to the Vagus and scarring to the Vagus along the length of the esophagus.

[00:33:40] Cardiac motor branches synapse at the end organ. The left Vagus controls the atrial AV node, and when something goes wrong with the rhythms in the ventricle, leads to ventricular tachycardia, the right Vagus sinoatrial node that leads to atrial fib. I've turned off atrial fib and v-Tach both by increasing secretions in the Vagus. I want to make a slide about it, but the data is really not clear and I don't want to get you into trouble or get you into territory that you don't belong in, so we're going to leave that alone. But if you're in an emergency situation and you don't have access to any other

ways of correcting the rhythm, it's worth trying 81 and 109 to correct it. The vagal fibers follow the esophagus down through the diaphragm.

[00:34:41] There are vagal, sensory fibers, they're small and myelinated fibers from the stomach, intestines, liver, pancreas and spleen. So if you feel pain in your abdomen, it's because of sensory fibers from the Vagus, their stretch receptors in the stomach that respond to volume, and the Vagus carries unconscious, non-pain sensation. If you're hungry it's because the Vagus told your brain you're hungry. If you're full, it's because the Vagus has stretch receptors that says, Hey, my stomach's full. And if you feel nausea, that's from the Vagus as well. Visceral pain information from the heart, esophagus and the trachea. So when you get something stuck in your esophagus and you want to drink water because you can feel something stuck. That's the Vagus that carries that information to your brain that says, Hey, go find some water because this hurts. And having something stuffing it stuck in your Vagus is not good infection, stress and trauma. That would be a stress. You see the picture? And they join the larger myelinated vagal afferents from the barer receptors in the aorta. So the Vagus cooperates, doesn't control, but it collaborates with the sympathetic system, the vascular system and the pressure receptors, and the aortic arch and the airways in the lungs to slow the heart rate.

[00:36:08] There are chemoreceptors in the aorta from the Vagus and chemo receptors in the upper small intestine that tell you what nutrients you need. The fact that let's say pregnant women crave pickles, there's something in the pickles that they need and the nerves in the upper small intestine that sense what nutrients you're taking in and tell you what nutrients you need. That's the Vagus. They found that children that were given free rein of a buffet, all of their meals were eating at the hospital. And once they got their sugar thing out after two or three days and there was somebody following each kid around writing down everything that they ate. They found that the children were eating a completely nutritionally balanced diet in both nutrients and calories. It was perfect when they were allowed to eat anything on this whole buffet. They also found out that there were some of the kids that were. Compensating for serious nutritional genetic defects.

[00:37:17] Vagus and obesity. Vagus nerve afferents send information about the volume of food in the stomach and the type of nutrients in the upper small bowel to the brain. What they found was that vagal nerve stimulation prevents weight gain in response to a

high fat diet. Vagal nerve stimulators in epilepsy or depression caused or depression patients caused weight loss. Vagal blockade also results in weight loss because it blocks appetite signals. So one way or another, the Vagus is involved in obesity. Whether there's too much Vagus or whether you block the Vagus, because then you don't know if you're hungry. But when they do, vagal nerve stimulation. And epilepsy and depression patients, it caused weight loss. All right, where am I? Oh, I'm in big trouble. Vagus and blood sugar hepatic Vagus nerve is important for the regulation of hepatic glucose production, so there's the vagus nerve and it has fibers that go directly to the liver. The liver stores glucagon, and its role in the body is to prevent blood glucose levels from dropping to low. If your blood sugar gets too low the liver takes glucagon and converts glycogen into glucose.

[00:38:37] Now, the Vagus suppresses the conversion of glycogen actually to glucose, not glucagon, glycogen to glucose, when there's a threat or stress, your muscles need glucose. So threat or stress your glucose goes up because your muscles need it. So the Vagus controls blood sugar by fibrous to the liver that stop gluconeogenesis. So it could be that the stimulating of the Vagus could be useful in the treatment of elevated blood sugar.

[00:39:08] General sensory fibers carry touch, pain, and temperature from the ear of the pharynx and the larynx, the irregular branch. That's where those little ear clips went from the alpha-stem. The auditory canal, then that enters the superior jugular ganglion and you don't need all this anatomy. But it's just kind of interesting. The general sensory fibers from the pharynx and the lyrics join the motor fibers and all of the general sensory fibers within the spinal nucleus of the trigeminal nerve at C3, 4, and 5. All of these general sensory fibers in the neck, in the pharynx and the larynx join up with the spinal nucleus of the trigeminal nerve at C3, 4, and 5.

[00:39:55] You ever wondered why you cough on a crumb? This is really cool. The general sensory fibers of the Vagus carry sensation from the pharynx and the larynx. Those sensory fibers synapse in the spinal cord within the trigeminal nucleus and at 3, 4, and 5. 3, 4, and 5 carry the nerves and motor fibers to the diaphragm. Sensation in the back of your throat, and the pharynx actually, before you even get to your throat. back of the throat, joined up in the spinal cord and says to cough when the Vagus feels

the crumb. You cough before your sensory cortex knows you need to. It never gets to the sensory cortex till after you've already coughed. Isn't that cool?

[00:40:41] The Vagus quiets the immune system. How does that work? The vagal afferents notify the brain of infection and physical or emotional trauma. There are receptors for pathogen-associated molecular patterns and damage-associated molecular patterns. So little bits and pieces of bacteria or viruses, little bits and pieces of torn tissue. The mid brain's stress centers suppress the Vagus during stress, injury, infection, or threat.

[00:41:10] This is all Kevin Tracey. The Vagus is just one of the number of neuroimmune reflexes that keep inflammation regulated. Infection or trauma, it increases the central stress response. This suppresses the Vagus, or the Vagus will stop suppressing the immune system so the immune system can respond to injury and infection with inflammation. Does that make sense? It'll make more sense in a minute.

[00:41:35] Signals from the AFFERENT Vagus to the signals from the periphery, the Afferent Vagus go to the brain. Send that information to the Medulla to the brain, Back down to the Medulla. The Efferent Vagus nerve goes down to the celiac ganglion, the splenic nerve and tells, the spleen to. The Vagus stops suppressing the spleen basically. Stopped suppressing the immune system. 80 percent of the Vagus afferents fibers bringing input from the body to the brain.

[00:42:12] The brain sends a stimulus to the celiac ganglion via the EFFERENT Vagus. Acetylcholine is the Vagus afferents neurotransmitter. Phosphatidyl Choline supports acetylcholine, so it's good for your brain, good for your Vagus. You want to improve vagal tone. If somebody has atrial fibrillation and you want to increase vagal tone, you feed them a lot of Phosphatidyl Choline. I can't remember the name. There's a Naturopathic cardiologist in Portland who gives Phosphatidyl Choline and something else, I think magnesium, every four hours, 24 hours a day for patients that are in atrial fib. And it's been pretty amazing in terms of its results. The signal goes from the celiac ganglion to T cells and the spleen, which in turn signal the macrophages in the spleen. The macrophages reduce cytokine production when the Vagus is on macrophages, reduce cytokine production when the Vagus is on and increase cytokines when the Vagus is off during stress. So the Vagus slows down the heart, reduces inflammation,

quiets the immune response, improves digestion when stress is down and life is good. You are'nt laying on the couch, you're on the beach, you're having a good time. There's no reason you need inflammation. You're digesting as good as all happy. Your brain is happy. Everything's good.

[00:43:35] But the Vagus is turned off or down. Not off off right? But down or off during stress, threat and trauma, and infection so that inflammation, immune response, heart rate can go up digestion, stomach acid, enzymes, and motility can go down. Because if you're in the middle of infection, stress or trauma, if you're fighting off a tiger, if you've got 30 minutes to live, why on earth would you want to digest your food, right? So the Vagus has turned down by infection, stress and trauma. The Vagus gets in the way of survival during stress. The Vagus slows the heart rate. It increases digestion. It suppresses the immune system. The Vagus is inhibited by the central stress response or the limbic system. The heart rate can go up. The liver can produce more sugar. The immune system can be very active in the digestion system can be turned off so you can survive.

[00:44:31] Vagus is 109, the Medulla is 94. The midbrain, the thalamus, the limbic system is 89, the cortex is 90 and everything is connected to everything. All input from the body to the brain goes through, the limbic system goes up. The Vagus goes to the limbic system, where it decides in conversation with all those parts that we talked about in the itchy nose. Decide what to do about it to keep you alive.

[00:45:02] So when it goes wrong, it's called central sensitization, we've been over this enough times that I'll go through it relatively quickly. The firing threshold for these mid-brain stress centers is set. What it takes to get them to fire are set at conception, in utero, in early childhood and throughout life. So at conception, children conceived by frozen embryos that were implanted when they were 32 cells big. So they combined the egg and the sperm in a dish when they watch it grow and then they put it in liquid nitrogen and freeze it. Then they take four or five of those. They implant them in the uterus. Hope that one of them survives. The woman becomes pregnant. The children grow. Somebody thought to see what effect that would have on the child at the age of seven. And they compared that group to a group that was conceived through normal intercourse. And the only objective measure that they could think of to look at stress in a seven-year-old was blood pressure and the blood pressure of the children that were

conceived with frozen embryos was significantly higher. There was no overlap. So it's not like they were a little bit higher. They didn't even match up. There was no overlap. It was significantly higher than children that were conceived normally. How does the stress response get set when an embryo is thirty-two to sixty-four cells big? Maternal stress during pregnancy lowers that firing threshold because the stress hormones are higher and the stress centers fire earlier with less external objective threat when the person is an adult.

[00:47:00] Early childhood trauma like sexual abuse, physical abuse, violent households, living in a war zone surgery. So a child that has heart surgery at six or 10 or 12 weeks old, it saves his life but his stress response when he's 15 or 20 or 30. This needs to be included in your patient histories. What surgeries did you have? Did you have any surgeries as a child? Especially if this patient is having any condition that suggests that his Vagus nerve is not as active as it should. Digestive trouble, for example. Elevated blood pressure, autoimmune conditions, auto accidents, and trauma will lower the firing threshold, activating the stress centers with very little quote-unquote objective and external threat. Then adult trauma, pain, rape, abuse, PTSD, kidnaping, assault. All of these things lower this firing threshold for years, sometimes permanently, and pain is more bothersome than it should be. By any objective assessment, it's like it's more bothersome.

[00:48:15] So central sensitization, this is just a visual talk about a hair-trigger. The stress center can stay on even when the threat is gone, all the pain should be gone. They are centrally sensitized when central pain nerves fire. Remember that insula? It perceives more pain more easily. It's set earlier. That threshold is earlier. The nerves fire with very little objective external threat or pain. So the patient that says my knee is killing me. And you look at the X-rays and there's nothing wrong with them, or very little wrong. Think about central sensitization and start asking questions about infection, stress, or trauma.

[00:49:00] Central and cord sensitization, central sensitization. And you can't have central sensitization without the cord being sensitized. That hair-trigger exists in the spinal cord and in the brain, so in the brain, the chemicals that are involved, cytokines that are involved. TNF-alpha, interleukin one beta, nerve NGF, Phosphocholine, PGE2, its inflammatory. 5-HTP, histamine bradykinins, interleukin one, TNF-alpha. Interleukin

one beta. TNF-alpha. TNF-alpha you notice some interferon-gamma. Spinal cord and nerve sensitization peripheral nerve is 396. They can become sensitized, spinal cord is 10. This can become sensitized and these are the products that do it.

[00:49:53] I'm going to go through these quickly because you've seen all this before. Inflammatory cytokines, FSM reduces interleukin one. That's the only real hard basic science data we have. It reduces substance P. That's involved in sensitization in the spinal cord.

[00:50:10] It reduces serotonin. 5-HT, 5-HTP, serotonin. And there it is, not only in the spinal cord, but in the glial cells as well as the brain.

[00:50:24] FSM reduces CGRP, I didn't publish that data, but we had it. Went from 100 down to 8, so it reduced it by more than 10 times. So it reduces central and spinal sensitization.

[00:50:37] Now, the midbrain never forgets. The hippocampus has as its job in life to put an unconscious subconscious or rarely conscious memory, early childhood and past injury, pain and stressful events. So you can predict and survive future events. That's what the hippocampus does for a living. The patient is unlikely to be aware of the sensitization of any of these memories. Visual stimuli, sounds, even smells or textures. Furniture or configurations can trigger the midbrain and set off a physical or immune stress response reaction with no conscious memory of why it's happening or even what's happening. So, for example, the patient is five-six years old. Families, parents are having a party downstairs. Man comes up and messes with the five year old kid in ways that are not nice. He has on a blue shirt and is wearing a certain kind of cologne. Now the furniture in the room is arranged a particular way. There's a certain kind of lamp on the nightstand. As an adult that person doesn't remember having been molested as a five-year-old. There's no conscious memory of it. It's blocked out. She too young. And I'm saying she, but it could be a boy. And you're treating that patient for, let's say, irritable bowel or inflammatory bowel, irritable bowel, let's say. Gastroparesis, SIBO. Patient is doing really pretty well.

[00:52:13] A patient gets on a bus to go home from work. Across from the patient, the patient is standing up in the bus, sees somebody in a blue shirt. Same color. Somebody

behind her is wearing a cologne that's similar or the same as the man that molested her. What does that do to the hippocampus? It remembers forever. Patient gets off the bus all of a sudden, the irritable bowel, she's got diarrhea, she doesn't digest your food well, she floats after eating, she comes in two days later to see you. It's like everything. We've done it all. Just it doesn't. It just doesn't work. Something's not right. Now, you don't want to talk about her, about being molested when she was five. But this might help you make sense of why it is these events happen. It doesn't do any harm to treat 40/89, quiet down the midbrain, quiet down the hippocampus. Tell it, it's all right, and turn the Vagus back on and start correcting the problem.

[00:53:24] And you have the same response to all stressors. This is a primitive reaction. The stress centers the endocrine the nervous system is incredibly complex. But it responds to all stress and more or less the same way. It doesn't matter if you and your boss are having a conflict or if you're in a crowd or for being eaten by a tiger. Or if you're hungry and scared. All stress centers and all stress in more or less the same way, suppress the Vagus in order to increase the heart rate, suppress digestion, increase inflammation so you can survive.

[00:53:57] You've got 30 minutes to live. What's going to keep you alive? What's the most important? Well, we're going to decrease circulation function of gut. Decrease circulation of the skin and the hands, increased circulation of the muscles. Increase heart rate and blood pressure. Increase glucose from the liver. Increased cortisol to deal with the inflammation. Increase immune system activation so you can survive and repair the trauma and the infection from having been eaten by the tiger or bit by the tiger. Decrease thyroid growth hormone follicle-stimulating hormone Luteinising hormone as non-vital. Why on earth would you want to be pregnant or produce sperm if you got 30 minutes to live?

[00:54:38] In a normal patient, once the stress and infection are gone, the traumas repaired, the injuries heal, the afferents Vagus tells the brain that everything's fine and stop sending stressor information. The primitive centers calm back down, send the signal down. Tell the Vagus to come back on. The heart rate slows down again. Digestion, appetite, stomach acid peristalsis, sphincter, and esophageal function all returned to normal. The immune system is downregulated by the Vagus, and

inflammation and macrophage activity returned to their normal quiet state. That's a normal patient.

[00:55:11] But if the patient is sensitized the mid brain stress centers have a different and a lower threshold, and they fire with very much less external objective what we would consider object of stress. The stress centers stay on from normal life stresses and events and keep the Vagus off or reduced. And the problem is that an awful lot of this sensitization happened before conscious memory. If they're under the age of seven or if they were raped when they were 14 and they've never told anybody. You can't assume that a patient is not sensitized just because they didn't tell you they were raped when they were 14. Even if you ask them they might not be open about it. And I have a hard time asking patients about that.

[00:56:01] In a sensitized patient, when the stress centers stay on and the Vagus is suppressed, the immune system remains unregulated. It creates allergies, autoimmune conditions, chronic inflammatory responses, digestive system changes, create leaky gut. SIBO, IBS, and further activate the immune system. The stress response system works really well for short bursts. If you want to have an experience of this read the book "Why Zebras Don't Have Ulcers". It's because you've only got 30 minutes to live. You either live or die. In humans, we live with chronic stress for very long periods of time. And it's pathogenic when it's prolonged.

[00:56:42] We know from what little data we have that you can manipulate the autonomic nervous system up or down at will, and we know this thanks to Roger Balika in 2013. Seems like yesterday. One minute treatment. He was after lunch, parasympathetic dominant. One-minute treatment with increased secretions in the sympathetics. Increased vitality in the Sympathetics. So that's two minutes of treatment. Two minutes wait and retest, and he was able to drive the parasympathetic just into the ground. One minute treatment with increased secretions and vitality and the parasympathetics two-minute wait, retest, and everything went back to normal. So how is that going to work? How do we use that to help people? That's what this webinar is all about.

[00:57:33] Frequencies modify autonomic function. So you have to assume that quieting the midbrain and quieting the Medulla and increasing secretions and vitality in the

Vagus is going to work. So before you treat, think, and ask, is the infection gone? There's no not much point in turning on the Vagus if the patient still has the infection. Is there living environment safe? You don't turn on the Vagus in a police officer when he goes to work the next day. You see him on the day before his two or three days off. Is the trauma repaired? You don't turn on the Vagus when somebody has a fractured leg or 8 broken ribs. You're going to modify the treatment accordingly, assuming that it works, that it's going to work. Is the living environment safe? Is the trauma repaired? Modify the treatment accordingly. Now, if you know that the patient is living in an abusive relationship or difficult situation, any rest that you can get their nervous system is worthwhile. So I modified this. If I'm treating police officers, certain kinds of military people, I modify this. But if I am treating somebody that just living in a stressful situation, even two hours of vagal function is worthwhile.

[00:58:59] So vagal tone, this is a short version. It's now in the CustomCare mode bank. 40/94. Mostly just turned down the Medulla. That takes four minutes because 40 is time-dependent. Quiet down the mid-brain and the limbic system. That's also four minutes. Quiet down the sympathetics. That's also four minutes because we know that 40 is a time-dependent frequency. If you listen to Porges, you could treat 94 and 109 anyplace from four minutes to 60 minutes. I had one patient, had me set his CustomCare to treat trauma in the Vagus because he was a big Porges fan. Dorsal nucleus. He had me set that for three hours, just treating trauma in the Vagus because of the way he'd been raised. Increased secretions in the Vagus. I'd run it for as long as 60 Minutes and as short as four minutes. That's totally up to you. I think the standard protocols are four minutes. Then vitality and the Vagus, you can run that forever. When in doubt, if you have any doubt about whether or not to increase secretions, you can use vitality in the Vagus and it works really well. Put a pulse oximeter if you're going to use 81/109.

[01:00:07] Concussion and vagal tone, I combine them because the concussion protocol we know raises serotonin, helps with calming the nervous system. So 94/200 and 970/200. Trauma paralysis, allergy reaction, vitality in the Medulla. And then quiet Medulla. So you're going to combine vagal tone with the concussion protocol that runs four minutes. Then you treat the pituitary. 94, 321, 9, increase secretions of vitality in the pituitary. What is what does stress do to the pituitary hormones? It reduces, at least, FSH and LH. We know that for sure. So treating the anterior pituitary to increase secretions would make sense if you're going to increase secretions in the Vagus. Does

that make sense? Let me go back and do that again, because that's that's leap and I don't have pictures.

[01:01:01] We know that Corticotropin-releasing factors and elevated cortisol reduce at least FSH and LH, and that affects testosterone production, progesterone, corpus, luteolin, and sperm production. So if you're going to treat the Vagus, it makes sense to increase secretions in the anterior pituitary, 310. 6.8/38, trauma and then reduce inflammation in the midbrain or the limbic system. That whole stress system. Quiet the sympathetics. Just in case that's a piece of the picture. Trauma in the Vagus. Increase secretions in the Vagus and the vitality and the Vagus. Does that make sense? And I keep concussion and Vagus on the CustomCare that I have in my office and on almost everybody, I'll put concussion in Vagus on contacts, on the back and the abdomen and run that no matter what else I'm doing. Because if a patient watches the news, drives in traffic and has to ride the bus. Concussion and Vagus, I run it on myself probably six or seven days a week.

[01:02:20] So risks. Here's a question, can you do it too much? I don't think so, because if there's infection, stress, or trauma, the brain can and will turn the Vagus down faster than you can turn it up. If the brain is sensitized and the threat of infection or trauma is not real but remembered in the hippocampus, there's nothing you can do that'll override that if it's real, if it's stuck in memory. I don't think you can do it too much. I've run it on so many patients now, and this was after 15 years of not running it. The first time I ever treated increased secretions in the Vagus was a patient that was in ventricular tachycardia. I was working in a cardiologist office in 2000 before I'd done any of this. And his heart rate was 148. And the cardiologist had the pulse meter on audio so we could hear the heart rate thumping at 148 beats a minute. And it was V-tach. It was serious. And I ran increased secretions in the Vagus and dropped his heart rate from 148 to 72 in about 30 seconds and it just scared the hell out of me. So I didn't start treating the Vagus until after Diana Cross did her presentation about five or six years ago. Then I sat down on the couch with a pulse oximeter on my finger, and I was the guinea pig. My normal resting heart rate is sixty-two. I ran increased secretions in the Vagus and watched the pulse meter, and it went from sixty-two to sixty-one back up to sixty-two. And every time I've ever treated the Vagus if the heart rate is normal treating increased secretions in the Vagus doesn't seem to change it.

[01:04:08] Let me go through these cases really quickly. We treat autoimmune disease all the time, right? Could the immune system get out of control if the Vagus was working properly. At this point? I seriously hope that, you know, the answer is no. If you ask a patient what happened in the three to six months prior to the onset of your autoimmune condition, one hundred percent of the time there would be some sort of life stress. Mom died. Dad died. I lost my job. Got divorced. Got in an auto accident. There will be something. Ask what was going on in the patient's life in the year prior? Well, it's actually usually sooner than that, but at least in the year preceding the onset. Childhood trauma, home environment, surgeries, infections, accidents. So far, every single one has reported some dramatic increase in stress in 3 to 18 months prior to the onset of an inflammatory autoimmune condition.

[01:05:06] Quiet down the central stress response, concussion protocol. Concussion and Vagus, turn the Vagus back on. Repair the small intestine because every autoimmune condition is going to create inflammation. Quiet the immune system directly and then in rheumatoid arthritis, which is what these pictures are about, you're going to have to treat the affected tissue locally. You can't put tissue back thats not there. And scleroderma in psoriasis you treat the skin. And arthritis you treat the synovial. Hashimoto's, you treat the thyroid. Crohn's, ulcerative colitis. Any of the inflammatory or irritable bowel conditions, you treat the intestines. Some adrenal dysfunction, I have reason to believe, its autoimmune. Can't put tissue back that's not there. So once the hand looks like this, you're not going to get it to look like this. But the model explains how a dental infection or mold infection can turn off the Vagus and can cause arthritis, anti-thyroid antibodies, or any autoimmune disease.

[01:06:07] There's the gut, the Vagus, the brain, the stable state. The Vagus has receptors that sense the microbiome. So there is this HPA axis, the adrenergic nerves, the cytokines, the bacterial molecules in the digestive system that are picked up by the Vagus. The brain knows what's going on in your gut because the Vagus tells it. The microbiome, that's why the stable state that we go on and on and on about is so important. This one slide is a whole seminar all on its own.

[01:06:50] Gastroparesis, loss of gastric motility. The Vagus has to be involved. What turned it off? Ask about it. Think about what started it. When did it start? After what stress, infection, vaccinations, root canals, mold exposure, parasites, Lyme, other

infections, surgery? Because the Vagus can get scarred in the abdomen from any abdominal trauma or bleed.

[01:07:14] How would you treat gastroparesis? Concussion and Vagus. Quiet down the sympathetics. Trauma, torn and broken, scarring in the Vagus, increase secretions in the Vagus. Depending on gastroparesis, you always treat the parasympathetics 94 and 49 to watch 81 and 709. The parasympathetics. 81 in the Vagus have never had trouble with. 81 and 709, I've had some patients get really low blood pressure with that. I've never had trouble with the Vagus. When you're treating the Vagus, you put the contacts at the neck and the lower abdomen, then treat the pancreas and the stomach. Gastroparesis is not going to be at one visit fix because you still have to address what started the problem in the first place.

[01:08:10] SIBO, lack of gut motility. There's a whole workshop that I did about SIBO, I think we have that in the webinar department. Altered PH. The Vagus has to be involved. Why? Because the Vagus determines how much stomach acid pancreatic enzymes you have. Small intestine bacterial overgrowth can't happen if the sphincters are working properly and if the small intestine is acid enough and if the food is being digested. So what stimulates GI acid production? The Vagus? What stimulates pancreatic enzyme production? The Vagus. What stimulates gut motility and proper sphincter function to keep the bacteria from going from the large intestine to the small intestine? If you think about it, the Vagus has to be involved.

[01:09:01] This is a great article if you get your hands on it. It's a review article. The Vagus afferents sense the microbial metabolites. Transfers this gut information to the CNS. Look at this pathway. It's just insane. So cool. Through afferents, CNS generates an appropriate or inappropriate response. The Vagus cholinergic anti-inflammatory pathway dampens peripheral inflammation and decreases intestinal permeability. In all the conversation about leaky gut where they're running 124 in the small bowel? We talk about that in the neuro-visceral workshop. Is there any point in running 124/22 unless you turn on the Vagus? Read the sentence again. Vagus cholinergic anti-inflammatory pathway dampens peripheral inflammation and decreases intestinal permeability. Read this article. The Vagus modulates the microbiome composition by creating asid PH and reducing inflammation. Stress inhibits the Vagus. Has a negative effect on the GI tract and the microbiome. It's involved in the path of physiology of IBS and IBD inflammatory

bowel disease by creating dysbiosis and inflammation. Low vagal tone has been described in the literature in IBD and IBS patients, thus favoring peripheral inflammation. When you get this slide, find the article and look in detail at this illustration. It's mind boggling.

[01:10:43] How would you treat, SIBO? Treat the Vagus, concussion and Vagus. Careful if there's diarrhea. Contacts at the neck and the abdomen, and then pus, pus encapsulated fermented and putrefactive toxin? I think that's Candida toxin. Increase secretions in the pancreas. Increase secretions in the stomach. Do the basics. Quiet inflammation, increase secretions, and treat the ileocecal. I think this is 3 as the Cecum and 22 is a small bowl. Then to do all the other pre and probiotics and enzymes, all of the other common-sense things you do with SIBO. But it's insane that people have SIBO for eight, 10 years. That just means that what they're doing for the SIBO doesn't work. And I think what's missing is the ability to treat the Vagus any other way.

[01:11:41] So this is our one case report, and we're heading towards the end. This is a young lady that had full body RSD or Complex Regional Pain Syndrome. She is a 19-year-old patient with full-body pain, gastroparesis, POTS. Severe abdominal pain and urination felt like urine was full of glass shards. And it was this case where I found out that the Vagus had pain nerves, was was a pain nerve. Had no susceptible. Severe infection in the mouth and throat at age six. Complaints of stomach pain. As soon as she recovered from that one went back to school, she left class daily for the nurse's office. Constipation and gut pain daily. Gastroparesis with vomiting at age 11. She had a port installed for feeding tubes. She had a G-tube installed and it leaked at times internally, so she had abdominal adhesions. She had POTS by the age of 12 or 13. Blood draws at age 16. So just a needle stick caused immediate, sharp arm pain and full-body pain, and allodynia and hyperesthesia persisting to the present.

[01:12:53] Her current symptoms when I saw her. Actually five years ago? Full body pain, abdominal pain, allodynia. Full-body skin hyperesthesia even on the forehead. All three portions of the face. Pain with soft-touch everywhere. Pain with eating. Slow digestion. She still had effectively gastroparesis. Abdominal pain. Severe pain with urination, defecation and any gut movement, and her heart rate was 90 at rest.

[01:13:24] The key to the solution was the Vagus had pain fibers. CRPS is a denervation condition. The peripheral nerves disconnect from the blood vessels in a single limb in RSD or CRPS. But full body CRPS is central. It's in the thalamus and the insula. We used 40 and 89 for the allodynia instead of 40 and 10, things we normally use for CRPS. But what about the Vagus in the gut? What about the POTS?

[01:13:58] What if the Vagus disconnected and denervated at age 16 when the pain centralized and the Alinia started? The Vagus has pain and sensory fibers. Pain fibers that disconnect from the periphery cause CGRP pain. But what if the Vagus is disconnected from the gut and the bladder? Any sensation would be perceived as painful. Now, this was a wild hypothesis. Nobody that read the literature would make this hypothesis, but we have a way of treating it, so we did.

[01:14:26] You create a hypothesis? We treated the allodynia from neck to feet with 40/89.

[01:14:33] It reduced in ten minutes and receded from our head to her feet. So within ten minutes, I could touch your face and it didn't hurt. The second machine treated the Vagus. What caused the problem originally? So I ran 160 and 109, malignant virus in the Vagus polarized positive with contacts at the neck and the pubic bone. That was for one hour. Then trauma and vitality in the Vagus. I hadn't treated 81 and 109 in somebody with POTS, and I just, was chicken. I just couldn't. Didn't want to risk it. Not in front of a class full of students. So we kept a pulse oximeter on her and just checked it every now and then, and she was fine. We used 49 and 109 for 30 minutes each. We treated her for two hours. Then we treated concussion protocol and modified it to include 40 and 94. This was before we developed the other protocol.

[01:15:27] 40 and 89. Neck to feet. Treat the Vagus. Then we treated scarring in the abdomen. She gave me this beautiful necklace. Sorry about the mic. See this necklace. That nice doctor gave me this necklace because I told her it was beautiful. She was wearing it that day or the next day. So gentle manual melting of the Vagus abdominal adhesions with 13 and 109. The outcome after two hours, her body pain was a zero, down from an eight or nine out of 10. The pots was completely gone and never returned. Allodynia was gone. Body sensation was normal. She got up after two hours

and went to the restroom, and urination was completely pain-free and her heart rate went from 90 down to 67.

[01:16:14] There you go. You treat the Vagus directly. You change the brain and the body with FSM because you can. And once you see it, you can't unsee it. That's why I did this as a webinar.

[01:16:14] We have lots of questions. How do you stimulate the Vagus and a cancer patient lymphoma? Don't. Just. Oncology sites advise to do it. Ok. That doesn't make any sense to me. I don't understand, Christina. Infections, stress and trauma, Vagus is going to quiet the immune system, why on earth would you want to quiet inflammation in a cancer patient? If the oncology sites say to do it, then I guess you can try it, but yikes. That would make me nervous.

[01:17:13] The patient doesn't have an active mild infection rather as being influenced by mycotoxins or their immune reaction to mycotoxins. Yeah. 23 and 95. We have the model that FSM changes cell signaling. If you have the idea about the mycotoxins that they change, cell signaling, we're not using 23 and 95 to kill mold. That just doesn't make sense. It's too complex an organism. We arent going to kill the bug. Our hope with these two frequencies, it's the tool we have, so that's what we use, is to change the cell signaling back to normal by removing the effect of the mycotoxins on the cell. You operate on the possibility of, can't hurt might help.

[01:18:09] Somebody has chronic fatigue as a result of an infection to the Vagus nerve years ago. Does the patient still need to go on antibiotics now? I have no idea. I don't know. I'm assuming that that's a type of little bit of a typo, the chronic fatigue as a result of an infection a long time ago. If there's no indication that the patient has an active infection now, it won't hurt to treat the Vagus at this point. The real question, and I really have to do a webinar on fatigue because chronic fatigue is a garbage can diagnosis, the causes of fatigue are, heart disease, infection, low thyroid, anti adrenal antibodies, anti-thyroid antibodies, all of those can have vagal components. So Jennifer, I would say treat the Vagus, and if somebody reads, listens to the news, rides a bus, drives and traffic. You're not going to treat the Vagus one time. But treating it will give you an idea of whether or not it's useful.

[01:19:30] Is it safe to treat 13 and 109 in patients with ligamentous laxity and patients? Yeah, of course. The Vagus is adhered in the abdomen. Cranial cervical instability happens up here. The Vagus can be adhered here and you can use a second machine to treat 124 and 77 and one twenty four point one hundred. That's it. Thank you Ivor. Sphenopalatine ganglion is what gets overstimulated when you have an ice cream headache. Of course it is. Thank you.

[01:20:12] Are there vagus nerve stimulation devices that you can recommend for in-home use? Yeah, Customcare. The other ones I don't know anything about. So yeah, CustomCare would be my favorite vagal nerve stimulation device.

[01:20:26] Does it ever make sense to quiet the parasympathetic system? Somebody having an active vasovagal response? Could that help? You could try it. 40 and 109, quieting the Vagus. I can't think of a time when you use it, but I'm sure there would be. There might be some time I just can't think of it. The patient's autoimmune condition started after a vaccine. Would 160 and 45 and 109 reverse it? I have no idea. It's worth a try. It's not like anything else is going to work.

[01:21:10] This is one of my favorite topics. It's just, it's everywhere. Apparently, COVID long haulers has dysphonia. Yep. And we have been using the frequencies you recommended. Yeah, it's like COVID is a virus turns off the Vagus.

[01:21:26] Patient has ADHD. 40/10, 40/562 makes her manic. Any correlation with the Vagus? Gary, that is a lot of neurotransmitter. Meniere's has to do with dopamine. That one's too complicated that makes my brain hurt. I don't understand why 40 and 562 would make her manic. It has to do has something to do with dopamine. And I can't put my finger on it. It's been a long day and I've been lecturing for an hour longer than that, an hour and 45 minutes.

[01:22:12] Dana, thank you for getting bolder than you were when you were younger. I just want you to know how much you have to change my life and others, including perhaps the millions. Oh, thank you Dana and Cheryl Fletcher. Dana, can I share this, Dana? He's getting over COVID and the FSM protocols when he runs home he's been keeping a spreadsheet of his pulse and his oxygen saturation after he runs the COVID protocols. We call them respiratory flu, respiratory flu plus organs, respiratory flu plus

organs and brain. I always include the brain anyway. Have I successfully treated post-COVID loss of smell and taste by the Vagus ulnar nerve protocols? No, but that's worth a try. If you think about the respiratory flu protocols that we use the loss of smell, if you think of the adnoid sinus, it doesn't make any sense. The COVID enters by way of the ACE2 receptor. The ACE2 receptor is present in the vascular system, not so much in the nerves. It's not in the nerves. It's in the blood supply, the adenoid plate, and the adnoid sinus. If you look at the detailed anatomy of it, it's incredibly vascularized. So I think the loss of taste and smell has something to do with the vascular system in the adnoid sinus. But you're going to have to treat the Vagus anyway, because the Covid turned the Vagus off. So it's worth a try, Mike. It's nice to see you.

[01:23:45] Ron Buckley. Running Vagus on Magnetic Converter at night. So you can't run positive polarity, extend the time. I don't know, I think I run it 20 or 30 minutes. I have a client who a year ago started to lose her ability to speak, the tongue was scintillating rapid vibration, then ability to swallow and smile. Now she has a feeding tube. Interesting. Ron. It can't hurt. It's not like anybody else can. Geez, Louise, the poor lady. Brain MRI. They tell me they did one. Ron, email me about that. I have no idea. Her ability to swallow went south is vagal since swallowing is vagal. Find out what started it and treat the Vagus. It's not like anybody else can help her. And then getting her off the G-tube is a whole nother conversation.

[01:25:02] www.precisiondistributing.com for the CustomCare.

[01:25:02] 49 and what calms her down? This is Gary again, which is the lady that gets manic when you run 40. Increasing. Ok. Go back to dopamine. That's all right. COMT polymorphism causing... Well, ya, COMT is always a piece of ADHD. So do 23 and me and I send mine to NutraHacker and it'll tell you what the snips are in the COMT. Renee. Thank you, Jane. That's a great idea. Everybody should have 23 and Me, and I send them to NutraHacker. Dr Musnick, he uses a different system. But NutraHacker is the one that Paris Karbat told me to use, and it's been really helpful.

[01:25:58] Renee, thank you for concentrating the Vagus. Yes, thank you. It's so important. My client with the long hauler has similar other symptoms to Buckley's patients. Yes. Isn't that interesting?

[01:26:11] Not a question, Kathy Bledsoe, oh, you're very welcome, I'm glad you enjoy it, this is just a really special topic to me.

[01:26:18] Can you read it to me because I now have this little square and I can't get rid of it and also can't move it out of the way? Is there any research you have done or know about the combines therapy like hypnotherapy or NLP for traumatic memories PTSD at the same time as the vagus protocols? No, but no reason not to. My Masters is in psychology, and I did a year of training in hypnotherapy and 10 years of part-time practice doing clinical hypnosis as a psychologist. And you have to be really careful, really, really careful. I had somebody do hypnosis on me for something, and she said something inadvertently. It was just a few words, but my heart rate went up because of a word or two that she used that had effect on my nervous system.

[01:27:16] Rhonda, would this help with the dryness of shoguns? It'll help with any autoimmune condition.

[01:27:24] Harlan Oh, hi there, Lindsay. Hi. Can see and hear you see the slides. That's always a good thing. Bellingham, please thank you for doing this. Are we going to get a transcript or the slides? Yes, the slides are going to be sent out tomorrow and they'll be on frequencyspecific.com/webinars. Reposting the webinar. Website next week. With the transcript. He does a transcript of this. Takes it all my coughs. It's amazing.

[01:27:51] And the reason we don't add 225 and toxins like endotoxin. Yeah, but of course, you can. You can add any Channel A frequency to any channel B frequency, depending on what the patient has. So you got it. Dryness with any autoimmune disease. Ok, Ron Buckley, I did that.

[01:28:14] What would cause a person's heart to race while running 81 and 109 in a COVID long hauler? There was an article that I saw about the Vagus, causing an elevated heart rate, which didn't make any sense. Vagal stimulation causing an elevated heart rate, which didn't make any sense to me since the role of the Vagus is to slow the heart. So, Rhonda, the answer is I have no idea. So every time in every seminar, I let you know, I hope it's not like we know what we're doing, right? So this is clinical research, and it's why you keep a pulse oximeter on them. And if their pulse goes up, stop what you're doing to reverse 81 and 109 you run 40 and 109 and do that till the

pulse is back down where they started. 80 and 109 and 40 and 109 are opposite and I've never heard of 81 in 109 causing a problem. So, I don't know. Thank you, I'm glad you had a good time.

[01:29:17] What is condition frequency 138? It's listed for leukemia. I have no idea. Oh, you mean from that weird one from the west indies frequencies. I don't know. I don't treat cancer. Don't even go there. Oh, Susanna, I'm glad you had a good time. Oh, you like my. Somebody likes my gray hair. Yeah, it was just time. I got tired of coloring it. There was COVID. Hammad from Kurdistan. Wow. Are you up in like the middle of the night or something? Raymond. Hi from Indonesia. It's nice to see you live, too.

[01:29:54] Oh, I'm all done. Oh, that's too bad. Well, it's been what we started at four and it's six. So it's been two hours. It's a good webinar. I'm glad you had a good time. It's always good to see everybody. Oh, hypnotherapy. Yeah, it's a good. It would be a good combination. It makes sense because the hypnosis and the EMDR and all of that helps create a stable state. But the Vagus gives you something to. You start from a different place and it gets at the nerve and the limbic system directly and the Medulla directly. Everything else kind of oozes around it and being able to treat the Vagus and combine it with these other therapies I think it's just really. NLP. Yes, that's the other thing that would be a great, a good combination. So I'm glad you had a good time. I'm glad you were here. This is just, I've just had a wonderful time. Thank you so much and we'll see you next time. Take care.