Introduction and speaker background

Hello everyone. My name is Doctor Richard Horowitz and I am the co-host of the Doctors Talk Healing Lyme Summit. It is my great pleasure to present to you today a very dear old friend of mine who, when I mean old, I don't mean old, I just mean we've known each other for a very long time.

Doctor. Neil. Nathan who? I'm sure most of you know. Neil, thank you for doing this talk. Today. We're going to be discussing healing the vagus nerve, the role of vagal dysfunction in chronic Lyme and tick borne diseases.

So, you know, thank you for joining us today. And why don't you tell people a little bit about yourself and how you got into this field? You know, we all come into this field through our own, either our own health experience or the health experience of our loved ones or through the particular patient population we're seeing where we realize, I need to learn more if I'm going to help these folks.

So I came in through the pink door. I was a came specialist and had been 35 years, and I was treating a lot of patients with chronic fatigue and fibromyalgia, and we had been learning a great deal about that.

We were learning about all kinds of biochemical perturbations that really triggered. It was not a psychological illness, as other people claimed. And we're we're getting some really good cures with it.

And at a certain point recognized that I was not making the same amount of progress, at which point I entered the Lyme Dor and realized that a whole lot of people with chronic fatigue and fibromyalgia really had Lyme disease or a co-infection.

Not long after that, I walked through the moral door where I realized that a whole lot of people with these same symptoms had mold toxicity. So it evolved as it does for all of us from the perspective of trying to help as many people as I could.

And really, I had to learn a whole lot more if I was going to be able to do that. Yes. Now, you know, I think a lot of us in the field enter that way.

I mean, I personally didn't enter it because I got Lyme, but I moved into the most Lyme endemic area in the United States, roughly at Dutchess County, New York, in 1987.

And just like you, it was like, well, people were getting better on some of the standard treatments, but, you know, the 20 to 30% that didn't get better with standard antibiotics.

I remembered the words of my spiritual teacher again in rep, which is, put yourself in people's shoes and do for them what you would want done for yourself.

And when none of the people I was referring to neurologist, rheumatologist, cardiologist, an infectious disease docs no one could help these chronic disease patients.

I started going to, you know, the Lyme seminars, reading the papers in the medical literature. And so for me, it's a 40 year journey. I think, for you at this point, you're going on almost 50 years at this point.

Yeah. 50 plus. So it comes from our pathology of wanting to help every single patient who comes into our office. And I'm guilty of that. I haven't done it.

But the pressure or internal pressure that we have to help our patients is what keeps us learning. It's what keeps us trying to integrate some of the newer information that we're learning, so we can help as many people as we can.

Yeah. And and clearly you've ended up specializing in certain areas with mold mast cell vagal dysfunction. Today we're going to specifically talk about vagal dysfunction and the role of the autonomic nervous system and why some of these people stay chronically ill.

But as you and I know, we have to discuss a little bit of muscle disorder and mold because they all overlap right in here. And and of course, now with Long-covid, autonomic nervous system function is causing a play.

Right. It's a role with that also. So why don't you just tell our audience first exactly why we need to address what is the autonomic nervous system? Why is the limbic system important?

Why is the vagus nerve so important in healing from chronic Lyme and associated diseases? And we've learned a tremendous amount about this in the last 20 years.

So 20 years ago I didn't know anything about what I'm about to talk about. It crept up on us to realize that working with patients who were not improving the way we wanted them to, even though we were doing what we thought was spot on, the right thing to do, so many patients really were unable to move forward if we didn't recognize that they had limbic, Vago and Marcel issues.

Now those three things together I call the trifecta of sensitivity. Meaning those three things, they're not separate, although we talk about them separately.

Limbic system, mast cells, and sensitivity

They're totally interwoven with each other, each affects the other. And what will slow down healing for a lot of our patients is dysfunction, and those are areas.

So let's start with the limbic system. From the time you're in your mother's uterus, you are taking stimuli from the world, dealing with it neurologically and deciding what's safe and what's not safe.

And none of us have had perfect childhoods. So if you had, for example, frequent ear infections or throat infections and needed antibiotics throughout your childhood, if you had surgeries for any particular reason, if you had family dynamics where you had parents who weren't there, they were each working jobs or working late, or if you had abusive parents, parents who were either emotionally, physically, or sexually abusive.

Any combination of that forces your limbic system to pay attention to what's happening in your world, so that you can be safer. This is all about safety.

So the way you wire yourself to deal with childhood follows through into adulthood with other stressors, other difficulties, infections, childbirth, surgeries of different types.

And with each successive stressor on our body, our limbic system becomes increasingly hyper vigilant about scrutinizing the stimuli that it's being exposed to from the perception of safety.

And over time, this becomes an overriding difficulty for a lot of our patients. So neurologically, the limbic system focuses on two main issues sensitivities and emotion.

So if a patient had been a pretty solid citizen all their life and all of a sudden they're anxious, depressed, OCD behaviors, depersonalization, dire realization, mood swings, that is the limbic system jumping up and down saying, I'm very unhappy.

I really need to be safer. Similarly, if one of our patients develop sensitivities, which is, you know, is increasingly common sensitivities to light, sound, touch, food Emfs chemicals, especially smells, if you are sensitive increasingly to those things, that's limbic.

So literally when we take a history, many of our patients are going to describe these symptoms to us. And they're

literally telling us, my limbic system is very unhappy.

It needs to get safer. Right? Okay. So so the limbic system again. So this is we're talking about the part of the brain like the thalamus the amygdala. We're talking the parts of the brain that are holding on to memories and emotions.

And that we get wired from early childhood. Most of that, by the way, have had trauma. I mean, I call my patients affectionately. The walking wounded, myself included.

My wife included. I mean, I think some of us as physicians, we probably actually do better with patients because we've had some of these experiences ourselves.

But you're referring to when you're talking about this activation and sensitivity, the mast Marcellus, with the immediate sensitivity. Right. It's like you immediately have a food and you start getting nasal congestion, sneezing, wheezing, itching.

Right. It's that immediate sensitivity to light, to sound, to foods that you're eating. That's kind of how you know, you're dealing with the mass. Well being activated through the limbic system.

Correct. And your language is perfect. The mast cells being activated through the limbic system because smell can do the same thing. If you have a chemically sensitive person, a whiff of a particular chemical can instantaneously set off a series of neurological reactions could be fatigue, cognitive impairment, or even pseudo seizures or other neurological events.

The speed tells us that that's what's going on, because food allergy takes a lot longer to come on. Allergy to an exposure, it takes longer to come on.

It's the speed with which it happens that tells us, all right, this is a mouse issue where this is the limbic issue, right? So why don't you now tell us a little bit about how the limbic system and the autonomic nervous system, the parasympathetic sympathetic, how this is all kind of related and why it's important in Lyme, in mold, in long Covid and Bartonella, like why it's showing up in so many patients.

The vagal system, first of all, the vagus nerve is getting a little bit too much credit for being the head of this system. Yes, it's a very important or but the vagal system consists not just of the vagus nerve, but the vagal connection to the other cranial nerves that come out of the brainstem pretty much in exactly the same place.

So it's what we call it, but it's a little bit more complicated. Neurologically, the vagal system is separate from the limbic system in the brain. Physiologically, they talk to each other constantly because they both have the same job.

They're trying to protect us, keep us safe by scrutinizing the stimuli we're being exposed to from the perspective of safety. So this is an interwoven limbic bingo connection.

You can't teach them apart. I mean, some people go, I'm just going to treat my limbic system. No, you're going to have to treat your limbic system and your vagal system because they are way too interconnected.

Now, the vagal nerve itself has other symptoms that can alert us to the fact that it is being affected. For one, is in control of your entire gastrointestinal physiology, and testicle motility is controlled by the vagus nerve.

But the vagus nerve controls so many aspects. So if you have gas, bloating, distention, diarrhea, constipation, reflux, there's likely to be a vehicle component to that vagus nerve.

Also has branches that go to the heart. So they're palpitations, which is very common in our patients, is a vehicle is a vehicle symptom that goes to our respiratory system and lungs.

It goes to, our throat and it controls, as you're seeing what we call the autonomic nervous system. The autonomic nervous system is a part of our nervous system, which is mostly beyond our control, which is denounced the name

autonomic.

And it controls things like breathing, respiration, heartbeat, digestion, things that are clearly, you know, you know, connected to it. So when people have parts, when people have temperature dysregulation, both of which are really quite common in our patients and palpitations, GI symptoms, we should always be thinking about a vagal piece to the to the puzzle.

Now, one more fairly recently discovered piece of information is that the vagus nerve has branches that go to the spleen, gold and the famous, all of which are important organs of the immune system, so that there is a direct link between the vagus nerve and inflammation.

And I really want to stress that because the vagus nerve literally can quiet down inflammation, which is the underlying pathology of Lyme and mole. So this is like I don't think it's fully grasped how important bringing the vagus into treatment is and helping to quiet this profound inflammatory response that we're really struggling to quiet down.

Right? So, I mean, you know, in in the M6 model, which, you know, when you and I have taught together, you know, that in the model that I'm using, there's six overlapping causes of inflammation and there's ten downstream effects.

And the thing about quieting the inflammation is in my world, it's mostly the bees of Borrelia BBC a Bartonella, right? Of course, there's other things like mycoplasma, tularemia, mold and heavy metals and toxins are right after that, stimulating inflammation, the gut wrong type of bacteria in the gut, the microbiome has been altered.

There is leaky gut with food sensitivities, mast cell activation. Patients don't sleep.

Autonomic dysfunction and the vagus nerve

The inflammatory response doesn't shut off, or they invite a mean mineral deficiency. So I call these the six rivers of inflammation causing an ocean of inflammation.

But part of that inflammation is affecting the autonomic nervous system and the vagus nerve. Right. Causing in a lot of our patients pots to site anemia.

So Potts is postural orthostatic tachycardia syndrome. And the way we recognize it in our patients is and this is why it's so important to really recognize it is most of our patients have fatigue and brain fog.

But the fatigue and brain fog can be from vagal dysfunction because the patients had very low blood pressure. So these are the patients. They stand up, their blood pressure drops, their pulse rate goes up to try and compensate for the blood pressure going down.

And they feel like they're going to pass out, or they actually do pass out and they've got palpitations and anxiety, and the rest goes with and unfortunately, those same symptoms are seen with active infections.

So you have to be able to differentiate what is an active infection or what's driving it. Or are the infections actually better. The mold has been cleared, but you still have the vagal autonomic limbic dysfunction that's still driving some of these symptoms.

Right. So it's kind of important to get to the underlying sources of of why it's there. Yeah. Perfect. Last sentence. Gotta get to the root cause of what's triggering all of this.

And what you and I have found over the years is some of our colleagues who are doing really good work will work on downstream effects rather than figuring out what is really triggering this process in the first place.

And in our world, it's mold and life. And I put mold first, and you put lime first. We can I tell you these days, you and

you and I have joked about this back and forth.

But for whatever reason, as the years have gone on, the mold piece has become more and more important in my office. I don't know why it's happened this way.

Years ago I would give and I think in part it may be the long-covid piece that's overlapping at this point. But you know, years ago I would have a certain number of successes with some combination therapy.

If they didn't have the busy, it'd be easier. And if they'd now bark even easier, but I still would be able to get them better, you know, a bit easier.

And then all of a sudden I'm finding the mold piece is interfering with the success. It's not only overlapping the same symptoms, but some of these toxins, like the glial toxins, are affecting how the immune system is, you know, is working properly.

And then I'm finding, of course, all these people have cell activation on top of it. We're chemically sensitive. So it's like these these other triggers are keeping the mill.

And it's no longer as simple as like here, take these antibiotics. Now we've really got to work the mold. In fact, I contacted you last week about one of my patients who had gone through the Dapt zone.

We were clearing the mold beautifully, and all of a sudden the toxin levels went back up. And I was saying to you, you know, can mold spores in the sinuses or the gut account for why it's coming back or is it the environment?

Right. And this kid, by the way, has horrible pots. This one person in particular, I'm trying to get him to cardiac rehab. He's fortunately doing the up to air technique which we're going to discuss.

He is doing it, but his pots are so bad I had to play around with his beta blockers, move them to nasal from metoprolol. And he's very, very anxious. He is fortunately doing the work, but we're not there yet.

His autonomic nervous system is still out of control, and the mold all of a sudden may be contributing to that thing. There are now in every academic center in this country, there's a patch clinic, and I find that they are viewing the pots as an entity unto itself, rather than realizing it is the result of something else.

So those patients are spinning their wheels if they don't get down to basics. So what you're bringing forth, and I think that's what I want to bring forth as well, because mold and lime are the primary drivers, but they will trigger limbic, vagal and mast cell issues.

And if those become prominent, the patient will not be able to move forward until they deal with their limbic, vagal and meso issues. First, it's about it's as if they're on survival mode, and when they go into survival mode, the body goes, yup, those antibiotics, I need them, but I can't deal with it now.

I've got I'm too freaked out about the environment that I'm living in and I can't deal with that. I can't respond to that until I get safer. And I think this point that you're bringing up is so is so important because where you are in California with the wildfires that have taken place or now, I was in Asheville, North Carolina, lecturing a couple of months before, you know, the floods, these people that are in areas now, when the hurricanes are coming, the wildfires are coming.

They go into this fight or flight mode that if I'm treating someone in California or North Carolina, it doesn't matter what else I'm doing if they're not in a safe environment.

Right. The healing that we're trying to get for our patients is just not going to happen. So, and again, in my world, you know, I see a lot of gastroparesis with the vagus nerve, the people that move their bowels for weeks at a time, or they've got constant nausea and vomiting because the vagus nerve is being, you know, overstimulated in some senses.

Or the bladder. Right, doesn't move properly. Or again, they're standing up and passing out. We've got this autonomic dysfunction. So, what other symptoms do you see with autonomic dysfunction do you think that we should discuss?

Are there any other ones you think that I think we've covered the biggest. Do you want to comment on the smoke thing? Yes. In Northern California, when we had wildfires severe four years in a row, my patients basically, if they were lucky, treaded water until the wildfires were out.

There's something about the smoke itself which is not just toxic, but it triggers a primitive reflex in us. There's something super primitive about it.

But, you know, smelling smoke, danger, danger, danger, danger. And I don't think people fully recognize that. The other thing I wanted to come back to, because I think it's really important, is you mentioned Covid as a major push on the autonomic vagal limbic system, and it has been from the moment that Covid arrived, it freaked out the whole world.

It created a an international global anxiety of something that we didn't know what it was or how to deal with it, or was it safe, was it going to kill us all off?

And that has not gone away. We still are dealing with it. To make it a little more complicated, if a patient has a robust immune system, you could have Lyme, you could have mold toxicity, and you may be able to function reasonably well.

But if your immune system takes a hit, then it loses containment. And all of a sudden we're dealing with full bone marrow toxicity and Lyme disease. So what a lot of people call long haul Covid and there is a long haul Covid.

But what some people call long Covid is actually unmasked line and mold, where the immune system now has unveiled to us. Yep, you've got other things to work on, and I know you've had the experience of having people with so-called long haul Covid who got, well, treating mold alive.

So I want the listening audience to understand how important a player Covid has been in triggering a lot of this. And it's a profound effect on the autonomic and limbic system, because it has scared us all to a degree that I don't recall anything in my in my whole life history doing.

Yeah. The, you know, the Covid piece. What what makes it particularly difficult with it is Covid, as you know, can cause T-cell exhaustion. The T cells are the cells in your body that go after the viruses.

So what we're starting to see in some of these patients is usually I've got to go after Lyme and Bobbsey and Bart and the Bart is like, oh, I'll pulse.

You know, the taps on for two weeks at a time. I've got the Covid, I've got the Bbca treatment now. It's a Quinn with a Tova quote. I've got those pieces in place.

But the problem now is the T-cell exhaustion happens and we're seeing viral reactivation with Epstein-Barr or herpes virus six. And then the Lyme in the Bart sometimes causes B-cell exhaustion, the cells that are making antibodies.

So some of these people are coming in with chronic variable immune deficiency. Their immunoglobulins are low, their subclasses are low. Then they get Covid.

Now they're T cells are exhausted. And you cannot expect people to get better right. Under the circumstances where the immune system's being affected so badly, especially you're right when they're not feeling safe.

So we discussed the symptoms right of the autonomic dysfunction.

Root causes: Lyme, mold, long COVID, and inflammation

By the way, one thing I think bears mentioning about the autonomic vagal dysfunction is we will occasionally see people with a different form of pots of posture, lots of static tachycardia syndrome, which is hyper adrenergic pods, where they're actually getting too much epinephrine, norepinephrine coming out from the brainstem.

And these people are having like heart rates in the one 30s, one 40s. And they're very, very tachycardic. They're very anxious, and they need drugs to actually stop the pathway from going.

It's a separate kind of subclass of this kind of disorder, Nami. But I thought we should mention it because I have had a couple of cases where I've had to put them on things like clonidine, which I normally haven't had to use for, like 40 years.

It's an old blood pressure drug, and it has gotten some of these people back in balance. Not yes. Yeah. So so as far as healing the vagus nerve. So we're talking about we've got to get to the root causes.

These six rivers have inflammation and the downstream effects. What are your favorite ways at this point. So to heal the vagus nerve obviously you have to address them all.

You've got to address these infections. What what are your favorite ways of trying to heal the vagus nerve and get the autonomic nervous system back in balance.

And by the way, talk a little bit. You do a great job in the diagnostics. Let's talk just for a second, the things I've learned for you in the past about putting your finger down up to look at the hypo Glassell dysfunction, or gargling.

Just talk to people a little bit about how to know whether your vagus nerve has been affected. Here on physical exam, there are two very simple things you can look at to to get an idea if your fingers is not working properly.

One simple one is simply to open your mouth and shine a flashlight in there and to say, the uvula, which is a little structure in the back of the throat that you can immediately see if the vagus is working properly, the the uvula should go literally be bouncing up and down.

What we see in our vaguely compromised patients is they'll go up, there's virtually no movement of the uvula. Or it may deviate in some patients to one side or the other.

The other thing, and I know it's going to sound disgusting, but it's a simple thing to do, is your gag reflex should be intact if your Vegas is intact.

And so I would get every physical exam I did for years. I would have people show me how they gag. Now I would demonstrate it first, which I'll do right now, in which you take a deep breath, stick your finger down your throat and gag.

Should be straightforward. Now, my patients, many of whom are nauseous and they throw up all the time and they tell me, I can't do that, I'm going to be throwing up.

I said, okay, here's a wastebasket. I don't think that's going to happen. In all honesty, I have never had a patient do that. Then they take their finger and they put down their throat and nothing happens and they're shocked.

It's like I thought I was going to throw up, but nothing happens. That's a these are very simple ways of getting a clear idea that your think is off line.

Right. And so again, and I do think it's an important thing for people to do because many people, you know, they're not sure because you could have fatigue and dizziness and all of these symptoms.

And it's not necessarily of course, you could have hypoglycemia, blood sugar swings causing fatigue and dizziness

and feel like you're going to pass out.

It's not always due to low blood pressure. Right. And vagal dysfunction. So so what are your favorite techniques over time? I know there's many of them. We discuss when you and I teach.

What are your favorite techniques to tell people about to get the autonomic nervous system back in balance? One of my new favorites is that there's a whole bunch of new devices on the market called vagal nerve stimulators.

Here is simply they stimulate the vagus nerve to function better. My patients tend to be really sensitive. And so I for them I recommend one called Apollo Neuro, which is a balm that you can wear on your wrist, looks a little bit like a watch, and you can control it by an app on your phone.

Programs that my patients like the best are calm and unwind. But caution. The instructions that come with Apollo Neuro are to wear it for 5 to 8 hours a day.

Please don't do that. That would overstimulate the vagus for virtually every patient I've got. Start 3 to 5 minutes once a day, slowly work up into ten minutes twice a day.

And that's a great device. There's also others that you can wear on the ear. There's a device which you can stimulate the vagus directly on the neck called true vaga.

They all work there. A little too strong for my sensitive patients, but for patients who are not super sensitive, these are great things to do. And we're talking 3 or 4 minutes once or twice a day more.

What stimulate them? Another favorite of mine is osteopathic cranial work, particularly biodynamic osteopathy. So a terrific, gentle way to quiet down the vagus and to work more directly on the vagus and the other cranial nerves, which are often involved.

So, for example, the vagus nerve comes out of a little slit in the skull called the jugular foramen, you know, right next to it comes the cranial nerve and the ninth cranial nerve called the glass of orange alert.

Now some of these nerves go to the throat. And a lot of our patients have difficulty swallowing or feel like they're swallowing of a lump or that that's difficult, that's lighting up, that it's not just the vagus, but other nerves needed to be treated.

And there are structural imbalances and dysfunction in the head and neck that really respond well to some osteopathic cranial work. So that's another favorite.

Another technique or device that I like is called brain tap. It's a looks like a virtual reality headset with ear plugs. And it stimulates the ear and eyes to various programs so that you can quiet down the inflamed parts of the brain.

Fairly short programs, 20 minutes each. A great device. Another device which I like even better, is frequency specific microcurrent, which can directly quiet the vagus.

They've got a great program for muscle activation. They've got a great program for improving the body's ability to detoxify with the various organs. So if patients will go to a website, frequency specific comm, you can find people who have those devices, can get you started with them.

And once started, a practitioner will usually fix you up with a home unit so that you can do it at home on a regular basis. Those are are some of the most effective methods that I found.

There are there are others, but those I found work the best. So question on that because, you know, I've had I don't really have a bad case of Marcel, but I do have certain food sensitivities from leaky gut because when I was young and you mentioned it earlier, I had infections. My father was a surgeon.

Every time I got sick, my mother would yell, Harris, give him another antibiotic. And it's like, and nobody of course, gave probiotics at the time. So, you know, I got candida over time and I've healed my leaky gut and it's a lot better.

Like years ago, I couldn't have a slice of pizza without getting congestion and wheezing, you know, from asthma, from histamine. Much better at this point using bovine immunoglobulins.

But I still notice that there's some sensitivity, this frequency specific microcurrent you're talking about. For someone like me who's healed, you know, I'm not perfect with my diet because I still have to eat and I need protein.

My blood sugar just needs to stay stable. Do you find that it's useful if people are trying to heal like other things at this point? I mean, I meditate regularly.

That's my form of, you know, vagal relaxation. But do you find like it would help with some of these martial if as long as people have tried to do some of these other things, being from what you're describing, it sounds to me like you would benefit from some free training and some vagal.

Oh, right. I don't even doubt it at this point. It's just a matter of timing. I we all quit at this point, but you're right. Absolutely. As with many of our patients, they're so busy that finding time to do things that they know would be helpful is difficult.

But just knowing you as I do, I think you could benefit from one of those programs. Okay, so try and find the time. Because, you know, I function well.

I exercise on the treadmill at 12% heart rate, 140. I mean, everything's good, but the sensitivity is still there a bit over time.

Diagnosing vagal dysfunction and treatment tools

And I just have to be, you know, somewhat careful with the diet, but, yeah, I I'll give it some consideration. Great. But let's talk, let's talk a little bit about the different ways to free up.

When you free up a few moments. Yes. Right now I'm applying for NIH grants for a multicenter, randomized, placebo controlled capstone trial on top of writing a new book.

So I'm not sure it's going to happen soon, but I'll look into it. Question. You were describing the devices, but early on when I went to the conferences, like when we saw each other in California, the Annie Hopper dynamic neural retraining the gut to air technique, primal trust.

Talk to me a little bit because we have had some success with these. Tell our audience a little bit about these and why you think these also may be worthwhile for patients.

And in my mind, I separate those things as limbic primarily versus the vagus as we've been talking about. Okay. So those three things that you mentioned, Annie Hoppers DNA as programed as our captors Amygdala Retraining program and Cat King's Primal Trust are my three favorites.

They're all excellent. All of them have a teaching component where they explain what the limbic system is, why you need to take it seriously and work with it.

And then they all come at it from slightly different perspectives. Annie's program uses repeat statements, phrases that you do in a specific way. They're orchestrated.

You make certain movements and gestures over and over again, and she calls those things rounds, and a number of rounds a day is very powerful for rebooting the limbic system.

And let me emphasize the word reboot. Vagal and limbic issues are not psychological. I know that patients have

been told this is in your head. This is not psychological.

It's neurological. These are nervous systems that have become increasingly hypervigilant. And here's the good news we can reboot them does take a little effort.

The Annie Poppers program is one. Joshua Cooper has what he calls meditations, but they're more correctly guided visualizations that are very specific for the limbic system.

And Kathleen King's Primal Trust is combines some of those other elements in a very nice way. So for anyone with Olympic issue, I strongly encourage some swarm of limbic rebooting and Annie and Gupta's programs.

They will tell patients, you have to do this an hour a day. That is way too much for most patients, especially initially. And then patients feel guilty that they're not doing it for an hour a day, which messes with their limbic system further.

So 15 minutes a day is absolutely adequate and fine to begin the rebooting program. But most of our bold line patients at this point have some component of limbic and vagal dysfunction and should be doing limbic and vagal work from day one.

Some people go, well, I'll come to that later. No, you have to make your body safer now to be able to respond optimally to the treatment that we're going to be giving you, right.

And I think that's really one of the key points. So look, we're getting some some really key points here that the healing process that people need that even if we address the infections and the mold and the metals and the leaky gut, and we're addressing the mast cell and getting them to sleep and replacing vitamin minerals, mitochondrial dysfunction, hormone disruption, all the things that happen right on the heads.

This is a key point of really healing from Lyman chronic disease. Because if you've got this dysfunction in the limbic system, in the vagus system, it's just you're just not going to heal the same way.

So I've wondered sometimes just because a lot of people are not in safe environments, whether in fact the cell danger response that Bob Nadia was talking about, whether that in fact is part of the reason I'm like, people are getting stuck.

They're not in safe environments and their body just doesn't feel safe to heal in that point, is there anything I know Porteous and other people are teaching and that you've taught me this?

Actually, during seminars we've taught where, you know, you put your hands in the back and you're on the ground and you, you look to the side and you wait till you go on.

Like this exercises you can do to get the vagus nerve. Do you think in people who are stuck, who maybe are in a cell danger, some of these techniques, you can maybe show them 1 or 2 that, you know, people can do themselves.

But do you think there's any usefulness, like could it help to start to move them out of that? It's a piece of it. Again, every patient is genetically and biochemically unique, and what might work for one person wouldn't another?

So you're bringing up two important things for us to talk about. One is there is a group of exercises you can do called the Rosenberg exercises. I call them that because they were developed by Stanley Rosenberg, who outlined them in a very easy book to get a hold over the land call, forget the name of the book, but you can look it up on Amazon easily.

He developed a couple of exercises which you alluded to, one of which first exercise basic exercise. If you're lying back with your head straight ahead, you turn your eyes as far as you can to one side, and you hold that for 20 or 30s until you either yawn or sigh or take a deep, involuntary breath and you do it to the other side.

You don't want to hold it too long. If you hold it longer than 30s, you're going to strain your eyes and neck strength, but many patients will yawn and sore and take a deep breath.

And then the other exercises are variation of that. The other thing that you brought forth, which I'd like to talk about a little bit more, is the cell danger response.

The cell danger response is a model of all chronic illness developed by Doctor Robert Neville, which I think is quite brilliant. He recognized that certain stressors on a cellular level translate to the whole body, and those stressors are shock.

Environmental toxins, infections and stress. Basically, what we're seeing all the time, any one or all three of those things will trigger a long orchestrated biochemical dance called the cell danger response, where the cell begins to change its chemistry, too, in order to deal with it, thinks it's a stressful situation, and until the cell is convinced that it is safe, you're stuck.

And we used that word before in the in a in cell danger response process. In that process, I liken it to survival mode where basically the organism goes.

I'm overwhelmed by some form of infection or stress or a toxin of some type and a tissue. That's that stress is relieved. I'm not going anywhere. And so often at this stage, physicians are given what I call downstream remedies.

Okay. So we go, okay, everyone who has more toxicity or Lyme disease has by definition, mitochondrial dysfunction. This is not a revelation means that they're going to be fatigued.

They're not going to be able to have the energy to do what they want, but they will not be able to respond to the supplements we use to improve mitochondrial dysfunction until they feel safer.

Oh my goodness, broken record keep coming back here. So the cell danger response is a model that helps us to understand that until we deal with infection, toxins and stress, patients are not going anywhere.

And as you and I have struggled throughout our practice careers, it is our struck patients that we go, where are they stuck? What is it that I need to do to unstuck them?

If that's good English, which it is not? So that model helps us to understand how imperative it is that we deal with first getting them unstuck or once this whole dangerous times starts moving out of the cell.

Dangerous spots. Now patients can respond beautifully to things that otherwise they just weren't responding to. Even though we knew it was the right thing to do.

Right. You know, and it's a kind of an obtuse question on it. And there was, of course, you know, because we both studied this, the extracellular ATP, like the drug serum and that Bob talks about, that was amazing for autism.

And I would point out that when you're dealing with ADHD, autism, any of these diseases, there's usually, by the way, a limbic system, vagal dysfunction, it'll all these diseases.

Right. All right. With you, we're dealing with vagus nerve dysfunction of limbic. It a lot of these. The question would be because you can't get sermon, you can't get it in the U. S..

I've tried using higher dose sulforaphane glucosinolates, which is broccoli seed extract because of John Hopkins studies years ago that they gave the autistic kids 300mg.

And lo and behold, like two thirds of them got a lot better. And I've, you know, kind of wondered in our stuck patients and, you know, I always have to come back to the model because I've got a couple of stuck ones and one of them recently has Bart Fish just turned up positive.

It's like, okay, that explains it. Even though he's done a couple of pulses. And the other one, I thought his mole toxins, I showed you. In fact, the study, they were getting better, but he wasn't moving.

We retested them all. They went all the way back up. Then his the BCA fish was positive for the fifth time. It's like every time I'm fixing something, something else kind of goes out.

Limbic retraining, cell danger response, and cranial instability

And I've kind of wondered like, is this the cell danger? And I realize, well, we haven't cleared all the infections, we haven't cleared all the mole. But it's like once you get there, then I'm wondering whether kind of things like high dose sulforaphane might push the mitochondria.

So some of these stuck patients actually move in the right direction. So I don't think you can push the mitochondria. I think that's the that's my concern.

Mitochondria can't be pushed. The mitochondria are the organelles that control the cell danger response. There are mitochondria are what triggered the cell.

Dangerous spots. So until the mitochondria recognize that safety has been reestablished, they're not going to respond even if it's a good thing to do.

So what I've seen for years is I'll give my patients or tried l-carnitine, CoQ10, malic acid, D ribose, which normally would help mitochondria to function better.

It either made people worse or didn't do diddly squat. And I've seen the same. It's like some response to it. But a lot of people, if they're stuck in that level, it doesn't make any difference.

So it lights up for me that timing is everything. Like, you could know all the right things to do, but as a clinician, we have to ask ourselves, is this the right time for me to be beginning this with this patient?

And usually we can try something and their body will tell us, yep, that worked. That was good. Or new. Not ready. And I have not a lot of patients, but you brought up a little bit earlier about where the vagus nerve comes out with cervical cranial instability.

And because we're discussing this topic, I think it's important because I know that there have been stories of some people who've healed themselves from chronic fatigue, fibromyalgia symptoms by fixing the cranial cervical instability.

You want to talk just a second about it. And how do we know patients have? Because I definitely have a patient in Canada, I believe, who does suffer from it.

And I'm not sure what role it's playing, but I think it is playing a role. I think that's one of those limiting things that if you have cranial cervical instability often, then.

A stumbling block in the same way that these other stuck places, we're talking about that until that gets fixed, some people can't move forward. So what cranial cervical instability is, is a weakening of the ligaments right at the base of the skull where the skull connects to the first cervical vertebrae.

When those ligaments become looser or weaker, essentially the skull collapses on them and begins to put pressure on a variety of flow structures in the head so that things don't flow out of the head the way they're supposed to.

They don't move in the head the way they're supposed to, and you get a buildup of pressure for some people, it will cause a swelling of different parts of the face.

It will cause actually, CSF going to rear whether the cerebrospinal fluid has so much pressure built up because of

this jamming at the base of the head that it will start to leak out through the nose and things like that, it's quite hard to diagnose.

You have to have very specialized MRI eyes in order to pick it up. What many people don't know about MRI eyes is the limit of resolution of an MRI is two millimeters, means that it will pick up all kinds of structural imbalances that are bigger than two millimeters, but two millimeters is a small amount.

But it's that's an amount that is what we're dealing with when we're dealing with the cervical cranial instability. So you have to do standing MRI and move that neck into different positions to be able to document that.

This is what's putting pressure on the head in the skull and making these, these things come true. Yeah. And that's that's why we're ordering for this patient as we just discussed, the standing MRI, to see if we could get a more firm diagnosis.

Now, it is thought that and we haven't talked enough about this. The third part of the sensitization safety net is mast cell activation. And it is thought by some experts that what's making these ligaments weaker are some of the hundreds of biochemical mediators that are being made by mast cells, so that we see a marked increase in hypermobility of tissues.

I mean, Ehlers-Danlos syndrome was fairly rare in the past, and now it is being diagnosed. And many of our patients, I don't think it's intrinsically genetic errors danlos because when we treat them successfully and get the mast cell activation out, and what's causing the mast cell activation like mold and Lyme, it goes away.

But but again, many people are looking at Ehlers-Danlos as well. I think it was their loss. That is why I'm sick. I have to deal with it. It's downstream.

It's not the primary trigger for what's going on, but it does segway into talking about mast cell activation as another major impediment to healing. When we've not been able to deal adequately with mold on line.

No, it's a great point. And by the way, I told you early on I knew this was going to go quickly. We're almost actually at an hour. So before we go too far, if people want to contact you and by the way, tell them about the last book or two that you've written.

I mean, I know I contributed in one of the recent chapters, but just tell them a little bit how do people get in touch with you? How do they learn more about it, and what books would you save?

The ones you've done? Maybe the most important ones to read to get more information on this. Okay, you can contact me through my website, which is simply Neil Nathan, md.com.

I do consultations combined with your your current physicians so that I can not only teach you how to do this better, but work with a patient to really dig into these complications.

But Rich and I have been talking about are complicated. There's no way we can oversimplify it. We've been at this for a long time so that we can see patterns, and some of our patients may be faster and some of our colleagues, just because we've seen so much of it over a long period of time, so that I am available for that for physicians or health care providers.

I do have a mentorship program. I have over 200 physicians in it currently. I do it with Jill Cresta, who you're going to be interviewing shortly who has a fabulous natural path so that we are combining the natural Catholic approach with, I don't know what to call it.

I'm not an allopathic, nobody thinks I'm an alum path, but I'll call it the allopathic approach. And if you're interested, you can go to my website. I'd be happy to have you join us.

The books that I've read, the tools that I think are the most helpful. Yes, one is toxic and pulls together a lot of the

information that we haven't been talking about.

My most recent book is the Sensitive Patients Healing Guide, which goes into great detail on the limbic, vagal or mass all issues, which wrote a chapter for it.

And I have 20 physicians and health care experts who go over in detail what this views. So I wrote a chapter with Steven Porges on the vagus. We have chapters by Annie Hopper and Ashok Gupta on the limbic system.

We have chapters, Beth O'Hara on mast cell activation, and a whole bunch of less well known things that will interfere with healing if they don't get looked at.

So those books have been very helpful for folks, and I offer them to you as something that could be very helpful. No, it's great. They're they're great books.

Resources, books, and closing remarks

And I really advise people listening to get them. If you've not, I have patients who bought them who've gotten a lot of help out of them. So I think they're great resources for people to know about.

So again, it's Neil Nathan MD and it's dot org or.com.com Neil Nathan md.com okay great Neil this was a fabulous talk. I'm glad we had a chance today to talk.

I think we've made our case pretty clearly like the importance of the vagus nerve the autonomic nervous system dysfunction, how it all relates to mold and Marcel I mean, I think this one talk, when people listen to it, I think they will understand, like if I've not started my healing process with the limbic system, it's really something I need to consider.

If I'm not getting better from chronic Lyme and associated infections that I'm trying to do right. All the other things that are on the model that normally get people better.

So I it was a great talk. I want to thank you for taking the time today, to speak with us. My pleasure. Always fun to hang out with you, Rich. Yeah. So God bless you, Neil. So, this is Doctor Richard Horowitz.

I'm co-host from the Healing Lyme summit from Doctors Talks. We've been with Neil Nathan today discussing the importance of the vagus nerve and autonomic nervous system, as well as Marcel involved in healing from Lyme disease.

We will see you again for the next episode. Thank you for tuning in. Bye bye.