Beyond Vagal Stimulation-Comprehensive Brain-Based Approach to Mold Healing Transcript

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Introduction to Neurologic Chiropractic

Welcome. Welcome to another edition of Mycotoxins and Chronic Illness. This afternoon. It's a pleasure to be Debbie in a discussion with Doctor Joseph Smith.

To Smith is a chiropractor. He, is board certified in neurologic chiropractic, which we're going to talk quite a bit about today. Very interested in this subject.

He also is a fellow of the American College of Functional Medicine, with specialties in, neurodegeneration and child development disorders. He has a diplomat status to the International College of Applied Kinesiology, and he's, Bachelor of science, who's in psychology.

Which I think has helped Ford form his approach and deep understanding of the nervous system, which we're going to, talk all about today. I think to start off, Joe, I would really like for the listeners to give us a little background in, what a neurologic chiropractor is.

And let me preface this. I'm going to I'm going to do something a little different here. It's just because we do have probably a fair amount of physicians listening, and many doctors will bristle at the idea that a chiropractor is a neurologist.

But after working with Doctor Smith for a while, I can tell you that he is a very good neurologist. It's just that it's something that, you know, it is not understood what a neurologic chiropractor does or what their training is.

And, you know, and though the idea that chiropractors are not, doctors is, slowly diminishing, it's still kind of a background bias in the medical community.

In fact, probably not so background, it can be pretty strong. And, but those of us who work regularly with chiropractors have realized how important their contribution is to the health of our patients.

So, with that little caveat, tell us about, you know, what a neurologic chiropractor does? Sure. Okay. Well, a chiropractic urologist is a specialty field within chiropractic, just like, you know, medicine has neurology and cardiology and gastroenterology and all that stuff.

So in chiropractic, there's subspecialties, and chiropractic care is one of those. It's a three year program, and we're board certified through the American College of Functional ology.

And so basically, it's based upon, Scott or Charles Scott Harrington's work. He won a Nobel Prize in 1932 for his work on the Central integrative state.

So, his theory is that the brain output is based upon the total sum of excitatory inhibitory connections in the brain. And so most of those come from our proprioceptive system or different sensory systems like sight, hearing, balance or inner ear, etc..

And so that balance of systems becomes, critical for the optimal function of the brain. And so, the difference between a medical neurologist and a chiropractor neurologist is, first of all, a medical neurologist.

Actually treats neurological conditions with particular medication or surgery. And so, you know, we don't have that in our, scope. Okay. But like, for example, a medical neurologist would take somebody who comes in and they have, you know, like the classic posturing where their shoulders up and their hand is flexed and their elbows flexed,

and they have that circle of gain.

And we know pretty classically that that's a stroke on the left side of the brain. And so then they will work to help that client with rehabilitation.

And then when the rehabilitation is over, basically they get into occupational therapy. And when the occupational therapy is up, whatever function they've gained back is basically their function.

Functional neurology was born from French researchers and French clinicians who, instead of doing occupational therapy to help the client compensate for the injury by making them, better with their strong side.

They actually did something called restraint therapy, which forced them. So they restrain the good side that wasn't injured, and then it forced them to make new connections to start moving their body.

And so that's that's the philosophy of functional neurology is to say there are aspects of this that are obvious, Frank, a lot of neurological lesions.

But in Sherrington, paper, he talks about how the central integrated state isn't all ablative issues. There's functional issues. So I might see a client who has a slightly dilated pupil on one side, they might have a high shoulder.

On that side, they may have a slightly bent elbow on that side, they may have a turned out foot on on that side. And that's suggestive that the brain on the same side isn't inhibiting the output of the sympathetic nervous system to the spinal cord, and that ends up creating a soft neurological finding, which is not something that a board certified medical neurologist is really concerned about because they're dealing with more severe, life threatening and fully expressed disease issues, where we're more catching things in between optimal function, and you need to see a neurologist for a medication or some sort of neurosurgery, we kind of catch people in the middle.

And then if people do have a stroke, doing that type of restraint therapy, approach can help people get function back. That may be that model with occupational therapy and centered neurology might have been missing.

Yeah.

Functional Neurology and Brain Fog in Mold Illness

But just just to to kind of restate because you hit a theme that, that that is something that I've talked about throughout this series is what I call conventional medicine, or is what the medicine that you get when you go to your doctor, you know, your average doctor, or wind up in the hospital, unfortunately, is aimed at fixing something that's broken.

And if you have chronic illness, you might have had something broken, but you also have a failure of healing, okay. And that is different than the breaking.

Okay. And and what what, doctor Smith is, is really working on is in that continuum when something has injured your system or tweaked your system, but it hasn't broken it, it's like a sprained ankle versus a broken bone.

The broken bone is easy. We see it on the X-ray, the sprained ankle. If it's mild, it just it's hard to even know it's there. I mean, we it hurts when we poke at it, but the pictures aren't going to be very aren't going to be abnormal.

You know, maybe an MRI will show a little swelling, but after a while it might look normal. And that's where, what we do as functional physicians, as integrative physicians or whatever labels we want to call is, we're working at restoring full function.

And what Doctor Smith is doing is helping restore function through improving communication, you know, and, as we were and, and basically focusing on what is often the forgotten organ and when we're dealing with people's health.

Doctor Smith mentioned to me earlier, you know, the most commonly forgotten organ is the brain, because in medicine we act as though there's not much we can do.

You know, if the brain is making a little hiccups here and there. Well, good luck. And, you know, we have in this series talks about biofeedback and things like that that can help.

But what doctors say, what I'm going to what I'm going to learn more about today. In fact, as I said, one of the reasons I'm doing this series is I'm getting to learn a lot is to understand how, Doctor Smith looks at the brain and some of the tools that he uses to help assess and get us back to normal through the lens of what happens to your brain when you have mold exposure and a little bit of brain fog.

So I'm going to let you take any one of those books and run with them for a while. All right. Well, you know, in the in the instance of mold, for example, folks that are struggling with that, we know that a lot of people that have chronic mold exposure and, and, symptoms from that have brain fog and they have depression and they have anxiety and they have insomnia and they have fatigue, and those are all neurological sequelae.

But in the standard model, it's often looked at as, oh, well, you, you are, depressed because you have pain or you're depressed because you aren't sleeping well, but is it that you're not sleeping well because your brain isn't working and that's why you're depressed?

Or are you depressed because of the other way around? So there's actually a way with an exam and a history to determine where to start. So, a lot of folks are kind of given this idea that if they can't find what's wrong, then they just get labeled in this category of depressed.

And so they get put on depression medication, which I know is an attempt to help but doesn't really answer the question, why is that? Because often the brain is actually the primary issue in a lot of cases of chronic mold, that I run into that get referred to me.

They've tried a lot of different biochemistry approaches, and it hasn't worked because they had, severe neurological issue that wasn't being managed. It was just kind of being seen as a secondary effect of the mold.

But what if a person had a developmental issue or a whiplash injury or they had, a psychological trauma, they had a high score when they were a child, or they had a traumatic brain injury, and that brain injury and loss of brain function led to a change in their state of their autonomic nervous system, which didn't allow their immune system to fight off the mold when they got exposed to it.

So now let me just just throw in. One thing is that when we talk about traumatic brain injury, we're not talking necessarily about getting your brain mushed.

And, you know, it's just it can be minor head trauma in the right people can leave parts of your brain that should be modulating you, not doing it so well.

So just to just want to get away from the idea that it's, you know, that it's 100% true. And like one miles below where you have maybe you fell out of a tree when you were a kid.

Maybe you ran your belt falling up, falling off your bike. And there's these cells in the brain, 90% of the brain. Or maybe these cells are called glial cells, and they start out in this octopus like state.

They're called ram ified. And then there's ten of those for every one neuron that, like, secretes, serotonin or dopamine. So people could be depressed because they're not releasing serotonin and dopamine, or they could be depressed because the neurons that tend to the dopamine and serotonin neurons are actually changed in their morphology.

So those glial cells, once after you hit your head or after a severe psychological or chemical trauma, can actually change shape from this ram ified or octopus like state to what's called a prime state, which looks like a fried egg.

At that point, they never go back to the ram ified state, ever. But they can change from prime to activated, which is pro-inflammatory, which is the experience of brain fog.

Okay. Yeah. And I think that that that is something that again, just a little addition in their brain fog happens for lots of different reasons. But the end result is usually inflammation in the brain where it at least comes in.

Nominator is these glial cells are primed. And then they get activated into what's called an M1 designation. That's the technical aspect, right. And that's the least common denominator.

And there's many triggers. One of the biggest ones is lack of sleep. Another one is systemic inflammation from infection or autoimmunity. Another one is insulin surges.

Another one is overtraining. Alcohol is a big one. So if you're that person that has a glass of wine now and goes immediately into brain fog, that's a really good indication, unfortunately, that there are a number of activated and primed glial cells in an M1 designation that need to be pushed back to that M2.

Okay. And how do you do that? Well, you know, that's the interesting thing is, is everybody when they get into they start hearing about the brain and they get excited about it.

They see all the connections. They're like, well, what do we activate? What do we activate, what do we activate? And the way the brain works is the first step in a, neurological rehabilitation program is not to activate.

It's to establish fuel to the neuron. So that's that's oxygen and that's stable glucose. So a person that just goes in and just starts stimulating their brain with like PPT or even chiropractic or like cranial sacral that has an established good fuel to the brain will crash and burn.

And those are the super sensitive clients that when they get work on, instead of feeling better, like their friends and loved ones, they actually feel worse.

That person hasn't had somebody actually establish healthy fuel to the mitochondria. And then the second step is to make sure that when we do activate the brain, there's something called metabolic rate.

So like some people could go and run a marathon today, right. Some people have a hard time getting up the stairs. If a person has a deconditioned brain or not, very much mitochondrial capacity if they have, mycotoxins circulating, causing this M1 designation to to flare up, if they have anemia, if they have thyroid issues, if they have, blows to the head or infections in their brain, they're not going to respond the same as the person who just bumped their head and has a little brain fog and comes right out of it.

So it's really about not making sure, as a functional allergist, we have to go. How many reps of activity for this specific network can this person tolerate before they hit their limit?

And then we have to live below that and then gradually bring them up to their their capacity where they can function again. And I gotta say, Doctor Gordon, one of the number one stresses for people on the nervous system is gravity.

And a lot of people, the hardest people that I work with are they just don't tolerate gravity and gravity influencing their entire gravity, influencing their postural systems is too much for their brain. And so they just have to go lay down.

Otherwise they just knock out and get brain fog. Well, that yeah, that exertion we call exertional malaise or post exertional malaise. Yeah I know and a lot of and.

This is something that would be really fun to see over time is how many the people with with with that issue can respond if the brain was, was in a more optimal state.

It's really cool. And that can be tested very easily at the bedside. What you do is you take everybody do this at

home, take your blood pressure on your right arm.

Just be carefully. Have somebody around you, okay? If you get dizzy. But take your blood pressure on your right arm seated, then stand up. Wait one minute.

Test your blood pressure again. It should go up 4 or 11mm of mercury on the top number. Okay. If it drops down, that's called orthostatic hypotension.

And that means that one aspect of the cerebellum which regulates gravity or an aspect of the, lower brainstem reflexively, which regulates gravity, isn't working very well.

Sometimes in my office, I'll put people on something called a tilt table where they're lying flat on their back. And then I will actually passively elevate them, and they almost look like they're sitting on the Bride of Frankenstein table.

You know what I mean? Yeah. And then what I do is I just basically slowly elevate them to upright, and then we find that degree by which they can no longer tolerate gravity.

So their blood pressure and heart rate will go up at a certain angle. And then we do rehab at that angle, and we have them lay on the table for like 30 minutes. It's funny, that's the treatment.

Sometimes it's just laying there so that the cerebellum can calibrate gravity, and then suddenly they can stand and their body can function normally without going into fight or flight. And they get their life back.

It's pretty cool. It can happen very quickly. That is amazing because, you know, just and again, you're, you're you're illustrating the point, two points, very important ones.

One is that, the difference between the or actually the inability of medical doctors to understand, the spectrum of function. Okay. Because in medicine, you know, if you, you know, failure to raise your blood pressure by, you know, ten millimeters, I mean, if your blood pressure doesn't go up, who cares?

You know, the only goes up a little bit, you know, I mean, and they don't they don't understand because they're looking for the people who are going to fall down. Exactly.

Yeah, exactly.

Glial Cells, Inflammation, and Neurological Fuel

And, I have plenty of people, actually, who do fall down, who still fail, the, the test that the cardiologists will do, you know, I should say fail. They pass the tests, but they shouldn't I that she said that she said, you'll see, Doctor Gordon, that if you do this on the right side, that's typically what will happen.

You go on to the hospital, you get your blood pressure taken in one position on one arm. And then if it's normal, they say, great, okay. But a lot of people that have high blood pressure say their systolic is like 150 over like 85.

When they stand, their blood pressure drops 20 points to 130. Okay. If they had normal blood pressure at 120 and it dropped to 100, they could faint. So the body is adapting by elevating blood pressure until they get that sorted out.

But that same person may have normal blood pressure on the right side. If you test their blood pressure on the left side, it's not doing the right thing.

So now this person's standing. When they stand up, their blood pressure goes up on the right. They have all of the blood on their brain. So that establishes step one of the in a rehab program is getting blood to the mitochondria.

But on the left side of the brain, the blood is running out of their head. Okay. And so what happens? The right cortex fires into the right brain stem, and it fires off through the right vagus nerve.

And it regulates heart rhythm. The left cortex fires into the left brain stem which regulates heart rate. So the person with the more blood on the right side of the brain, suddenly they get arrhythmia and they go to the emergency room and they get an EKG and they they're told their normal because what they're tested in the seated position for lying down after lying down.

And it was great. And they stand up and they're walking to the parking lot, and if they're wearing one of those monitors that actually measures them in all positions, it just starts going off the chart.

Okay. But then the treatment and the medical model I've seen this is to cauterize aspects of the heart that are asymmetric, which it makes sense, like if you have arrhythmia or you have tachycardia, you have some of these problems.

You could throw a stroke, right? You don't want that okay. But actually rehabbing the brain and reestablishing functionality in these circuits might be something that is a little less invasive than going in and burning out part of the heart.

Well, I mean, they're are. You know. If life for only simple because it would be wonderful to to to take, you know, I mean you just get 100 people, you know, me being a doctor and say, all these people going in and out of atrial fib, you're going to fix so easily.

But on the other hand, you know, we don't know until we look well, it's not always easy. It isn't. But the idea is, is if we can get the the right diagnosis of function, we actually have a chance at restoring optimal function rather than basically decompensated.

And then with a bladed procedure where there's no chance of getting that back. Yeah. Yeah. No, it would be. It would be really interesting to look at this as people, especially as people age.

Now, do you do you know this? I mean, this because the idea, you know, you know, when you start off, you're in medical school, you are taught to take the blood pressure in both arms.

But people never do question for that. I shouldn't say never, but people rarely do. You know, it's not a common thing. It's not a common thing. But. And so how often do you see this differential blood pressure between right and left side?

I see this more than 80% of the time in chronic. Well okay. And very very very very common. And so then they'll go to the get their body work done. And they might feel better for a little while.

And then it just comes right back because their brain is not getting blood. And they literally can't hold the treatment because their brain doesn't have the capacity to tolerate the stimulus or they're being treated.

Lying down and standing up is where the issue is. Yeah, I think so. So getting back to and because just to generalize what we're talking about is that so the things that you really, you know, make sure that you look at when you examine people is how they function in, in multiple, seated standing and lying down.

So it's absolutely. Yeah, it's and that, that and so, so going back to let's say a patient comes in with brain, you know, they have a, a mold exposure and they're cleaning it up, but they still have persistent brain fog.

They really kind of feel like, you know, we're looking at them going, you know, with something else happening here because, you know, the environment is kind of clean.

You know, we don't think you're colonized, but you still the brain fog is persisting. So what what how do you approach them. What what what what are the ways that you look at them?

Well, the first thing I do is I look at their lifestyle, okay? A lot of people that have persistent brain fog that have resolved their mold infection are just have an injury.

And now the brain needs to be brought back to function. Okay. And as they have brain fog, we know that those egg shaped glial cells are morphology shaped forever.

And so they're going to cycle between a smiley face and then feeling really good and having good focus and concentration to this brain fog. So I look at things like what's their sleep like.

What's their alcohol intake? Are they getting too many starches? Do they have an unresolved, other infection like a viral infection that's causing that?

Do they have, history of a concussion? So when I examine them, the idea is, is we identify the networks that are off line. They may have brain fog that they feel, but it's like only after they drive too long or only after they, look at a computer screen or only after they have a conversation with a certain person.

So the history will help me determine what network is actually most affected by that glial cell priming. And then one of the best things about function is we can actually do a specific neurological test for that specific network.

And once we identify that specific network, we can give specific input into that system, which gives a small amount of oxygen to that area. Specifically, in just that little bit of blood flow can cause the glial cells to turn to that M2 morphology.

And then the goal is to get them to have a lifestyle that supports that, including like tolerating gravity, not overtraining, getting enough sleep, watching the amount of alcohol that they intake, getting their blood sugar under control, dealing with any secondary thyroid effects, helping them understand how relationships are influencing this and it becomes more of a holistic model than just like I'm only focusing on the brain, the brain will respond to its environment, and if I miss something in the environment and just go straight to a supplement or a specific neurological, treatment, and then they go back to the lifestyle that's causing brain fog, they're going to get nothing out of it, and they're going to be very underwhelmed with the results.

Yeah, yeah, it's interesting that you you're describing the pieces of of of the practice and protocol. I mean, I mean, which is basically reinventing everything that you just spoke about.

Brendan's work is amazing, and he talks about the aggregate aspect of all of these little things that affect an output of a cognitive domain. So there's six cognitive domains that we can measure.

And the idea is, is a president's work is to say, look, the patient dream. And the doctor dream is that we're going to do this small detox and like rainbows and unicorns are going to come out and your life is going to come back.

But the reality is, is like that probably isn't going to happen if the mold isn't resolved or isn't addressed. But then there's all these other systems that integrate with the brain, and they all need to be accounted for if there's going to be a lasting change.

And that's, that's the, the, the principle of his work. And it's, it really has changed. And it, it really is in line with the functional model. And the functional neurology is a huge part of that.

Yeah. Yeah. So when you say there's six cognitive domains I mean what what what. Tell us a little more. What what would. So in the world of so okay. How do how does a person know if they're just kind of lost a step and they're aging and they have what's called subjective cognitive decline, subjective cognitive loss where they're like, oh, you know, I'm having a little trouble remembering that word, but is that normal for my age versus actual cognitive decline on the way to dementia.

And so there's six domains and there's a way to test each domain. There's different tests like I like to use the Cambridge Brain Sciences as one of my ways to test cognitive domain.

It's a research standardized cognitive testing that can be applied to these different domains. There's the, Montreal cognitive assessment, which, very specifically measures each cognitive domain.

And the idea is, is we determined by doing those diagnostics, if they've actually progressed from, hey, I'm just getting older, but it's normal brain aging to, wow, I have an accelerated nerdy generative process.

Gravity, Orthostatic Testing, and Tilt Table Rehab

I'm on my way to a different type of dementia now, we know that in dementia there's like, cerebellar cognitive, affective dementia, there's, Alzheimer's dementia, there's, dementia due to poor blood flow, ischemic dementia.

We know that there's Lewy body dementia, there's frontotemporal dementia, there's all these dementias. They all look differently on a neuro exam. And I can tell you that by doing these assessments, I can determine if a person is on an accelerated ramp to that.

And the idea is, is how expensive is nursing homes and what end of life care when you've ramped into dementia. And there's there absolutely is a way to objectively measure where a person is, and there's absolutely a way to determine if they've come out of that.

So let's say they they show up on a scale of four cognitive domains that are in the actual dementia pre dementia category, right. They still can do activities of daily living, but they haven't lost activities of daily living.

But they're on their way to dementia. It's accelerated neurodegeneration. And then we work with their lifestyle. We work with their brain. We give them supplements where needed.

We refer them for medicine when needed and they no longer flag on for they only flag on one. Well, gosh, that is amazing. And that's the kind of work that is truly preventative.

Although you can't prove prevention, you can say the same things that we see ahead of disease, right? That's what's in the literature. These are the things that presented.

These things are no longer present during the exam. They're no longer showing any clinical signs of this. They have moved out of the actual, cognitive decline section to the subjective cognitive loss, and we may have saved them years of life and hundreds of thousands, a quarter million dollars in medical expenses.

Plus, like all of the stress of family members that have to go through this. Amazing. Yeah. No, no, I mean, that that that that is is the amazing work.

It's just that, it's nice to have ways of entering that early, you know, I mean, we, I mean, and, and but so going back to what you would do with a small patient because I said so looking at these cognitive domains, I mean, are there particular ones that you see more frequently with mold or, and mycotoxins issues, or is it just more likely the individual's sensitivity that that puts it in place?

Michael talks. I mean, it's going to depend on where they how their brain developed, what their genetics are. And then if they had a blow to the head, what they do for a living, if they use one part of their brain more than another part of the brain.

So like all I can tell you is I see a ton of brain fog and loss of, cognitive function. You know, the surviving mold website, they have, a VCs test, right?

Right. The visual contrast of what that's doing is it's determining does the occipital lobe does it is it able to perceive the, visual acuity scale? Right.

And so one mechanism by which people flag on that is mycotoxins. So absolutely, mycotoxins can affect anywhere in the brain. The idea is to make it specific to their particular exam and then determine what other things might be

contributing to that, so that we can be comprehensive in their care plan.

Okay. Yeah. No, because that's always I mean, always been. The issue is that like I think with all with most toxicity, the it gets you there, it causes the, the mitochondrial stress, it causes, you know, it it stresses whatever weak spots you have.

But, I think you at this point, I it's hard to predict, you know what the trigger is, whether it's mold, wine, head trauma, you know, I mean, like, so many of these things, the end can look the same.

Yeah, totally. So the end looks the same. The way. The way, the way that I work. That out of my mind is, let's say I find, I have a history of somebody, and they have a significant mold contribution.

They have an Epstein-Barr contribution, they are in menopause. And so everything just got much worse when they went into menopause, because they no longer could secrete estrogen and the amounts they needed from their, adrenals.

And then that was kind of like fuel to the fire. They had a history of a high ace score from psychological trauma as a child and had, strep as a child five times, went to graduate schools, started gaining weight and losing hair.

They developed Hashimoto's and then had a car accident on the way back from their, you know, their their honeymoon. And then that person's going to respond a little bit differently.

Okay. Then a person that doesn't have all of those things going on. So the idea is we first get a lay of the land. And that's what my office does is called the Atlas method.

We just take a look at all the different aspects that we can. We try to line them up. We say they're here, they want to go up here, what's the route going to be?

And then the way we actually measure progress is, look, a lot of folks, they're not just going to suddenly wake up and have energy and have their brain fog go away.

But if we can show that their exam findings that correlate with their decreased capacity improve at the bedside. So say, like I give an eye movement or I spin them in a chair or do something and their exam proves, then I can say I can help if I do that type of stuff with them and they don't respond, then I kind of circle my wagons and I go back to the metabolic aspect, and then I might refer them to a place like your office, where they go in and they do the IVs, and they do the things so that they can get on top of the metabolic piece so that their brain actually responds to what we do at the bedside.

And that's how our work can relate to that. Yeah, that that is kind of a very interesting circle is that, yeah, we always have to remember that what we're doing isn't working.

Somebody else may have a piece. I mean, that's something that I think doctors need to remember all the time. I advise so many of us, you know, we do what we do and when it fails, we give you a drug to deal with, with our failure, rather than going, wait a minute, this isn't working.

Maybe another part of the organism needs to be addressed. Okay, not only that, but what's worse is some doctors will just say, what's wrong with you? You know what I mean?

Why it responding to this, they'll shift the responsibility on to like the client, like they're broken or something, or they're just depressed, or they're maybe they're malingering or they're being histrionic and it's just like, well, no, there's actually some stuff that that requires some attention here.

Yeah, yeah. I mean, I mean, that is actually is the, the point of the, of this of this summit. And the joy for me at this summit is talking to, you know, a wide range of practitioners and just finding all the different ways that people can be served.

And, you know, everyone doesn't need everything, but some. But I always believe that somewhere there's an answer for almost everyone. You know, it's just a failure of our imagination.

But so and one of the ways that it helps me to, to figure things out is know more about the tools that you use. So this can you just go through some of the I mean, we got I mean, I see how important, you know, basically, you know, history and understanding who's in front of you.

I mean, I get that that's really crucial. But what are some of the, more, I guess, tools that are, that are, in your domain that, that you have that, that you wouldn't find in another functional doctor's office?

Well, there's some things that absolutely I could in practices out. And one of those is what we talked about. Just a blood pressure cuff left to right and a table.

Okay. Literally the tilt table allows me to determine if their blood pressure drops on a passive, basically going from recumbent to straight up and down.

So a tilt table, super important. But I love this. It's a, diagnostic system called a video Nostoc graphy. And they're called realized. And so they're like ski goggles with little cameras in them.

And so there's so much about the brain that we can learn by looking at eye movements. Okay. Neuro ophthalmology is just a really big part of my practice.

I'm not an ophthalmologist, but I can look at eye movements and quantify their movements in like, pursuits or like looking back and forth and saccades or gaze stability.

And that's a beautiful window into how the brain is functioning. In addition to things like balance and vision and hearing and taste and smell. But but what's really cool is I put these goggles on.

I take them through a series of tasks where they look at different targets, and then we objectively measure what's happening compared to optimal baseline.

Cognitive Domains and Early Dementia Screening

And then we also make a video of it so they can actually see what their eyes are doing. Now, one of the coolest tests that it's out there in that, in that bag is they'll look at a dot, I'll cover their eyes and say, now, I want you to keep your eyes on that target, but I'm going to cover your eyes so you no longer can see it.

And what you'll see is the eyes will start drifting slowly and they'll develop an antagonist from that. Okay. So just just to emphasize so with these, with these, with these, goggles on, they're looking at your eye.

Even if you're not seeing anything out in the outer world. The cameras on the inside watching. Yeah, they have night vision. So they they end up being like Fresnel lenses so they cannot fixate.

So when that person can't fixate, then some of the things that their frontal lobes are compensating for at a brainstem level start to manifest. So you'll see in St Agnes that isn't primary when their eyes are open.

But then the second you cover their eyes like an offensive lens and they can no longer use their occipital lobe or their frontal lobe to fixate, you start to see, and stagnant patterns come out.

Now imagine this you're trying to go to sleep at night and your eyes are closed and you're dark in the room and your eyes are drifting like this. You're having a right beat and steadiness every time your eyes beat are saccade back to the right.

You're getting a little bit of input into your medicine. CFL on your midbrain. Well, that's where the reticular activating system is. That's going to wake you up.

Not only that, but it depletes your body of glucose faster because the neurons that are sick, that are not stabilizing the eyes are just gobbling up extra glucose.

So these people will wake up in the middle of the night sweating and breathing, and their heart might be beating and they cannot fall back asleep. And they've tried everything under the sun and nobody really looked at their eyes covered.

And so nobody really diagnosed the underlying brainstem issue that probably happened developmentally, or from an old whiplash injury or head trauma that happened when they were like eight years old.

Or maybe they were dropped on their head when they were a kid and nobody ever really thought anything about it. But it turns out that was the injury or the impetus to this lifelong thing, because we know what happens when you don't sleep, what happens to your immune system?

Yeah. It gets it quickly, goes down. No, but this is fascinating. That means this is worth the price of admission because that is a common complaint. You know, as I guess, ubiquitous and chronic. Yes.

Yeah. Of, of, you know, that difficulty being either being woken up or having difficulty fall asleep because you can't you don't know why you don't feel, you know, you're not feeling stressed.

You know, you kind of relax and you lie down. You close your eyes and exactly staying almost awake. Right? And yet, you know, it's it's this is, what I said.

What I always said. Everything works. Sometimes we just have to find out when that time is. You. And so I wish we could get these things done earlier in the process.

You know? I mean, that that is the the sadness of chronic illnesses. People have to go through so many layers, you know, and, you know, right there, I mean, they would have gone through a lot of supplements and maybe even a few drugs from me before they would have gotten have a chance of getting to you will find out that.

Wait a minute. The problem with sleep is something much more basic. Yeah. And can I talk about supplements and medications just for a second? So, you know, listen, legally, I don't talk about medications because they're not in my scope. But let's talk about supplements.

Let's say you have somebody with insomnia and their eyes are drifting to the left and shooting of the right, and you are a functional medicine doctor, and you're you perfectly evaluated their insulin resistance.

You perfectly evaluated their acute phase reactants, their secondary hypothyroidism. And you manage that their MT far perfectly and their inflammation came down, their mitochondria got better, their energy improved, but then their insomnia got worse.

Sometimes what happens is you have a mal adapted system, and then you make it more efficient by helping metabolic aspects. It's like the mitochondria of that maladaptive circuit can get better too, right?

It just gets you get you exercised, it got stronger, it got stronger, and somehow they're worse because the plasticity becomes stronger and they have a more amplified effect.

And so now unfortunately, that's how I got in neurology, was I was seeing these weird things happening in clients that I was doing a lot of labs with and supplements with.

And one of my colleagues is like, hey, listen, you got to get into the brain. I'm like, listen, I, I, I've been studying so much, I don't know if I can do any more.

And he's like, you have to get into the brain. And once I understood how the brain fit into this whole story of of the autonomic nervous system and plasticity, and it's the regulator of all these different systems, and it's the most

overlooked thing.

Once I understood how each one of these networks worked, I could see how every like, even if I've heard of something brand new, I could go, okay, what is this therapy intending to do?

And then where does that live? In the brain. So that helps me figure out how to prioritize a care plan, because I understand where everything fits within this, complex hierarchy of systems.

Yeah. And, you know, as one of the things that would be really fun to hear, educational and fun to hear about from you is just a little bit about the reticular activating system and the cerebellum.

Because, you know, I've spoken on this series and many others about, you know, CCI, the, cervical, the cranial cervical instability. But and I do believe that many of our chronic patients have mild elements of that, you know, nothing 100% require surgery.

But but what people don't understand is how what's happening at this part low in the brain, you know, just just in the very back there where the cerebellum sits and right in front of it, where the reticular activating system is living.

So just a few minutes just about on that dance there because so many people have really no idea. I mean, people we all, those of us who know is the different parts of our cerebellum, you know, balance and, you know, proprioception, the fancy we're saying no, knowing where you are in space.

But we forget that it does a lot more. So just give you a few minutes to tell us about it. You know, the cerebellum has so many different roles, and we commonly think of cerebellum as balance or coordinating movement.

But the cerebellum also coordinates the immune system through the bone marrow. It helps coordinate differentiation, differentiation of lymphocytes. And it can help create a bystander effect of a polarization of T cells.

The the cerebellum projects to the contralateral mess and cephalon in the frontal lobe the right. So just just a that the conduit that means the other side right.

Yeah. So the cerebellum the left will will stimulate the right and cephalon and the right frontal lobe. The right frontal lobe has a little bit of an aspect of, two polarization signaling.

The left side.

Eye Movement Testing and Sleep Dysfunction

And just let me say so this is an area of of where functional neurology or chiropractic neurology is thinking in terms that, you know, I don't believe that.

I know of any, you know, medical neurologists who would think in terms of, parts of the brain having specific effects on different aspects of the immune system, but that's something that it's used to, is rife with this.

The literature is so full of this. Okay. So the application is just there. It's just there for the taking. And you can see it. You can see it when you look at cytokine panels, you can see it when you look at white blood cell differentiation, you can see it in B cell profiles.

You can see it on a CBC with differential. You can see it on acute phase reactants. Some clients the only thing you can do with them if they don't tolerate supplements is they don't tolerate movement.

If they can't really eat anything, they're reactive to everything. Sometimes the only thing you can do with them is work with them. So they tolerate gravity in their environment by working on the brain.

And that alone makes these massive changes on their labs. Okay. Well, I think and again, I think the thing I want to

emphasize when you say tolerate is, is that it's that their their brain is interpreting the information correctly.

So you're not because I think a lot of what I would say a little bit more about that. Okay. So one of my favorite tests in my office is a force plate.

And people will stand on this force plate and they stand on it with their eyes open and their hands are on their hips. And then they close their eyes, and then we look at their center of pressure, okay.

And their center of mass should be directly below them. Okay. What happens? And a lot of people and their brain is going south is their center of pressure moves backwards.

So their body compensates by leaning forward. And you'll see this on the first plate. And so that's why as people get older, they kind of stretch around their shoulders and they they start to lean forward okay.

That's that's the brain going south. And so imagine this all these all these some of the best research on the brain was in Russia. And they looked at the, the purpose of the brain.

The brain is not just a sensory system that receives like sight, sound, hearing, touch and taste and gravity through the vestibular system in the inner ear.

It actually has to attach valence to that. So like if you're eating something and you taste strawberry, one person might be like, oh, that tastes delicious.

Another person might go, I have an allergy to strawberry. I'm going to die if I don't spit this out of my mouth. So that becomes a motor action. So imagine like your center of pressure is forward and the part of the brain that is, it's basically designed to predict and so to predict you have to know where you are.

And then you have to know where you want to go. And then you have to be able to plan how you're going to get there. And as long as your life is on that process, you feel pretty good.

That's your known world. But once that is taken away and you don't know, then you go into chaos and that chaos, you're aware of it and that creates a stress on your body.

It's an existential crisis. Imagine you don't know where you are in space and everything that you see and hear and smell and touch and taste is not actually where your brain perceives it.

That person is going to have an increase just as a result of that mismatch in sympathetic tones and the reticular activating system, which elevates their blood pressure, it kills natural killer cells, and it polarizes the immune system into a two to dominance, which is a perfect breeding ground for mold.

Yeah. And for allergy. Yeah, yeah. And you know what's fact I mean, it's a fascinating description of, you know, where many people go with, a severe mast cell reactions where they actually will feel deep.

They call it deep. They try to explain it. And I've never d realization depersonalization where they just, you know, that sense of self is gone. It's. Yeah.

Yeah, yeah. And and some of them explain it is also not knowing where they are in space. And that's because it's a, it's a hard concept to sometimes explain to, to another person like hey I'm not really here.

But you know, I know I am, but I don't feel like I really am. They disassociate because these systems are just so mismatched. So literally you put them on the force plate, you work with them, and suddenly they're matching their perceived center of pressure as accurate.

So we basically recapture that function in their brain. And so now they actually perceive accurately where they are. And you just watch their life come back like there's a sense of relief, and suddenly they start seeing things again

and they start participating in activating their system, and they start participating in life and suddenly they've found it again.

Yeah, because therapies were stimulating the brain, but stimulating the brain, like I. I'm a body worker too. Okay. But if I don't first try to establish accurate center of pressure, it's like shooting buckets on a boat.

Okay? A wave could come and I'm have the perfect trajectory, but the wave moves the boat and then I airball. If you're a body worker in the center, the pressure is off.

You may airball. And it's just like it's super inconsistent and it's just one of my favorite modalities to check. Yeah, I guess so. You like basketball okay.

But but to the rest of us. So you're you're missing. Yeah. You can just totally missed the mark. And it's it's, it's it's yeah. You're like, as a practitioner, you're thinking you're doing the perfect thing and you have it all lined up, and then you make the perfect shot, the perfect putt, and nothing happens.

And you're like, what is going on? Well, you know, so basically we come back again to the brain, lets us know where we are in space and time and when.

That's not when those perceptions are off a little bit anxiety and, OCD behaviors, and, and confusion. I mean, that's the thing is the confusion, disorientation happens first how we respond to that psychologically, you know, may may differ.

But yeah, if we don't know where we are in space, life is now no longer that predictable. And you it gets much harder work, way more chronic. Yes, exactly.

The chaos and chaos takes more energy from the other systems to compensate. I think that's the important piece here. So, you might have something small off, but you wind up using a lot of energy.

Cerebellum, Balance, and Autonomic Regulation

Tim. Exactly, exactly. So then you just kind of start withdrawing from life because everything is way harder than it's supposed to be, and you end up isolating and trying to suppress that feeling of chaos, and then you suppress your happy emotions.

And then it's just a lot of TV watching, you know? Yeah, yeah. No, no. And I can see how, you know, it's it's yeah. I'm coming back to that theme that, you know, you mentioned is the brain is the forgotten organ because we really, we keep looking at it as merely the victim, you know, and not realizing how much, how much of a role it's playing.

Which we should, because, you know, it's like, you know, when we. I always love that thing when we fall asleep at night, you know, every cell in our bodies, you know, decreases energy production by, like, 25% within seconds.

So when this thing goes off, the whole system changes. Well, have you ever seen those body exhibits? You know, where they look at the lymphatic system and they look at the nervous system, like, right.

We in medicine and in school we talk about these systems as if they're separate. But when you look at a brain in a brain stem and the vagus nerve and the enteric nervous system, which is the gut, it's one thing and we treat them like they're different, but it's they're bidirectional.

They're the same thing. They create these vicious cycles. And we have to have a way of identifying where a person is, where they want to go, and then how we're going to get them there.

And it's I've found that my clinical success has gone up. When I first diagnosed where they were and then prioritize their care plan based on their capacities, rather than just jumping in with a diet or jumping in with the supplement or jumping in with the technique.

Because that's what I'm good at. Yeah. No, I, I think that's something I want to let maybe let you restate or I might butcher it, but to get it to state it again is that time.

And time again it's you can have the right treatment. You okay? But if you do it at the wrong time or in or just with the wrong emphasis, I mean, that's what's hard is that what we depend on in medicine is the A is you.

We expect what we do to work 80% of the time, no matter how we do it. Yeah. Okay. You know, and because basically people walk in, they have a complaint and they get a pill and, you know, they're all going to get pretty much the same pill or one of six pills that are in that same class.

And hello, goodbye. But when you're dealing with chronic illness, we're now in that thing where it's not about the trigger, it's not about the disease.

You know, that that equivalent to trigger. It's about how your body responds to that. And in order to assess how your body responds to it, we really have to assess how you're responding to the world.

And what you're trying to teach us is that when that brain is responding to the world in, in, in a way that's not reflecting what's out there, it's going to make missteps and miss calls.

And even if I even if I brilliantly give you the right magic pill, it still might make you very, very ill because your brain is going to be confused and send it the wrong place.

You know, patients. I think you nailed it. I know, but it's I said I well, yeah, it's always, you know, the I realizing as people get more and more ill or more and more sensitive, we just have to be more and more sensitive ourselves in how we approach them.

It's it's a tough gig, you know, a complex case. And the more things are involved, the harder it is. So, you know, there is this idea that, you know, a lot of people just wait till they can't function before they really seek out help.

And I can't emphasize the importance of a baseline of just a baseline, like figure out where you are now before you lose function. And it's so much easier to stay out of trouble than to get out of trouble.

And I'm not I'm definitely not, coming down on folks that are in crisis. We certainly want to help them. But there actually is a way we we're in the information age, folks.

We actually know enough right now to significantly advise you on how to avoid a lot of missteps as far as health goes, and be a health advisor and help you have a basically a Spock life where we live long and prosper, right?

And then we have this idea that, like, your medical expenses and your quality of life are just not the limiting factor. As you age, you can integrate flow.

Well, that I mean, you know, the hardest preventative med is true preventative medicine is what what you're describing beautifully. And, Yeah, it's, I just I just think how, you know, I think we can obviously, women will, women will will will mostly buy it first.

I mean, there are the biohackers out there, people who really want to know what's best for them. But, I, I've always found, I mean, the reason that men aren't in doctors offices very often is that we just think that we're going to be immortal, and it doesn't matter what we do.

It's going to work until it does. And then we'll keep denying it another way. But I said, that's what creates wars, because men always think the bullets are going to hit the other guy.

Not mean, you know, gosh, human nature. We can't change that. Well, the thing we can do is hope that, we can get people to pay attention a little bit.

And I got me just to wrap up, I just think that, what you've described for us is a tool that I just wish more, doctors and patients were aware of, you know, because they said these, your field is not brand new, but it's not very well known yet.

And I think we got to get the message out there. Thank you for having me. Yeah, yeah. You know, it's a pleasure. And, so, it's up to Joseph Smith and, his offices at Atlas.

Neurology. Correct. Or Atlas Health in Fairfax. Atlas, north of San Francisco. Yep. Yeah. Just I always wanted to make it Atlas reality. Okay. I give people lots of names, but, but for Doctor Smith, it's just excellent physician and compassionate and teacher.

And I think that's the other part of what it is, is that, you know, you just don't treat your patients. You actually are teaching them how to how to take care of themselves 100% lifestyle's important.

And I also get the opportunity to teach other clinicians through a company called Apex Energetics. And so I'm very happy to be doing that and giving back to our profession as well.

That way. Yeah, that is a great, great service because I said, as I was speaking to another physician earlier today, is teaching because what all of us are doing, is just not well known enough out there, you know?

And so teaching is really, really, really important. So thank you a pleasure. And, hopefully we'll look forward to everyone in our next episode. Okay. Take care.

Thank you. Doctor Gordon. For.