Introduction and Guest Background

Welcome to another episode of the Restore Your Mitochondrial Matrix summit. I'm your host, Laura Frontera. I'm bringing you experts to help you boost your energy and fix your health so you can build the life you love.

And today, my special guest, actually a personal friend, Doctor Thomas Moorcroft. Hi, Tom. Welcome to the summit. Hey, Laura. Thanks for having me. Super excited to be here, I really do.

I mean, we, we hang out, we have lots of fun, and now we just get to hang out and have lots of fun talking about mitochondria. This is going to be a great talk.

So for everybody listening we're going to talk about optimizing brain detoxification and mitochondrial function. Tom is an expert in many things. We'll touch on some pediatric stuff pans and Panda.

We'll talk we'll talk on some adult stuff. We'll talk about how mold toxicity affects everybody. And so Tom, I want to I want to introduce you, you treat some of the sickest and most sensitive patients suffering from chronic Lyme disease, tick borne co-infections, mold ailments and children with infection induced autoimmune encephalitis, otherwise known as pans and pandas.

And you also specialize in optimizing lymphatic function, which is the brain's detoxification system. So without that, we're in big trouble, right? Absolutely.

Yeah. I mean, I think it's so cool. Like I grew up in medicine, we just learned all of how the brain, how the whole body detoxifies. And we used to get to the head and they're like, poof, a miracle occurs.

Right. And like it was so rudimentary. And it's literally only been the last ten years that we actually have a better understanding of how the system actually works.

And then there's so many little hacks that we can use to kind of help optimize it. And the beauty of it, Laura, is so much of this is what people can do at home for themselves.

Amazing. We're going to jump into it. One more, a little bit about you. You're the creator of the Lyme Disease Practitioner Certification and Mentorship Program and co-founder of meditation, which I want to talk about today and make sure we talk about that.

And, meditation is an online community that uses specifically designed meditations to awaken healing and overcome chronic conditions, which is so important.

And mind, it is specifically designed for that. So this just isn't just some meditation app where it's randomly created for, you know, zoning out. This is literally geared towards healing, right?

You know, and that was the thing like, you know, we had co-founded it with a friend of ours, Sinclair. And and the thing that's really cool about it was when I was sick with Lyme in the US and heavy metal toxicity for over a decade, and everybody told me that, you know, do meditation, do this, but you just can't do it when when you're so sensitive to so many different things, you don't have the energy your body doesn't get in that position.

And so and sometimes people overdo it. Right. And that's so many of, of the people that I see are ultra sensitive. So we really designed it around, a process that allows you to awaken your healing, self-healing mechanism in a way that someone with a chronic illness can actually tolerate.

So they get the result rather than just crashing. So good. I'm sure there's so many people with chronic illness

listening right now where I get one more person tells me to meditate, I'm going to crush them.

So. So you you've worked out a way. You and Sinclair worked out a way. So stick around because we're going to talk about that too. But shall we jump into brain detox system?

Should we kick off with that? Yeah, I think that's a great place to start, you know, and back when I went to school, it was kind of like, hey, you've got a cert, you've got this fluid that your brain floats in the cerebrospinal fluid, and it's kind of like toxins from within your head magically just go into it.

And then it's sort of there's these little spots they call arachnoid granulation that just magically absorb it. And it gets taken into this systemic circulation and we get rid of it.

And so that was cool. But the problem was like it didn't make much sense. And it was really rudimentary. And what was really great was as we got into like 2010 and beyond, we had all these technological breakthroughs looking at imaging.

And also we learned that the studies we were doing because we were being rather than looking at the way the body functions as a whole, they were taking off, say like parts of a skull or whatever, and they were disrupting the system.

And so they weren't looking at it as it actually functions. And when they started to be able to evaluate it in its natural state, they go, well, there's this really cool thing that happens.

We have cerebrospinal fluid that comes up along the arteries all over the brain on the outside and deep into it, and there's like a fluid wave that gets set up between, cerebrospinal fluid and interstitial fluid.

Essentially the only thing that we really want to remember about this is it's all 99 plus percent water. So the first thing I'm going to remind people about is what so many people tell us about is hydrate, right.

And maintain it. Right. Cheers. Right. Water a little bit of electrolytes, you know.

How the Brain Detox System Works

And you know, the cool part though is the through a spinal fluid and interstitial fluid make a fluid wave. And it's like kind of like when you're on the beach you just see the wave come up and it just pushes a bunch of stuff out and it pulls a bunch of stuff when it's leaving, and it goes between the arteries over to the veins.

And then, it drains. And so all this stuff like amyloid beta and tau proteins, things that are associated with, you know, Alzheimer's and cognitive decline, dementia.

As we get older, this stuff gets flushed out and it gets flushed out along the veins. And then it what's really cool about the drainage from the head is it happens around, like all of these different cranial nerves around the arteries.

And it's it used to be thought to be very specific to one area. And now it really is a global detoxification that's happening. So it's a pretty darn cool system.

I love that you just gave us a visual of the waves. So everybody just pause and think about that for a minute. We've all been I mean I'm hoping everybody's set foot on a beach at some point and watch the waves.

So what you just said was the the one paddock system washes in all this amazing, clean, beautiful water. And it literally comes out just like the way home, garbage and crap out to the ocean.

Which is why we want to keep our beaches clean. Right? Exactly. Going out. And so it's really pulling pulling toxins out. Yeah. And it's so interesting too, because this system has been shown to be primarily active while you're sleeping.

And less so during the day. And what we see and amyloid is a really cool. It's just like most things that it gets you know in medicine it's either black or white.

Well really amyloid has a great benefit right. Too much of it leads to breakdown in the brain. And we have these neurofibrillary tangles and all this amyloid plaques and stuff.

Then and many of us have heard about them being not so good for brain function. But amyloid actually has a really important role in neuronal. And so like growth and repair.

So like a lot of things a little bit is okay. Too much is not. And so what we see the body's so beautiful. And it's just like this is where it's just like just respect the mechanism.

It's amazing. During the day, the lymphatic drainage in the brain is chill and amyloid levels go up and then at night triggered by going to sleep and these higher amyloid levels, lymphatic function turns on.

We get that beautiful fluid wave that we were just describing and it flushes out this amyloid. So at night we see the amyloid levels go down. So during the day the brain's kind of getting ready to do this growth and repair.

And at night it's cleaning it out so that it can solidify it. So we're starting to learn that the growth and, you know, the function of sleep essentially, which is has a lot to do with memory, you know, consolidation, but also literally with the process of taking out the dirty water, I, you know, this isn't the first time sleep has come up on this summit.

I think the nearly every practitioner that has given us a talk has talked about the importance of sleep. And so what we call what happens to them if we're burning with 4 or 5 hours of sleep per night?

Or, you know, we're or we're potentially going to sleep early, but really having a hard time staying asleep or getting good quality sleep. So maybe people go to bed with the intention of sleeping for eight hours, but they're truly only getting 4 to 5.

So what happens over time when it's it's actually it's it's funny when you talk about the picture of the of the of all the fluid or the trash being taken out by the beach and everything.

It's it's funny, I, I'm very visual. So as you were even asking me the question, the first thing I think of is this is a great study where they did these Pet scans, these these scans of people's brains, and they use this substance that marks the amyloid.

And if you sleep greater than seven hours, your brain looks kind of nice. And it's beautiful. You know, yellows, a little orange, lots of blues and greens.

And then if you sleep less than six hours, there's all this orange everywhere, which is just like this depth of amyloid. And what we've seen is that even like and this they've done a lot of work with, early, sort of cognitive dysfunction in executives.

So like, I have some parents who, I, you know, I see their kids and then they're just like, yeah, well, like, I'm kind of with my kids, but I work 16 hours a day, and then they do the parenting and they do the sleeping, and there's not enough time, so they leave themselves out.

And what you see is that even in your 30s and 40s, you can have a massive and fairly rapid increase in the amount of amyloid. So just think about being a resident in a hospital.

I'm just like, oh my god, no wonder it takes you years to recover because you have to do this sleep to catch up to to, to get it out. So yeah, if you're missing sleep, really most adults need 7 to 9 hours asleep and our kids a lot more.

And I would argue that I don't know many adults who don't consistently get over eight hours whose brains are like

spot on. And I think part of it's what you said, though, is if I have eight hours on the clock, I'm not getting eight hours, right.

So you really have to I have people monitor. There's so many different wearables that monitor their sleep, so they actually know one, that they're actually sleeping as long as they think they are.

And two, like what stages are you getting into because some of the emerging research on the lymphatic system is most of it. What we're saying, you know, different authors say 70 to 90% of the overall function is while you're sleeping.

They feel that most of it is actually in deep sleep. So it's really important to make sure you're getting, you know, an hour and a half to two hours of deep sleep a night on top of just being in bed and, you know, sleeping through your natural cycle throughout the night.

Yeah. So while we're on this topic, let's talk about some of those wearables and which ones you like, because I know people are going to listen to that or be like, oh, I need to go get this right now.

And then I want to tie this in to mitochondrial function. And why this is important because this is why we're all here, is learning how to, you know, keep our energy and fix our health by way of supporting those mitochondria.

So and then something else important, you said, 2 to 3 hours or so of deep sleep. I think people don't realize during that eight hour period you're not getting eight hours of deep sleep.

There's a few hours that are really important and there's other stages of sleep. So kind of talking to those things which which, which wearable, how much deep sleep should we be getting?

Yeah. So I mean, the amount of deep sleep I always aim for is a minimum of an hour and a half. And, you know, if you get an hour and 23 minutes, great.

You know, I mean, horseshoes and hand grenades here, it's close enough, right? You don't even need to be an overachiever. Everybody, you can get an hour and a half of deep breathing.

You're doing something good. Now. It's interesting is when you start to to wear stuff that tells you how you're sleeping. And we'll touch on a few of those, but is you'll find that your deep my deep sleep typically fluctuates between an hour and a half and two hours, sometimes a little more.

If I give myself more time in bed. But I primed you predominantly. What you're going to do is you're going to go from lighter sleep to deeper sleep and then back up.

And through that you're going to play in through REM with all of that. And when you're having your dreams and all this cool stuff. So the the greatest part though, is the first six hours are most critical because that's what most people are going to bank most of their deep sleep in those first, kind of like you have about an hour and a half ish cycle of sleep, and you just go kind of go up and down through it.

So we want to really those first four cycles, we really want to have them be our best and our deepest. So this is where I am all about these simple things, right?

Like even before my wearable or even before like, you know, sending love and positive vibes to my mitochondria. I'm like, all right, what are the basics of sleep?

Right? Cool dark room. My bed is used for sleep and if you're an adult and only that for sex and that's it. There's no there's no electronics, there's no TVs.

All these things, you know, cool, dark. It's got to be really dark. And one of the rules that I've picked up lately that I think is really helpful for those of us who can't get to sleep so well, is within an hour of bedtime.

You can't watch or talk about anything that's overly negative or emotionally charged. Yeah, we got this right. Oh my gosh. We're like, how many? Or on our phone or yeah, yeah.

And it's just like I mean, I start having these deep conversations with my wife at like four seconds before I go to bed and like, no wonder you're not sleeping well.

And so I tell people, I start my day at night and I start my day, my night in the morning. And so on the flip side of the morning, I like to get up and go out, and I want to get a lot of people know about the sleep hormone of melatonin helps you go to sleep.

Antioxidant, great anti-cancer and anti-inflammatory, including in Covid. It's amazing. The best way to get it going is to see natural light early in the day, so that stimulates it to be created in your brain.

And then when you do that darkness at night, it helps you then go to sleep when it's released. So you actually have to start creating it earlier in the day.

And you know, so I just really try to get to bed distressed little exercise during the day and then get it cool and dark so that I'm really comfortable.

And then it's interesting when I first when I got my first wearable, I just was like, this is amazing. And I'm like, I started comparing to some of my friends, and then I just became a competitive sleeper with myself.

Yeah. And so I really I'm like, I really get like, yesterday I got just over seven hours of sleep, you know, I had a few things going on and it happens, but consistently I want to nail eight hours in bed, seven hours and like 45 minutes or more of a sleep.

And that for me works really well.

Sleep, Deep Sleep, and Wearables

And the research shows that that's probably a good place for adults. So I do look, I have an aura ring because I like the low EMF stuff. I find it kind of good.

I have bony knuckles so it doesn't register as well all the time. So there's some nights where it's like I'm completely out and it says that I was. That doesn't even know what I was doing.

But for the most part, it gets pretty accurate. I've been looking at, recently, more recently, Garmins watches. I don't I'm not a big person for wearing stuff on my wrist, so.

But most of the other wearables are sort of wrist versions, but the amount of data you can get between your pulse ox and your respiratory rate, heart rate variability, stress levels on your body, and what they're doing is they're boiling down all the metrics and spitting out numbers like, you know, your your bat body battery and your overall stress levels so that they're interpretable.

And I think that's what's really good about a lot of these things, even like Fitbits and woops, is that they're, they're they're sending out information that's in English for the most part.

I mean, most people get body battery, right? It's like you don't even know what it is. And you're like, oh, but I understand the battery. I think the best wearable right now is the one that you're going to wear and use.

They're all pretty good. If you're really EMF sensitive. Airplane mode on the aura ring is probably the best way to go. But, I think the thing is, I have a lot of patients and a lot of friends who start to look at these and they're like, I'm doing everything right.

I've got the cool, dark room. I, you know, I sleep in sex. It's all that happens in my bed. Everything's perfect. I have

a sleep sanctuary. I wear my blue blockers at night so I don't mess up my, melatonin.

Do all these wonderful things. I'm in bed for nine hours a night, and I'm exhausted. But then when they go to see their sleep, it's super fractionated.

So they're so tired, they're not even aware of kind of what's going on. And they really start to see where they might be able to adjust things if they know that they're not getting deep sleep.

So they're definitely very helpful. Absolutely. So, my favorite also is going to be ordering because of the low EMF. We're having people come on, speak about Emfs on this summit.

So catch one of those talks for you all the more about why we care about this. But I love that you can put it on airplane mode and just load the data.

Well, what's really, really interesting, the interject real quick, is that, if you look at a thing called Rouleau bodies. Right. And, sorry if I get. I love nerding out, but they're literally red blood cells stacking on each other.

We see that this happens in things like rheumatoid arthritis, other autoimmune conditions, you know, even some cancers, but a lot of it and infections, things that lead to chronic inflammation.

You lead to stacking of these red cells and you get essentially like a functional hyper, quagga ability of your blood. So it's just like your blood is a little stickier.

And blood is important in helping to detoxify things in our body and maybe bring some oxygen and nutrients to say things like mitochondria. But, the other part that's really interesting is high EMF fields have been shown to take people and create those.

So that's why at night, one of the other things I have people do is turn off their Wi-Fi. And if they do wearable, like I said, my preference is the least amount of EMF possible because I don't want to be monitoring my sleep, but then interfering with it by constantly pinging, and quickies for sleep to lower it.

Like if you're using your phone as as a, alarm clock 12ft away from your bed, turn off the Wi-Fi, turn off the phone, turn off the Bluetooth. Because if you leave your if you turn off your router, your Wi-Fi, but you leave it on on your phone or you turn off your Bluetooth headset, but you leave it on, it will constantly ping all night long trying to find it. Yep.

And so that's just irritating to your nervous system, which then gets then you're not in. So much deep sleep. So yeah, that's a little tricky. It's not just airplane mode.

You actually have to pay attention when you put it on airplane mode. Yeah, that little thing that looks like an antenna, right? With the little boom. Yep. Make sure it's all off all right.

So sleep so critical, so critical for optimizing your lymphatic function. So you can remove that waste from the brain. And can we tie in why optimizing lymphatic function is also important for optimizing mitochondria function.

And maybe we can go into we can go a couple places here. We can go into talking about triggering autophagy or we going go okay yeah I can see your that.

So let's see. Oh I love it because yeah I mean I'm sort of a lumper not a splitter. And as you can tell I get started geeking out on like pathways in my head and like low body.

So obviously I like that too. But I want to know what we can be doing for our cells. And like, the lymphatic function is so critical because it's a big picture, right?

It's how your body naturally functions. And when you have proper mitochondrial energy levels, you are then kind of

like, okay, good, I can optimize lymphatic flow, but if you have low lymphatic stuff you're going to it's everything's in the body.

It's kind of like in balance, right. And it's like if your mitochondria, if you may not have all the energy to do the stuff you need to do. And if your, lymphatics are off, it's like, then you're just wasting energy or, you know, so there's a lot of things that happen there.

And, and I think that in, in the world that I work in, it's so much of it being intracellular pathogens, you know, Lyme, Bartonella, babesiosis, a lot of them hide inside of cells.

So the kind of for us, one of the cardinal sort of, or the Holy Grail, if you will, is how do you get inside of cells and how do you get the bad guys out?

And we have we're trying to find medicines to get in better. We're trying to find herbs are getting better and some of them do. But it's it's difficult to get to where these things hide.

Then you brought up the term autophagy. And autophagy is our natural way. Going back to this natural thing of of getting crap out of our cells. And so if we want to remove waste from within cells, including the, you know, the mitochondria, and we want to, then potentially even get rid of these pathogens, we can help do these things that will trigger autophagy.

And so that's kind of a place where I start, and, you know, sleep is critical in that because if you can't think clearly and you don't have any energy, it's hard to do some of these things that we're looking at doing.

And a couple of the key pieces that I look at is exercise during the day, a combination of sort of resistance training, and some endurance training because they basically lower your intracellular energy levels.

So a lot of people talk about Ampk, it's basically, gas, it's the reverse gas gauge. So if you think your car goes down, this goes up when you're out of energy.

Exercise can trigger that. And that will trigger not only the process of autophagy but mitochondrial biogenesis. So we can kind of clean up the old ones that aren't working well.

And we can create new ones just by doing something as simple as exercising. What's your analogy for autophagy, Tom? So I've heard I know you're good at speaking and analogies and pictures and stories.

So what what do you got for autophagy? So people are really clear on what that is. I just think of it as I mean, it's kind of like, you know, taking out the trash.

It's almost like the brain. It's like literally like you fill the bag, you just throw it away. But there's two kinds of trash, really. There's well, actually, that's probably all very similar.

It's stuff that should be gone. That's not kind of like a houseguest. It stays too late at at the end of a party. We're getting somewhere, right? Because seriously, if you think about it, I'm like, some of the problem with this is we have these cells that are senescent.

They should be dead and gone, and they get stuck. So their life cycle is over. But they're not going anywhere. So it's kind of like, you know, the the drunk person is passed out on your couch.

You're like, they're not doing anything except getting in the way. But it's hard to kick them out because what are you going to do? And then we have the other people who are just like, so there's that person at the party.

Then the other person at the party is the person who just will not shut up and has energy, and they want to go to for, you know, 4:00 am but you told them the party was over at nine.

And that's what I think of as like Lyme and Bartonella. They like to hide and they're like, hey, I'm here. I'm causing a lot of inflammation, a mess up this cell in that cell.

But I don't really want to. But I'm not doing any good here. I've overstayed my welcome. Not that Lyme is ever welcome in myself, but it's that kind of thing.

Yeah, well, it's like the party crasher. They weren't even invited to begin with. And hopefully right. I think we should make a movie about this. Right.

We could. Okay, so autophagy is really getting out the stuff that shouldn't be there, including cells that are at the end of their life cycle and also bacteria and other, you know, organisms that shouldn't even be in there in the first place.

Right? There's these kind of, byproducts of cellular respiration as well that we want to get out of there. Yeah, we just clean up. It's like the guest that, you know, the party crasher, the guests that overstayed their welcome.

It's the trash on the floor after the pinata was hit. It's just the dust. But it's everything because it's like. But autophagy is interesting. If you had only autophagy, not that.

Again, it's kind of like we need to have amyloid but we don't. We just want the right amount. So autophagy is is balanced between you know like mTOR and Ampk.

And it's just words we all hear about. But you know, mTOR has a lot to do with cellular survival, growth of cells. You know, our sensitivity to the amino acids like that, we're even getting from our food and all our cool supplements and being able to utilize them to to grow and create.

And we have to balance that with cleaning up and, you know, repairing, getting rid of the old stuff, you know, getting rid of all this lipid synthesis and all these fatty acids and all this overkill and, and really, you know, it's interesting though, is it's as we, start to see our energy go down, our body is more sensitive to things like glucose and fatty acids.

But people talk so much about like, we overeat. Like one of the tricks I have people do too with this is really important to trigger this not only exercise, but it's actually to, fast.

And what's really cool about fasting is if you intermittent fast or do other cycles of fasting, this increases that Ampk, which then kicks on your autophagy and you create more mitochondria are good.

There's also studies that show if you have, breakdown in the lymphatic system through traumatic brain injury, through crappy eating, through not sleeping correctly, you can actually reverse it with what they call alternate day fasting.

So for all of you who want something really simple and say intermittent fasting is too hard, get a load of this one. You can fast every other day for a whopping 12 hours, which to me is an even if not even a fast person.

So tell me again what you're calling that one. It's not alternate day, fasting alternate day. So what's the difference between intermittent and alternate day fasting?

Yeah. So most people I know define intermittent fasting is something you do, you know, every day or most days where you're take your eat your go eating window is about eight hours and you have 16 hours in a row.

Also key where you don't eat. So you're fasting a bit each day. And for me, I typically do that about 5 or 6 days a week. I just give myself a day or two to do family stuff and eat after 12 hours.

Some people who are really crazy and really into this, like they're in their 20s, they're super biohackers. They're actually only going to eat in a four hour window.

I find that doesn't work so well with my life, and I'm very active, so I don't that doesn't really do, but usually people are trying to eat within an eight hour window, and it really doesn't matter what that window is.

For me, it's later in the day into the evening and you put eight hours of sleep. So this is what's really cool. We're trying to prime our mitochondria.

We're trying to prime the lymphatic system, and we're like, wait, wow. Not eating for 16 hours is so hard. Well, what what if I actually slept long enough I'm already halfway done.

Right. So I'm just like oh you're habit stacking now. You're doing more than one thing at once right. Yeah. And I'm a multitask right. Because we all have so much to do.

So I love it. Habits I might have to borrow that habit tracking. So you're fasting and you're sleeping. What else can we do while we fast? Well, exercise two.

What you could do, you can hook up to a PMF device, and you can have. That's on you all night while you sleep at night. You got three things going at once. Yeah.

Which is interesting. And I've done that once in a while. I don't do that a lot because I sleep actually fairly well. And I it was not the case. I used to literally have the, I had to do some, themed for myself, a motto that was like, sleep when you're dead.

Because literally back in the day, if I slept for hours or 14 hours, I felt horrible. And one of the things that if any of you are experiencing insomnia or just poor sleep, like non restorative sleep, know that there is hope out there.

And when you do get to sleep. It took me ten months of good sleep, averaging eight hours a night before I woke up rested. So it was. I started to see inklings in the afternoon and then.

Oh, now it's 2:00. That's 1:00. Now it's 11:00 as I ratcheted it back. But there is a concept of sleep debt. So if you're behind the eight ball, you need to actually make it up.

And when you first start to sleep really well, you typically will sleep really well and you won't want to get up. It's because your body's like, oh my God, my pillow is so good, I need more of this.

So it's trying that your body's telling you to pay attention and stay in bed a little longer. So, but it does work. And it's just like you start to clean up the brain more.

Your your, system in your brain, of the lymphatics really can be repaired. So we've got you can do better sleep. You can do the exercise. Certainly. Fasting and the alternate day fasting is crazy because they did it every other day and only for 12 hours.

So I'm like, you know, it's pretty. Not that much fasting in order to, get some improvement in lymphatic function. And so then one of the other things we do like to trigger, things like autophagy is called exposure.

And this one is sometimes one that like people don't really like to do because you're cold, but it is giving. You're giving yourself those extremes. And so one of the only ways that I know to how, how to actually tolerate cold exposure is through breathing.

And I think the most well known breathing and cold exposure is Wim Hof.

Mitochondria, Autophagy, and Fasting

But there are other approaches to doing these things, and it's not so much about saying that everybody needs to do cold exposure to trigger autophagy.

It does work, but typically it means you may have to get out of your comfort zone. If you truly want to trigger autophagy and truly regain your health.

So and then the only way I've found to tolerate it, like I said, is breathing. And so I focus on bringing people into a decreased stress state, going from the sympathetic fighter flight, bringing them over to more of a rest and rejuvenation thing with different breathing techniques and, you know, goal setting and things of that nature.

So that again, we're habit stacking, right? It's like I'm going to do my breathing technique. Now. One of the other things that's super cool is if you're a lot of, about 20 to 30% of your brain detox happens through the nasal lymphatics, so through your nose.

So when I talk about things like mold, well, a lot of people are colonized up in the nose. People have chronic sinus infections. One of the ways we think that strep induces an autoimmune encephalitis is actually through the nose.

And we think that maybe mold and other things that can chronically colonize may do the same thing. There are breathing techniques that not only will help you learn to open up your nose, they will also calm you down.

So again and then the other part of those, if we look at Taiko breathing, it was it's actually been shown to reverse asthma, which is kind of unbelievably powerful.

But it's a breathing technique where, you're using less and less oxygen in a set way so that you actually your sinuses create nitric oxide. And so after you get a comfortable need for some air, you're doing this breathing.

You breathe in and out of your nose a few more times and that will open up your nose. The other part about nitric oxide is it opens up all the blood vessels in your entire body, which then allows you to get more nutrients and oxygen to the cells who desperately need it.

And they help remove the toxicity as well. Yeah. So good. So we've talked about sleep in terms of supporting your lymphatic system and brain detoxification.

We've talked about autophagy and natural ways to trigger that with fasting with exercise. And we're talking about breathing also is awarded support both of these functions.

So I promised at the beginning of this talk we talk a little bit about panda. Panda. I want to make sure we touch on that for the parents watching for the pediatric patients that we have.

Can you, can you talk a little bit about how all these things you're discussing right now are going to help support the pants and panda, patient. Yeah.

So, this is, originally this was described as, you know, pediatric acute onset neuropsychiatric disorder associated with streptococcal infections. So obviously we don't say that all the time.

So we just got pandas. And that was saying that we had these weird behavioral regressions, acute onset OCD rage, even like acute food restriction or tic disorders like eye blinking or grunting, along with a few other symptoms after a strap exposure.

Then we found things like Lyme and Bartonella mold viruses. Even just like something as simple as Epstein-Barr or the flu virus could trigger it. And we were trying to figure out, well, what might be like, why is it happening?

Because what we're finding was the brain was being attacked by itself so that your body was actually going after your brain, leading to localized inflammation, which led to the behavioral changes.

And we saw that in different parts of the brain, including what a lot of people are aware of as the limbic system. So where we process our memories and our emotions primarily.

So then when when we look at, the strep version of this, we said, how did this actually end up happening? Well, one of the, more recent studies in 2015 found that recurrent, strep infections in the nose, in the throat, which is typically where it happens, leads to congregation of your own immune cells that are primed to go after that strep.

And those travel up. Get this the the like essentially backwards up the lymphatic drainage pathway. So the lymphatics come down the nasal lymphatics. Your immune cells are actually going up them through the into the brain leading to inflammation, leading to breakdown of the blood brain barrier and leading to all kinds of inflammation that ultimately, will, you know, lead to these behavioral problems.

And so it was interesting to me when I go, oh my gosh, like, look at this. We have the nose, which is so important in drainage. And it's also a route through which we can have autoimmunity.

And then you look at like things like Bartonella, one of the cells in your brain that if Bartonella in fact, which is a bacterial infection, was to go into, or it should attack and essentially kill the Bartonella, Bartonella likes to live in, which is kind of interesting because they're the same cells that if your nose is clogged up with with the strep, autoimmune cells, though, those cause inflammation in the cell that should hold off on Bartonella.

And then we find Bartonella can trigger it. So the problem is if we have preexisting autoimmunity from say strep and then Bartonella comes in, we're using the same cells that are already broken to infect more easily.

And the opposite is true. So it's kind of just an interesting pathway through the nose into the brain, where all the cells are interacting. And the beauty of it, though, is a lot of our kids, once we know what's going on, we can calm down the infections, we can modulate the immune function.

And then because there's a lot of neuropsychiatric stuff involved with it, we can work on that end and get them back to health. But I find that the nose is a place that's critically under utilized and understood in there.

And one other kind of quick thing that came to mind is a lot of the might when we're looking at ways to help our kids flush intracellular toxins, try to modulate immune function and remove all these toxins, optimizing lymphatics.

One of the there are many different formulations, but mitochondrial support formulations for me have been very good at flushing out, intracellular pathogen toxicity or at least apparently doing that.

And it's been very helpful to both prevent and to mitigate any of these autoimmune processes. If we start to use some might direct mitochondrial support as well.

So when you're talking about, support formulations, you're talking about supplements, right. Everybody listening understands, you're talking. And so, you know, every practitioner you work with is going to have a different mitochondrial formulation.

That they like to work with. Right. So what you're finding that this really supports as well. Yeah. And the first time that I really, really noticed it to be totally honest about the whole thing was, after I get better from Lyme and babesiosis, I cleaned up heavy metal toxicity.

I hadn't felt any symptoms for almost a decade. And then I started doing mitochondrial support because I was getting into it more as understanding the need for it.

I was understanding and I was like, oh, I, I work out a lot. I like to play outside. I have a stressful job. Hey, why don't I take care of myself a little better?

And I was doing unopposed mitochondrial support, meaning about 2 or 3 months into this, I was going from having energy to seeing that I was having less energy and I started having brain fog.

And every day I'm taking my mitochondrial support religiously and nothing else. And then I ran into a friend of mine that was trying to get me to buy one of their detox supplements, and I was like, look, I know you've asked me this

for years.

I feel so toxic right now. I didn't even realize it until you said something to me. Let me try this stuff. And if using this clears it up, I'll start using it.

And what was really interesting was I found that I needed with my patient population. If I give them just mitochondrial support, they'll do well for a couple of weeks or a couple months, and then they get toxic.

And I think it's because there was so much intracellular pathogen, because if I put a detox protocol in with their mitochondrial support, they get energy and things get cleaned up and they don't have that.

Like I felt like I was doing like low level ki lation for three months and I was on no chelating agents. It was just very crystal clear to me. So in my patient population, I make sure that I pair some form of detox, of fire to grab all the stuff that you're flushing out of the cells.

So critical and I've seen this in my own patient population, where people feel good for a couple months, and then they kind of hit a wall and they start feeling bad and wondering what's going on.

And really, that's my crew to go looking for toxins and see, now that you've started, things are starting to move. Maybe now's the time to do some toxin testing and find out, like what's happening with my code.

Is there mold toxicity or do you have environmental toxins? Is there heavy metals, which are of course a little bit harder to detect. But yeah. Good point.

So glad that you brought that up. It's fun too, because like, when I think about it, I'm kind of like almost like habit stacking. I'm also trying to stack by supplements. Right.

Because I don't want to overdo it or even my, my medication. So when I look at this I'm like weight mitochondrial support. What a good idea. Detox support. What a good idea.

And we've found like even in our, our, Perry vaccine protocol, I don't know what else to go around the time if you're getting vaccinated. And in this day and age, a lot of people have lost the ability in states or they used to have the ability to make a choice whether or not a vaccine was appropriate or not for their child.

And I'm not saying for against, I'm just saying there are some people who are concerned about some of the potential toxins or even the immune overdoing of it, of getting more than one at a time.

You can you mentioned we're talking about conventional vaccines here, right? Oh yeah. We're in the day and age of Covid. And right now we're talking about the vaccines that have been around for decades. So.

Oh yeah. Yeah. Exactly. Yeah. We're even I'll, I'll just, I'll leave mRNA vaccinations alone for a minute. I think maybe I shouldn't, but I think there's a lot we don't know about them, so.

But the vaccines that we do know a lot about. Yeah. And that's the thing. And so what I've seen is we had a lot of people in the autism community who didn't want to get vaccinated.

They weren't against it. But they felt that it injured their kids. Whether that was true or not, we got them on mitochondrial support, immune modulation.

And we also provided, which is interesting because one of the ways that we can immune modulated fish oil extracts specialized pro resolving mediators.

These also can be used to optimize lymphatic function and and help minimize your risk to it. So as an example, I the fish oil studies in the lymphatics have to do with pretreatment.

So if I have kids who are athletes like my daughter, mountain biker, extreme skier, you know, I always get at 11 and 12, right? Oh, you're like, well, I mean, I do it with her too, so I can't say.

But literally, if you pretreat someone with the with fish oil as their official concentrated fish oil extract, you can minimize the, the damage that happens in the lymphatic system.

If you had if you bonked your head and what's really kind of interesting is we also use these fish oil extracts too, as the antivirals, because there's lots of really good information on resistant viruses.

No one's looked at it in Covid that I know of, but a lot of us use it and it works well, but we also use it in immune modulation for our kids with pans and pandas and, you know, so over and it's just generally good for brain health in a developing brain.

So here I am. I can do preventative treatment on my lymphatics that are going to help all aspects of my life. So it's almost like our vaccine support protocols that allow people to detoxify have a robust immune reaction you need without getting overly triggered.

And I have people have been previously very sick after a vaccine, get the same one and do fine if they're on these things. So you can almost have your cake and eat it too if you want to.

I don't like a lot of cake, so I just kind of take my time. But, But when you think about it, though, it's like you can have it stack and you can supplement stack.

And what what's amazing to me as an osteopathic physician, because I didn't know, like, when I went into medicine, it was just like, it is broken. I came up through the emergency room.

I just knew that chronic management of medical conditions was busted. I thought I had to fix it all.

Breathing, Cold Exposure, and Nasal Detox

And then there's this whole world out there of experts like yourself, and all the people we've trained with that have been doing this forever. So it's really good.

But we stack them together, right in a way that, hey, the thing that helps make lymphatics is the thing that helps my mitochondria, the thing that helps my mitochondria helps prevent injuries, restore from injuries, and healthy lifelong.

So all of these things work easily together so that you don't have to be going, oh my God, my protocol is massively large and I just have to keep adding.

In fact, some of the best protocols are the ones you carve out and you actually carve things away from. Yep, yep. So good. And I and I love how we're talking about everything is layered and interconnected and intertwined.

It doesn't matter what why you are here watching this summit or watching this interview, what Tom is teaching you right now. Even more talking about pans and pandas.

It applies to you regardless. And with pans and pandas, we do have adult versions of it, which leads to executive dysfunction. And in adults, we actually have a lot of there's a lot of evidence that in chronic infections can potentially not always.

But, you know, just like kids, not everybody gets strep twice gets this. But, recurrent exposure to infection can trigger things like rheumatoid arthritis, lupus, scleroderma.

So it's not just related to behavioral stuff in kids. In adults, it's more musculoskeletal often or even just executive dysfunction. So is it lymphatics and poor sleep habits?

Is it the fact that you're exposed to get this like chlamydia and pneumonia from the environment? Just sometimes people get it intranasal and it'll just hang out there.

You can try to kill it for a year. And they've shown studies where it may not completely be eradicated, and it leads to the deposition of those amyloid plaques that look very much just like Alzheimer's.

And all you've done is get a chronic nasal infection. So one of the things that I can share with people is anybody, kid adult, work with your provider to open up your nose.

It's definitely important and not super traumatic. Like blow your face up with balloons that I've seen. It's just like literally breathing exercises. See if you have infections or exposures that we can work on, see if food's playing role and things of that nature.

And it's funny, one of the very first times I ever met you, we were was actually at a at a lecture talking about how to, how to effectively treat sinuses.

And I remember you were the guy in the room. You were the expert in the room. I was like, talk to Tom, work off to. I mean, this is your thing, right?

I mean, it sounds like, you know, sinuses are a doorway for infection into the body that they are. And the key with all of this, Laura, is that the. You look at it and you go, it's not the first infection that triggers autoimmunity.

It's recurrent infection. So how do you get that? It's you get recurrent meaning you get exposed over and over, which is kind of what we think happens in strep.

The other thing is you could have colonization. And this is why so many functional medicine providers are talking to you about making sure that you're breathing properly.

Posture is good. Close your mouth so that your nose actually can open up, because if your nose is clogged, it's probably because you're mouth breathing and or you have significant allergies or trauma.

The other part, though, is your gut. Your gut plays a huge role in memory. It so much in mitochondrial function, body wide inflammation, lymphatic function.

And this is another place where we can get some chronic infections that start to leak into the body just a little bit. And it's not the first couple of days or months, but it's longer term.

Then you start to trigger autoimmunity. And that's when the whole system starts to, you know, you start to see these symptoms become more and more significant.

I love that we're talking about these chronic infections because people don't realize they have them. They are silent, hidden infections. They are sneaky. They are tricky.

And it is it is one of the number one destroyers of mitochondrial function. They trigger inflammation in the body. They trigger an auto immune response in the body.

You're constantly in this fighting mode trying to. Your body's trying to get rid of it constantly. And it just causes so many problems. Yeah. I mean, and I and I think it's I'm so honored that we can be having this conversation because there are going to be some people who are like, looking at their energy or their their thinking or their kids or a friend, and it just co I never thought of it that way.

I didn't know there was hope for me. You know, I thought I was watching this for somebody else or whatever or however you get here because so many times these things are insidious.

So both pans and pandas have the word acute in them, right? Or, you know, like Pan is a pediatric acute onset

neuropsychiatric syndrome. Saying anything that triggers this in the kids does it, but it's supposed to be acute.

The thing is, the infection or the initial thing may have been acute and small, but now you're years down the road and you're like, oh, I do remember when I was normal and there was a bit of an abrupt change, but at the time we didn't notice it.

And if we're aware of this, there's hope for healing, right. And I think that's really one of the most important things and understanding that.

PANS, PANDAS, and Chronic Infections

So much of what you can do, actually you can do at home. You don't need us to be giving you the supplement or the medicine. And when I was sick, I said, like, look, I was 70, 75% better.

Like, I didn't I couldn't even find somebody who would speak this language that you and I are talking like. So I was just back up against the wall and I was like, I have a whole life to live and I'm never giving up on myself.

I started doing yoga. I started moving my body better. I started to go, wow, coca Cola is not a food group because we actually didn't notice that back in the day.

And then my body started to heal a little bit, and then I could physically move in a way that calmed my brain down. And once my brain got calmed down, I could make better decisions, I could start. That's when I started to sleep.

And then I met the people who helped me. But they I needed 30% of somebody else, and 70 or more percent was just me taking care of myself and taking full responsibility.

And what's different about now and then is you're giving all your viewers these amazing tools, putting all these experts in front of them, giving them the tools that I had to fight to find.

So now you have the tools to just do the work, the crazy time, because you're a physician. So you're you are grew up in the Western medicine model er physician and you couldn't you didn't have the tools to fix yourself until you stumbled on integrative functional medicine and, and learned the 30% of things that you need to do so that 70% of, you know, healing your body naturally could take place.

And yeah, I mean, I think the system is set up. The conventional system that is to is set up to like to take your autonomy away from you. Take this shit back.

You are so worthy to heal. You have the capability to do it. And when I went to medical school, literally, this is what started it all off. I wanted to.

There are two reasons I became an osteopath. I applied to medical schools MD and that were in areas that were cool to play outside because I knew being a doctor was really hard, so I wanted when I had a few minutes, I wanted it to be close that I could go play outside because that was important to me.

And then I worked for a guy who started wilderness medicine, and I taught for him and Frank Hubbell from solo, Stone hearth, Outdoor Learning Opportunities in New Hampshire.

Brilliant guy. And when I met him, I was like, this is a cool doctor I ever met. I don't know why. I don't know what he does. I don't even understand why he's different.

And when I got accepted to where he went and it was right on the ocean, I was like, done. And I just walked in and I had no idea there was any cool doctors out there other than this one dude.

And I mean, I worked with nice people in the air, but it wasn't like people who gave people hope for living an amazing life. It was like, I'm going to get you through today, and then whatever is tomorrow, I'll punt to somebody

else.

And so I'm there. I walk in and then we start learning manual medicine. And the osteopaths have this crazy idea to two really crazy ideas that your body is has a triune nature, body, mind and spirit.

They've been saying this since the mid 1800s. And then the other one is, you know that your body has a self-healing mechanism, self-regulating self-healing mechanism.

And all this stuff we've talked about today is your body has this ability to heal itself every once in a while. It needs our help. And my approach to it is when your body's stuck and it needs a catalyst.

Let's just be a catalyst and then get the hell out of the way, because the body's amazing and it's going to do its own work. Okay, so, so all right, so this brings us to the final thing I want to make sure everybody knows that knows about is your meditation.

Because this is a perfect segue into that because it get yourself out of the way, get everything out of the way, and your body can take care of itself.

And meditation is really critical. And the question is, how do we get out of the way? Right. Exactly, exactly. So I've, I've been in meditations led by you before.

It's really phenomenal. And then and I was there when you and Sinclair kind of birthed this idea. I can remember exactly when it happened. So tell our audience a little bit more about meditation, why this is significant to them, why they would want to do it, how to get access to it, and how to get access to you to.

Awesome. Thank you. Yeah. Meditation. I, Sinclair and I just we're sitting around and we're like, we love meditation. We love sharing with other people.

It's been such a huge part of our healing journey, but it was really hard for both of us in our own ways to get started in it. I mean, it took me years to be able to even think about using meditation.

And again, just like Laura is doing for all of you shortcutting you getting the information you need to heal your mitochondria and regenerate them and get all this amazing energy?

We said, can we take all that? We both come from different backgrounds in, in medicine and supporting people's healing, and we also have different backgrounds in meditation and different learning experiences.

Meditation for Chronic Illness Recovery

Let's put it together in a way that makes it accessible for the chronically ill person, the person who's tried all the other meditation and can't do it.

It's an attention thing. It's a pain thing. It's whatever your thing is. And so we broke it down. And as I said at the top of our talk, it's really important to not overdo things when you're chronically sick.

You know, and there's a subset of people who get are so sensitive. So we created, a program where we take you through healing step by step and then give you the keys to, hey, maybe getting past this, if you're having an issue.

And what we find is that everybody finds their own area that they would previously have defined as a stumbling block. And one of the things we like to do is we have our community associated with the actual program.

We do live meditations on after people get through the the first eight weeks is called Rapid Transformation. And what I love about it is it's actually slower than rapid.

And that's why it works, because we don't go to it's like we walk before we crawl before we walk, we walk before

we run in a very specific way. And then people start to blossom and they find their little nook in there.

And we've just had amazing results, like people have gone to like, you know, world renowned meditation centers and they're like, this is the thing that opened it for me was meditation.

And it's because it's what we need in our community of people who this speaks to, who have the experience of chronic illness. So, you know, we love that people check us out.

That's over at meditation. Our Xcom, check out all the information. Reach out to us if you have questions. But it's an amazing community of just people supporting each other and, you know, part of it is we we spend a little bit of time or maybe more than a little bit, focusing on, like, what you want and what you don't want.

And the thing, you know, are you going through your day in this negative meditation? Right. What is that thing you focus most on? And rather than saying, oh, you can't do that anymore, because that's really hard to change as we shift back over and we look at, hey, how do we insert a new habit of thinking?

So just like you're saying, habit stacking, one of the habits that we stack in that program, and in my private practice is what are you focusing on? And like, what is that goal that you really want?

Like if you notice, I get you and I get so excited about what we're talking about, right? I get so excited about something that you can't not reach that goal.

And that's how I got better. And I brought to me, I manifested the yoga DVD that changed my life. The the paying attention to the to the my body, the doctors.

It was a last minute change in my schedule that that would have. I would have never met the people who saved my life if it wasn't for paying attention.

And that's what meditation does for you. You start to walk through your life, and it's not about sitting down. It's about how you show up and walk through your life.

So it's super exciting. And then, yeah, so if anybody's interested in what we do, I'm over at Origins of Health. Com and kind of all the major social places just type in origins of Health and we pop up as well I love it.

Origins of health origins of health.com for doctor Tom Moorcroft. Doctor Tom this has been such a fun interview. I love it when I get to interview my friends because we can just chit chat and have so much fun.

Thank you so much for your contribution to the world for, you know, just finding a way to be in that conventional medicine model and then bring all the knowledge that you had and everything you know, and do the work that you do in the world.

In such a big way. So, you know, we didn't have enough time to really talk about Lyme disease in detail or mold, in detail. But doctor Tom is your guy.

If you've got those things, make sure you connect with them. Yeah. Thank you so much, Tom. Yeah. Laura, thank you so much for having me here. It's an honor.

And so, as always, so much fun. It is. All right. Take care. Bye now.