Psychoneuroimmunology: Recognize, Prevent & Reverse Stress & Trauma Transcript

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Introduction to Dr. Catherine Clinton

Welcome to the bio optimized summit. I am your host Dr AMY and we are exploring the next level of physical and mental health you can achieve through targeted and intentional optimization and today I have with me, my good friend Dr Catherine Clinton and she is a licensed natural path physician. She focuses on gut health, auto immunity and get ready for it psycho neuro immunology, which is why I'm so excited that she took the time today in order to talk with me about this important topic and bring, bring this understanding, this knowledge, these tools to you.

She is uh lives in Eugene Oregon and is an author speaker and pediatric health advocate. And while in medical school she was diagnosed with and then healed from an autoimmune disease that affects the gut. And so this left her with a passion to prevent auto immunity in Children everywhere. She addresses the psycho neuro immune system and the gut health of Children and families through a deeper connection with the world around us.

She is passionate about the connections we have with the world and how these connections actually can help us regenerate our health and the health of the planet.

DR Catherine, thank you so much for joining me today. I'm really excited about our conversation today because I love I love I love the topic of psycho neuro immunology.

Well, thank you so much for having me, I'm honored to be a part of the summit. Um I love what you're doing and can't wait to talk all about it. Yeah, so this is a big word, right psycho neuro immunology and what does this word mean? Break it down for us.

Well, it is a big word that has a really simple meaning. So psycho neuro immunology is just the science of how our thoughts and perceptions affect our biology And you know, we've known this.

Um and science and research has brought this up for years, but in the last 10, 15 years it's really been brought to the forefront how our thoughts and perceptions affect our biology and it's so profound.

I can't wait to dive into it with you. One of my favorite books has been dr Bruce Lipton's book on the biology of belief. And this is really what he goes into as well, is just how interconnected our thoughts.

What Psycho-Neuro-Immunology Means

What happens in our mind, stuff that we would consider just psychology and how that is actually becoming our biology and vice versa. Absolutely, absolutely. Because our our biology can't differentiate between an actual event versus our reaction to an event.

Right? So our our chemical messages, you know, when we talk about, we're gonna get into a bunch of different topics in this talk, but they all highlight the interconnection between things and and when we look at it, these signals that sells and our body systems are triggered and activated by a lot of them come from our psychology or that psycho neuro immunology piece, how our thoughts and feelings really affect our biology.

So it is way, you know, this research and science has just left us um at a whole new level of understanding of what our thoughts and perceptions can do.

It really has a profound effect on our biology and our genetics on the epa genetics of, you know, our Children and their Children and their Children. So it impacts health for lifetime. So it's really important to talk about it is really important. And what is one of the more becoming more common and common knowledge are the studies coming

out of the adverse childhood experiences.

And this is a really good example of this psycho neuro immunology played out in front of us. And while there's been many studies showing different diseases that are associated with having a higher a score that adverse childhood experiences, we know that it's not it's not just an A score that matters right, but it's more just like that felt experience in childhood and that's a reflection of what was happening in the nervous system. And that's that neuron part of the psycho neuro immunology. And then what happens is it does bring in the immune system and autoimmune disease is a big problem with those who experienced any kind of stress. And I would say unresolved stress in childhood where then their nervous system is set for these imbalances and those imbalances effect and show up in the immune system as autoimmune and I also had my autoimmune issues that first came to light while I was in surgery residency and I remember, I remember, you know, getting my numbers and seeing how high my autoimmune markers were. And I my first thought was why am I having this?

Right? Like I know that this is associated with adverse childhood experiences. I don't relate to having had childhood trauma, but there there's obviously something here. And so that's really what started my journey into this psycho neuro immunology field. And so tell us more about this connection between the immune system and autoimmune disease and how that is a result of the psychology and the nervous system imbalances.

Absolutely.

Childhood Stress, Trauma, and Autoimmunity

Well, first I'm gonna take it a step back to those adverse childhood events because when we think of trauma, we think of these big things, right, loss of a loved one family member, um house burning down. You know, these big traumatic, I call them trauma with a capital t. Right?

But the adverse childhood events don't have to be a capital T. They can be a lower case T. For me. For example, when I was in medical school, I was diagnosed with ulcerative colitis, it's an autoimmune condition and hashimoto thyroid itis.

Um you know, I had sort of a list, I sort of crumbled from the stress of medical school and looking back a similar thing, you know, why why do I have all these autoimmune conditions when there's no family history, there's no um I can't find any reason why, but looking back at my experience starting school, I had a lot of stress, I was that kid in the nurse's office all the time with the hurt tummy.

And just my experience entering school in kindergarten and first grade in the south, there was corporal punishment still and we didn't, I didn't come from a family that used physical punishment.

So it was all very scary in traumatic, but definitely a lower case t right. Um I didn't lose a loved one. I came from a good family. My parents are great, but but it was still a shock to the system, right?

And when I, when I think of the definition of a trauma and by that, I just mean that it has lasting effects on the nervous system? It's because there was a shock to the system that it didn't feel like it had enough understanding, enough resources to process in that moment.

And yeah, going into a school like that with those conditions would have been a shock to your system. It really was. And and at the time, a first grader, I didn't have the words to explain what was happening.

So that just kind of hung with me. Um and and so that experience of early childhood trauma, chronic stress that sets up the the foundation of the biology in a more inflammatory pathway or um state than the rest of us. So what happens when we experience that chronic stress or trauma at, you know, at an early childhood age or at any age really is we can see that shift in the gut microbiome and we know that that gut health in the gut microbiome and the immune system and as we start to talk, the nervous system and the heart brain connection, it's also intimately connected, right? So what we see is with that stress, with that trauma, a shift in the gut microbiome from more beneficial species and microbiota to more harmful species. And and we know that the gut microbiome works and

guilds right there communities that can either really advance our health or work against and they are taking cues from our environment.

So one of the cues as as we're talking about right now is our stress and trauma responses, right? So they don't know actually what's happening outside of our body, but they know what we are perceiving um, as danger as a threat as as a trauma experience. So that right there shifts the gut microbiome to a more harmful um, ecosystem. So the species, the viruses, the bacteria, the fungi are working in a more harmful way. We see that inflammation increases and and both these things can last a lifetime. So this isn't just what happens when we're experiencing that stress or trauma. It lays the foundation and It can last for a lifetime. You know, I was 24 when I was diagnosed with ulcerative colitis. So a lot of these things don't show up until later in life, but the foundation is placed early in life.

Right? So we see that shift in the gut microbiome to a more harmful species. We see an increase in inflammation. And at the same time as those two things happen, we see a dive in our T regulatory cells.

So if I can take just a second to walk us through our immune system, just so we know where we're at. We've got our th one cells that fight infections and cancer. We've got our th two cells that um deal with allergic responses responses to parasites. We've got our th 17 which does autoimmune reactions th 13, which does asthma. And then we have our superheroes of the immune system, our t regulatory cells and those are the cells that come in and say, okay, the infection's gone. Let's let's cut the inflammation.

It puts the brakes on all of those processes responds to be appropriate to the situation. Exactly, exactly. It's the one that comes in the reasonable cells that come in and say, okay, okay, the infections under control and we've heard a lot about that in the last several months, right. What happens when immune systems go out of control side keen storms? Um and it can be really dangerous.

So, we love those T regulatory cells. But what we see with chronic stress and trauma is at the same time as that shift to the more harmful species of microbiota and the microbiome at the same time we see that increase in uh inflammation.

We see a dive in the t regulatory cells and those are made actually in the gut. So all of this is happening in the gut and it is profound that increase in inflammation that shift in the microbiome and that dive in t regulatory cells those can that can last a lifetime. So that really sets up the stage um you know when we're talking about our immune system and our gut microbiome, it really sets the stage for those chronic conditions, diseases that are associated with trauma and stress.

And I love that you started us with the gut because our understanding of autoimmune conditions as we've we've learned a lot over the last even just several years and our current understanding is that it's the necessary to have inflammation in the gut in order to develop an autoimmune condition.

The Gut-Immune Connection and T-Reg Cells

So that's almost like a a necessary pre cess er and if you don't have that you're not going to develop an autoimmune condition that that inflammation in the gut associated with the changes in the gut bacteria and fungi and all of that ecosystem and then the changes in the actual t regulatory cells and that whole shift in the immune system is a necessary precursor, an essential precursor to then the development of actual autoimmune which is the body attacking itself. It's the immune system deciding that our own cells are a danger are a threat and need to be attacked.

So, tell us more about that. Absolutely. And and that is, you know, we we talk about the shift that happens and auto immunity is one thing chronic disease, cardiovascular disease, anxiety, depression, mental health issues, neurological development and disorders cancer. I mean the list goes on and on, but absolutely autoimmune conditions um, can really stem absolutely stem from that immune imbalance because we need those t regulatory cells rolling around saying, hey, no, we're done with this. You guys chill out.

You know, go back to your corners and and relax and it's it's really foundational when we look at what's happening in the immune system, we see that it doesn't just stay in the gut, right?

That that auto immune reaction can go systemic. So we're seeing rheumatoid arthritis happen from, you know, uh imbalance or dis regulation of the gut microbiome. So it's really, really um, something that we should be talking about regularly and often is how to optimize our health. So that these things don't lay the foundation and there is a lot that we can do and you know, when we look at that connection between auto immunity and inflammation and stress and trauma, that neurology piece plays a huge role in whether or not that inflammation stays for a lifetime or whether it's a transit um effect, like it should be right.

So, so our vagus nerve that connects our our brain to our heart really gets rewired during those times of chronic stress and trauma. And and we know now that the heart actually sends more messages to the brain than vice versa. So when we're in those times of calm, like right now, I love talking about this, I feel very comfortable with you and I am just in a state of coherence. My nervous system is calm, which means my vagus nerve is connecting my heart with my frontal lobe.

I can make calm rational decisions Now add in the backdrop of early childhood stress and trauma that gets rewired just like if a bear jumped into the room right now, it doesn't do me a lot of good to be calm and rational and use my frontal lobe, I have to use my legs and get away from the bear.

Um but these days we live with bears, we work with bears. There are teachers, you know, there's bears. Um so many places in our modern day life that in a in that state of chronic stress and trauma, we often don't get back to baseline. We don't get back to that feeling of safety so that our nervous system can fluctuate easily between that parasympathetic and sympathetic. Oftentimes this is really where then like like chronic stuff starts to develop because and it won't show up for many years because our nervous system is chronically in this state of either sympathetic or even freeze.

And I've been finding out how many more more symptoms and conditions are associated with that freeze response, which is misunderstood. It's not that you stand there frozen, but it's, you know, it's that third state of the nervous system where you go when you have experienced a shock and a trauma.

The freeze response is a necessary part of a situation in order for that situation to be traumatic. And and this is where it becomes a chronic chronic state of imbalance in our nervous system, in our immune system.

And so then over years creates these symptoms that yes, show up maybe 10 years later or 20 years later and we're trying to figure out why now, what did I do recently know this isn't anything recent like this is a lifetime of accumulated burden and stress that the body has been carrying, trying to compensate for and no longer can compensate.

Absolutely, Absolutely. I use the analogy of an orchestra, right? So ourselves, our organs or body systems are different instruments and they play this beautiful song when we're in balance and healthy. And then one thing might get off tune, right? So that trauma and that stress happens.

And so the nervous system is playing a different song and the immune system says, whoa, is that the song we're playing? Okay? And so then everything at, you know, it takes years.

But at some point all these different systems have gone haywire. They're playing their own songs. They're not working together anymore. And and it's an appropriate reaction because they can't find the information and the connections that they need. They are by theology needs that parasympathetic state. It needs a sympathetic state too.

But to be stuck in that sympathetic state doesn't allow us to go in that parasympathetic rest and digest and repair and feel safety and have those t regulatory cells come and decrease our inflammation and that whole cascade. So yeah, and then circling back to like this whole bigger picture than the psycho neuro immunology.

This is so reflective of what's happening in our thoughts as well and in our psychology as we experience stress and trauma in our life where at first, you know, like we can engage our logical brain. But then with trauma, we lose that and trauma creates this state where we are just operating on emotions on the limbic system in our brain and all of those survival aspects that are essential and appropriate if there were an ongoing threat.

And what can happen in trauma and especially when it started in childhood is that we get this idea, we have these thoughts that we are the problem that it was something that that we brought it on, that we weren't enough that we we were somehow responsible for what happened to us. And so then we start to see ourselves as the problem and that's exactly what we see playing out in our biology.

So everything that's happening in our thoughts is really actually happening in our biology as well, where our immune system, we lose our t regulatory cells, right?

Vagus Nerve, Neurofeedback, and Nervous System Repair

We lose our logical brain of our immune system and we start seeing ourselves as the problem and feeling inadequate and attacking ourselves for um you know what, what will then develop into these immune cells attacking our own tissues and having symptoms or high autoimmune markers.

And it just further gets out of balance unless we do these corrective things and shift, you know, both the immune system and the nervous system and then our thoughts and beliefs about ourself.

Absolutely, Absolutely. And I would also just like to point out that we come into this world with an epigenetic stress blueprint, right? So, you know, when we talk about stress and trauma, it often goes into this kind of Yes. And you know, I talked to a lot of patients and treat a lot of patients with autoimmune conditions and we deal first with the physical so that they can have some relief before we start going deeper.

And it's it's often, you know, when you're talking about us viewing ourselves as as the problem and and that kind of snowballing and not helping that I see often with people who have that epigenetic response, like for myself, I have that hyper reactive stress response.

I came into the world that way. I can see it from my dad from his grandfather and I can see which one of my kids inherited that special little um stress response.

You know, so some of us come a little more easily wired to go into that freezed state or that fight or flight hyper reactive state. So it's so important that um we can become conscious of what our subconscious is doing because I've never had a patient or person that I've met and it was actually, they are the reason for that, right?

Like you said, we turned those thoughts inward and think, oh, I'm the reason for this, but that's never the case. Um So I always like to talk with patients about, we also come into this world with a blueprint that can make it a little bit more effort to backtrack these stress responses, but at the same time, that effort, even though it's a little bit more, it undone, does that process for generations to come.

So that is really, really powerful, I think. Mhm. And let's swing back around and talk again about the vagus nerve, because the vagus nerve is right there in the middle of all of this.

We cannot talk about trauma. We cannot talk about psycho neuro immunology without talking about the Vegas. And you mentioned how it's that connection between our brain and our heart and comes from the brain stem and it goes actually behind our esophagus, down into our chest. It's what controls our breathing.

It's what controls our heart rate along with the sympathetic nerves as well. And then it goes down and branches out into all of our intestines and digestive system.

And so this is this is again a reason why many people like yourself experience gut issues, gut symptoms, diseases when there is this imbalance in the nervous system, because those imbalances will affect the vagus nerve and how

it innovates our our whole system from our lungs to our heart to our gut.

So, talk to us. I know that you love the vagus nerve as much as I do. So, talk to us a little bit more about that and how and how we can support our vagus nerve and its health.

Absolutely. Well, I think that we've done a disservice to ourselves um talking about the way that the body works and we cut we cut it off right here. You know, we've got the mind and the body um and it really doesn't work that way. Well, even in medicine, right? Like we've done psychiatry is the brain and then medicine is the rest of the body head down. We were cut off.

Absolutely. Absolutely. Absolutely. And and uh that's fundamentally wrong, right? Um you talked about how the vagus nerve innovates all of our vital organs and, you know, is responsible for our respiratory rate, all of these different things, these vital things we can't live without.

And it is taking its cues from our perceptions and our reactions to things and it's it's really amazing. I read a study last year that showed that people with PTSD.

I think they were looking at veterans with PTSD were able to shift the derangement in the gut microbiome right? So we talked about how that shifts to more harmful species and and starts that whole cascade, inflammation t regulatory cells, that whole thing that shift to a more harmful species.

And that cascade was reversed with neurofeedback, yep, I'm just gonna say it again because it's amazing. It's amazing. It is neurofeedback meaning um using different techniques and there are a lot of them out there that help rewire our nervous system to be our vagus nerve to be more flexible, meaning that it can go from a sympathetic state to a parasympathetic state and not be caught in one.

Um That is really really amazing to actually have research showing that that gut derangement that microbiome derangement was reversed with neurofeedback with attending to that vagus nerve and there's so many things we can do neurofeedback. Um vagal tone exercises are coming singing uh and and if we want to go deep those connections, the reason why Nurofen feedback changed and reverse that gut microbiome arrangement is because they're so intimately connected.

So we see things like omega three fatty acids, resistant starches. Now resistant starches go through our intestinal track they reach the colon undigested. They're fermented into short chain fatty acids and at that point our t regulatory cells start to flourish hopefully.

Which is why we need that whole ecosystem healthy in order to be able to create those short chain fatty acids. Exactly. So it gets hard to tease apart because it's also interconnected using diet supporting that gut microbiome using neuro feedback and other somatic um releasing exercises and there's so many of them out there. You know there's T. R. E.

And somatic reeducation. Um I love heart math, that's a its own little software but there's so many of them out there um and they're all wonderful. So so really supporting the whole you know how we saw those connections between the gut microbiome and the immune system and the our neurology and our psycho uh neuro immunology piece of it.

It really plays back to that that interplay between them. So supporting the gut microbiome with diet um supporting our nervous system with vagal tone exercises with therapy with neurofeedback uh It's really really profound. The shifts it shifts.

Yeah and it really doesn't take that long to shift things. Especially considering how long it may have been imbalanced. It does not take that long to shift things back to health but like you're saying it's not enough to just give a probiotic if you have imbalances in your gut bacteria right?

Like that may fix it for for a time. But unless you want to be taking a supplement or a probiotic for the rest of your

life. You really need to be doing these other things that are going to bring the balance the help back to the vagus nerve back to your nervous system because then that combination of things is really what's going to create the shift that will be permanent and and you won't have to be always supporting different aspects of your health in the exact same way for the rest of your life.

Kind of like, you know, having to go to therapy for the rest of your life. I hope not right. Like that would be, that would not be the goal. The goal is to actually experience these shifts have these shifts change your biology so that then you can go on to your next level of physical and mental health.

And so it's this combined approach that really is where the magic is absolutely, absolutely. And it's we've talked about all these um different intersections and how it's all connected and so, you know, really supporting the biology is the only way to go because we see that that reverse and and like you said, it doesn't take a lot of time.

Um it's really that subconscious patterning, becoming conscious, it's it's magical. It's really, really, I'm so happy that we're finally at this state in in science and medicine that we have these tools.

It's just incredible.

Mitochondrial Health, Movement, and Mindfulness

Yes, and that was some of the magic that I found with the somatic, experiencing trauma therapy and I was seeing such amazing shifts happening in people with that, that even as a medical doctor I'm like I need to go learn this, I need to go figure out what it is that they're doing and and learning this somatic work from a medical perspective. Absolutely fascinating, right? Like I'm g eking out over the science every day and there and just like actually learning to work with the nervous system in ways that I never was trained how to do that in medical school.

Um But these are these are so many of the modalities that we can use to reverse or even prevent some of these effects from trauma and stress on our nervous system.

So let's talk about others, right? Like with somatic experiencing, we do have some vagal exercises as well, like the vu exercise which which I love. Um it's it's rather awkward and embarrassing. So people tend to do it by themselves, but it's so powerful in being able to stimulate the vagus nerve, bring it to life, help bring balance back to it. And then there are these other vagal exercises that people can do. But what are some other talk to us about some other ways that we can prevent or even reverse some of these chronic effects of stress and trauma? Absolutely.

Well, you know, we've talked a lot about ecosystems and how we are an ecosystem and it's the whole combination of everything, so really attending to our ecosystem, right? So we talked about supporting our gut microbiome and I loved how you said, you know, we don't just give a probiotic and that's so true, we become so reductionist IQ as a society as a race because it's so easy to reduce it down.

Right? We we want that one thing, but that's not how ecosystems work and probiotics are great, but they're not the only thing, right? I use the example of like a forest.

So our gut microbiome is a forest if we go in and Sprinkle some mushrooms that will help, that helps uh the health of the forest. But it doesn't rest on those because there are thousands of mushrooms in the forest. There is a huge ecosystem.

So relying on something um as small as a probiotic is not where it's at, it's really going to be looking at those omega three fatty acids. There was a study that looked at, you know, there's been a lot of animal studies about How stress and trauma affect our gut microbiome. But they did a study in 2018 where they looked at Children, babies, infants in the Nicu and they used that separation from the mother um as their uh traumatic event. So it is a big traumatic event.

Yes, absolutely, absolutely. Um it's a big traumatic event and all of the infants all of them showed the shift to the

more harmful microbiome composition. Now what they did was they supplemented either breast milk or formula with omega three fatty acids and reversed that damage and when we start to talk about okay resistant starches and omega threes and and vagal exercises where we're singing and you know living as we have forever. That's kind of where it gets really really interesting that it's not that omega three fatty acids.

Is this amazing new uh molecule that we found, you know or resistant starches are the newest thing. The thing is as a species humans have lived by water because that's how we have developed and evolved with.

We live by waterways so that we can have water so that we can eat that sea life. And we have that's woven into our D. N. A. So omega three's have a profound effect on our our stress response and our ability to prevent and reverse those um impacts from chronic stress and trauma. Not because it's magical but because that's how we've lived forever as humans. We've lived eating omega three fatty acids from seafood. We've lived on a mostly plant diet.

Not doesn't have to be all the way but we need lots of plants for those resistant starches. We've lived in uh communities where we are able to find safety where we have some members of our community and sometimes that can be a dog or a pet. Sometimes we don't have a lot of safety in our lives. And as we're cultivating our safety circle um it can look a little small but all we need is one.

Right so cultivating that safety um I love neurofeedback exercises for shifting that gauge and mitochondrial function is really really once we get those big layers of the gut microbiome and immune system and neurofeedback with the vagus nerve we start to look at mitochondrial function and we know you're speaking my love language.

No it's so I can't help it. It's so so so everything we're talking about now is powered by our mitochondria. Right? Those are our little powerhouses in the cell and of course dips and mitochondrial function are associated with every chronic disease and mental health condition out there.

Right we need our mitochondria to be firing for things to be working. And often times when we look at those big pieces and we address gut health and we address nervous system health. There's something that's still missing.

And with my patients and with myself I found that it really is mitochondrial health and function. Absolutely. And there's all kinds of things we can do.

You know you've got your your D ribose and your CO. Q. 10 and your carnitine and you're touring and there's a plethora of amazing supplements out there that help mitochondria and they're great and I utilize them with myself and my patients. But I also like to talk to everybody that will listen about the three things that are out there that help our mitochondria.

Right? So some movement. Um exercise increases the currency so to speak. That mitochondria used as a T. P. So they make that they generate and produce a teepee and that's what's used as our fuel. Right?

That's what powers that battery in the mitochondria. And an exercise actually increases the amount of mitochondria that you have in those cells that you are exercising.

So you're enhancing your ability to make more energy for yourselves for your body. Yes absolutely and that makes sense. Right. But let's talk about how mindfulness and meditation increases the amount of mitochondria you have and the amount of A. T. P. They produce.

You know it's all connected. It is so fundamentally intimately connected. It's really really amazing. And so so I like to talk about that. I like to talk about mindfulness. I'd like to talk about movement.

I like to talk about coming in contact with the earth. Um And how getting in sunlight and being you know there's er thing or grounding is what it's called. But just getting your actual physical body in contact with the earth can really also help power those mitochondria create more A.

T. P. And we see this with sun, sunlight and sunshine as well. It helps power those mitochondria increases their numbers. And so we can see just even talking about this how interconnected it all is. It's just amazing.

So so so once we deal with those bigger systems of you know the nervous system and vagal tone and the microbiome and the immune system then I get back to okay what on the very smallest scale is happening, how is your mitochondrial function and a lot of what I use and what we use um as positions to help our patients is addressing that mitochondrial function.

And what I love about all of this and how you're explaining it very well is just how much of our psychology is our biology, right? And so one of my saddest frustrations is when people have separated these two, right? And they're struggling with something in their life. They experience it as anxiety or depression or some mood or thoughts or behaviors and they want to change that.

And rather than even realizing how much of this is in their biology that we need to address as well on that level, they tend to just go to the psychology and are trying to address and make these shifts in their life only from that psychology perspective.

And and yet we know from science now that unless you actually are shifting it in your biology, it's not going to be able to shift in your psychology. And so we've got things like the omegas, right? And these are things that that enhance the stability of cell membranes as well. And so everything that's going on, if your cells are are not stable, if they're not, if they're not solid in their structure and their boundaries, they're not going to be operating well.

And they're gonna actually be taking up more energy to try to be doing what they're doing unless it's got that solid omega three and omega six, is that proper balance. And and so yeah, like I'm telling someone who, you know, is experiencing symptoms of either PTSD or even mood stuff.

Hey, we need to look at your omegas, are you taking omegas? Right?

Integrative Healing and Where to Find Dr. Clinton

They're expecting me to just say, we'll go to go to a therapist, go to a counselor and like, no, we gotta talk about this biology stuff, because if I can make yourselves more stable, then your cells can handle more stress, which means that if your cells can handle more stress without falling apart, you are going to be able to handle more stress without falling apart.

Like, everything that in our psychology really has to be played out in our biology as well. Absolutely, absolutely, very well said. And and the connections just they don't stop, right? You know, we're talking about mitochondria and that's our mitochondria are also um fundamentally in charge of producing the cortisol and things that we secrete during our stress responses and trauma.

So, it just, it never ends. You know, it's all so connected. It's this amazing, beautifully intricate spiderweb when we tug on one string, the whole web is affected and absolutely, and and right now, it's it's a really exciting time to be a physician because and a patient, because we now have so much science backing um up this approach, that it it it begs the question why there is any other approach but but absolutely right. I mean the most effective approach is going to be one that is the most integrative right? That that looks at all of this, that's gonna do some of the functional lab testing to see what are those deficiencies?

Do we need to be enhancing glutathione and your detoxification system or your mitochondria? Do we need to you know, would in a D a little N A. D be helpful to boost your mitochondria allow you to have more energy to to repair to rejuvenate um in a system that's been stuck and sympathetic for a while.

And how about the movement and the meditation and what is the right amount of movement for you that is going to um enhance that and not overwhelm your system even more.

Right? It's like this very integrative approach and including the somatic work and that really is going to be the

effective treatment for any kind of trauma. Mhm. Absolutely. Absolutely. And it's it's you know, i my practice has changed so much in the last five years because of that mitochondrial piece. It was like magic.

You know, I can't I don't know if I'll ever get over how exciting this is because we did that, we did the good stuff. We did the the nervous system piece.

We did all the pieces and had all the pieces and it worked pretty well. But to get to that actual full quality of life where your vital and you're alive and you're thriving and you feel the way you want to feel. That's a whole different level.

It's it's one thing not to have symptoms and to be okay and not to have your conditions impact your daily life type of stuff. But it's a whole another level to be a vital, thriving human, able to experience what they want in life.

And that mitochondrial piece really, really change that for myself as a patient and for myself as a physician and and my patients, it's been really life changing.

I agree. I am right there with you. That when I started bringing in the mitochondrial piece, that's really what allowed me to shift um and and go from managing things with everything else to we're at a whole new level of health now, and that's been great.

Yeah. So, where can people find you dr Catherine, if they want more information, want to see more of your work, where can they find you? They can find me at dr Catherine clinton dot com. And I'm also sharing this stuff all the time on social media. So, yes, you are.

I do. I like to talk. I love it. But you can find me dr Catherine clinton on instagram and social media and I'd love drop me a line. Shoot me a question.

I'd love to reach out and spread the word and thank you so much for having me, I just absolutely love what you're doing and I'm honored to be a part of it.

Well thank you and right back at you, I love what you're doing and I love seeing your post because obviously I relate to every single one of them. I'm like, yes, this and this needs to be out there more.

So thank you for what you do as well. Absolutely. And thank you for joining us today. I am your host, Dr AMy, for this bio optimize summit and be sure and purchase the discount while it is still available. Once it is gone, it is gone forever.

And I'd love to just see you inside and be able to connect with you more together. Let's find that next level of health and aliveness.