



Conscious Life presents

# SLEEP SUPER CONFERENCE

## Detoxing for optimum sleep

**Guest: Dr Christine Schaffner**

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### **[00:00:10] Kirsty Cullen**

Welcome to the Sleep Super Conference. My name is Kirsty Cullen and I'm CEO at the Optimum Health Clinic, which is a clinic specializing in fatigue related conditions.

And of course, sleep disturbance is a hallmark feature of fatigue related illness and something we work to support clinically on a regular basis. So I'm delighted to contribute to these discussions during the conference.

Today, I am joined by Dr Christine Schaffner. Christine is a board certified naturopathic doctor who has helped thousands of people recover from complex and chronic health conditions.

She completed her undergraduate studies in pre medicine and psychology at the University of Virginia, followed by a doctorate at Bastyr University. Dr Schaffner is renowned for using a diverse range of healing modalities in order to help her patients reclaim their health. Dr Schaffner, welcome.

### **Dr Christine Schaffner**

Thank you so much for having me. It's always an honor.

### **Kirsty Cullen**

So let's start by exploring your description of sleep as one of the body's most powerful health restoratives. Would you be able to begin by telling us a little bit about why sleep is so important?

### **Dr Christine Schaffner**

Absolutely. So I'm a naturopathic doctor, as you mentioned, and of course, we learn so much about the foundations of health during our education, but they become more and more impactful as we're approaching these modern illnesses of today, which I often refer to as the modern terrain, and why our patients are so sick today.

And I feel that one of the key disruptions to why we're seeing such a rise in chronic illness and mental health issues is this mismatch of our circadian rhythm to what nature intended. And it is due to a number of factors that we'll, I'm sure, dive into many of them today.

But it's this disconnect from the natural rhythm of light because if you're not making a concerted effort to go outdoors, you're in these different forms of lighting throughout the day, and then all the

factors that are affecting our pineal gland and the production of melatonin and our gut microbiome and we'll dive in, of course.

**[00:02:35]**

And when you really learn about sleep and the many facets, we really need sleep. And we know this, right? Humans feel better when they sleep. We are able to approach the challenges of our day. We're able to organize our emotional complexities. When we have a good night's sleep, that can make all the difference when we're going through trying times.

And then when you dive into it, sleep is this profound event that happens every day, every night. And of course, many of our patients struggle with sleep, and that's where we need to really help them establish great sleep foundations so that lays the foundation to heal.

So we'll go into the different phases of sleep and what happens during that time. It's critical for our hormones, our immune system, our body's ability to consolidate and move past traumatic events. It's also a time for us, depending on what your belief system is, where we can really unravel our subconscious and connect to maybe a higher power and bring in insights to help us navigate our life.

And then I think sleep, of course, is so important, and I deal with a lot of neurological illnesses and, of course, with the modern terrain and all the things we're up against, when I learned about the glymphatic system, honestly, which was only discovered maybe, I think, in 2015, and when I learned about it, I'm like, wow, everybody should be screaming about this.

This is the key to unraveling many of these neurological illnesses, because if we can get the Glymphatic system working appropriately, the body knows how to do this. These are all the facets I look at sleep. And again, we can go through them in depth.

We say this and we know this as practitioners but sometimes I think we can lose sight because there's so many things to address when we have a patient in front of us. We either think that they have this handled or we'll get to it. But I'm always trying to navigate myself how to bring sleep to the forefront and really try to give people tools to have healthy, all phases of sleep. So that lays the foundation for the protocol moving forward.

### **Kirsty Cullen**

And I know a statistic that astounded me recently, I was looking at sleep foundation, and they said that insomnia occurs in 75% of adults with depression. So that link appears to be super strong.

### **Dr Christine Schaffner**

I'm so glad you mentioned that because there's this connection that, of course, we'll dive into more of mental health and sleep. And again, we can talk about the different phases of sleep and really how we need, I mean you guys do amazing work about trauma and educating people about trauma, and I think we talk about all these modalities, but we need especially REM sleep in order to heal traumatic events in the brain.

So that's just as much a part of limbic retraining as is the DNRS and the EMDR and the Gupta method and all the modalities you do. So I think we can make those connections in hearing those statistics.

**[00:06:00] Kirsty Cullen**

So, Dr Schaffner, could you start by grounding us in explaining the four stages of sleep?

**Dr Christine Schaffner**

Yeah, absolutely. So this is something I continue to learn myself. And all phases of sleep are not created equal. And when someone has a good night's sleep or a poor night's sleep or is suffering from insomnia, with the added event of sleep trackers, the more and more patients have especially, again, no affiliate.

But that Oura ring that a lot of our patients in the US are putting on at night and you can turn off the WiFi or the bluetooth that's connected when you're sleeping, so then it's just collecting data, and then you can connect it with your device. So a big part of sleep is mitigating your electromagnetic exposure at night.

And so that is giving us insight that we never really had before. And also that tracker, just because we're probably not going to talk about this and I'm not an expert, but the whole oxygenation of people at night, I'm sure you guys might talk about this in your conference, is so important to brain health and to how you have energy throughout the day.

And sleep studies can be very, in America you have to go traditionally to another center and you're of course in an environment you'll never be comfortable sleeping in and they're trying to track your sleep. So this gives us a whole other tool as a screen to see people how their heart rate variability is, how their oxygen saturation now is.

And then what is the quality of their sleep? So I've been talking a lot about the glymphatic system for a long time but I left it like oh, sleep, melatonin. But we have to really go into the phases of sleep and understand that we really want good quality deep sleep and REM sleep.

So sleep is divided between non-REM sleep and REM sleep. So a lot of us have heard of REM sleep because we associate rapid eye movement and dreaming with this phase. Dreaming actually can occur in all phases of sleep but it's the most profound and pronounced in REM sleep.

So in the non REM sleep there's N1, which is kind of light sleep. Then N2, where the brain is starting to go into deeper brain waves of sleep. And then there's something called deep sleep or delta wave sleep and we'll touch on that more but that's the slower waves that happen at night. And this is a big time for the brain to do a lot of the physiological functions of repair. Rejuvenation, balancing hormones and so forth.

And then there's REM sleep. And REM sleep is a time of high activity and metabolic activity in the brain. This is when the brain is often most actively dreaming. And this is a time when the glymphatic system is actually really highly active because of the increased metabolic activity of the brain.

And the goal is we go through these different phases of sleep and during an eight hour period we would go through and get four cycles to five cycles of REM and these happen about every 90 to 120 minutes. And it's kind of like N1, N2, N3, REM. N2, N3, REM. So there's this dance between the cycles.

And so a healthy night's sleep is getting those 8 hours of really being able to go in and out of those phases of the REM and deep sleep is what we're usually looking at on the Oura ring just to really get a sense of how the brain can get into that level.

**[00:09:48]**

Because they're those light sleepers or people who have insomnia and, God bless them, they have to take sleep drugs, which even some of my patients have to do sometimes, and we just bless them and understand that they're for a time and a place.

But they don't get that quality. They kind of just get the brain unconscious and in the state of sleep, but they don't always get that good quality sleep. So again, they serve a purpose. But obviously there's long term effects that we find from these sleep medications because the brain is not truly healing at bedtime.

### **Kirsty Cullen**

And is it true that we are getting less sleep now than we were, say, back in the 1940s? Has there been a shift there?

### **Dr Christine Schaffner**

Yeah, I think when I really took a deep dive into learning about sleep, there is this sleep debt that Americans have really accumulated since this time. And you can quickly Google and you can see that trend. And we were chatting right before we got on and that I feel like there's more awareness, thank goodness.

But it used to be like a badge of honor, like, oh, I don't need sleep. I can just function on 3 to 4 hours of sleep. I can get things done. And there are those people that are just more enlightened, like the enlightened yogis who just meditate all night and maybe they're beyond the phases of sleep. I don't know.

But for the average person who's just human and not superhuman, that we're functioning like sleep, modern culture in the modern terrain does not allow most humans, unless you make a very concerted effort, to prioritize sleep. So we are a culture running on a sleep deficit.

### **Kirsty Cullen**

Frightening. And so what are some of the effects of sleep deprivation and sleep debt that we might see walk through the clinic doors?

### **Dr Christine Schaffner**

Yeah, absolutely. You mentioned the mental health effect. And I think that's something that we definitely want to touch on because mental health is on the rise. I mean, it's been part of the chronic illness community for a long time. Depression, anxiety, looking at mental health through the lens of all the things.

We look at toxicants, unprocessed trauma, infections. But sleep is a big factor. Brain fog, of course, low energy, even vision issues because vision is a brain function. Memory issues. There's a rise of cognitive decline in, I think, the world, but definitely in America. Just inflammation, hormonal dysregulation, also blood sugar.

**[00:12:39]**

Many Americans, and I'm sure in Europe too, are more and more insulin resistant and more and more prediabetic and just as much as focusing on diet and exercise, that sleep is part of insulin management. So even, again, weight gain, aging and then also just the brain shrinking or not being restored to its full capacity in healing and leading to neurodegeneration. I don't think anyone wants any of that. Sleep is a really big issue.

### **Kirsty Cullen**

So it really stretches beyond the short term implications, doesn't it, of brain fog and what have you. We're talking about long term metabolic change here, which is fundamental to health and is potentially improved and moderated by good sleep hygiene and sleep patterns.

So if we take that deep sleep stage, what are some of the functionally important things that take place during that as a stage in itself?

### **Dr Christine Schaffner**

Yeah, great question. And so there's more and more books coming up on how to really dive deep on what, I didn't mean to say deep, but deep on deep sleep. But it is a time really where what we call memory consolidation. We go through all these events in a day and the brain has a way of organizing and consolidating those memories that we generate during our day.

It's obviously going to be a regenerative time for the brain. I mentioned already that this is a time of slowness in the brain, these slow delta waves. If you Google, you'll see the different types of alpha, beta, theta, delta. So this is the kind of slowed activity where the brain can slow down and repair.

I already mentioned the link between blood sugar and blood sugar regulation. During deep sleep, I recall the brain increases its ability to metabolize glucose efficiently and that can really help with short and long term memory overall.

There's a type of Alzheimer's, if you read the books of Dr Dale Bredesen and he types different types of cognitive decline and one of them is related to insulin and blood sugar. So it's a very important time for our brains to repair and to allow glucose to metabolize efficiently.

This is actually a time where the pituitary secretes important hormones like growth hormone. A lot of peptides out there are trying to replace growth hormone and if you've had a head injury, you probably have low growth hormone. And your growth hormone is some kind of, you want the right amount, you don't want too much or too little growth hormone.

And it's this fountain of youth type of hormone and we're always trying to stimulate that sense of sleep is a time when the pituitary actually secretes growth hormone. And then this is also a time for the autonomic nervous system to basically increase the parasympathetic state.

So we know, from much of your work in your clinic and our clinic as well, it's trying to get people engaged in a parasympathetic state. And so it's a time when we really can heal. And we see the benefit during the day. We have better energy, we can have better cellular function, we have better function to promote growth and repair in the body.

**[00:16:34]**

And of course, with the advent of the whole pandemic issue and I mean, we've been focusing obviously on the immune system for quite some time, but everyone has been in the last three years. Sleep is critical for our immune system and I wish that was like a public service announcement during some time, go to sleep!

Because this is a really important time for our immune system. Deep sleep. That's just like an overview. Of course, if you're curious or interested in learning more about deep sleep, there are emerging books. I love the Matthew Walker book *Why We Sleep*. That's a really good survey into consolidating research and going into sleep and understanding deep sleep more.

### **Kirsty Cullen**

Yeah, it's an excellent resource. And so if we transition from that particular stage then and come into REM sleep now, what distinguishes now REM sleep and its functional capacity.

### **Dr Christine Schaffner**

Yeah. So we mentioned this delta or deep sleep is a slow activity, right? It's this time where the brain is at work, but it's repairing. It's in a parasympathetic state.

REM is actually called rapid eye movement. So your eyes are closed, but there's this rapid eye movement that's happening while your eyes are closed. And your muscles are actually paralyzed because we don't want to enact our dreams if you are able to dream during this time.

And this is a time of high activity so the heart rate is increasing, blood pressure is increasing, breathing is becoming faster and more irregular. REM is also a time where there's an increase in cerebral blood volume. So that's increasing this whole fluid influx into the brain which is really the key to the Glymphatic system which we'll touch on.

So this is when I believe that the Glymphatic system is most active. And this is why we really want to not only get people sleeping, but we want to make sure they get into this REM sleep four to five times a night. And this is actually really interesting. I learned this from Dr Matthew Walker in his book and this is the only time, interestingly enough, we mentioned this in our pre conversation, that noradrenaline is completely shut off within the brain.

So when you're entering into this dreaming type of sleep. So this is the only time in this 24 hour circadian rhythm period that we're free from this really stress inducing, anxiety producing hormone. We need noradrenaline, of course, to function. But we all, I think, can see there's excessive noradrenaline.

Adrenaline is the body hormone, also known as cortisol. And then noradrenaline is in the brain. So it's really a critical time, especially if you're in chronic stress. So that's what's going on. I'm happy to talk about the benefits, but that paints the picture of what's happening in the brain during REM sleep.

### **Kirsty Cullen**

What is it that's so important about this REM sleep stage that helps us with processing trauma?

**[00:19:56] Dr Christine Schaffner**

Yeah, so this, again, what I have learned, I've interviewed a couple of experts on my podcast as well, that this is a time for actually emotional recalibration, creativity, problem solving. It's also time for integration of the brain from past experiences to create networks of how do we actually understand these and what's the narrative that the brain makes of these experiences?

So it really consolidates our emotions and our experiences. I mentioned this whole idea of basically your brain is devoid of noradrenaline during this time.

On the flip side, if you have an excessive amount of noradrenaline in your brain because of PTSD, which is a very unfortunate but common trigger for poor health, it's not fair that people who have been traumatized suffer from chronic health conditions, but getting into that state is like between deep sleep and REM sleep, you need almost GABA to help decrease the noradrenaline. To make that transition.

And if you're in this heightened state of stress, you cannot make that leap. So you're getting less, I mean it's not fallen or nothing ever in physiology or in the brain, but you're getting less quality and less amounts of REM sleep. And how I have understood it is that REM is also time for that limbic part of the brain which houses the hippocampus and the amygdala.

When we have trauma, we understand we have to rewire this limbic part of the response that the brain is stuck in. And so this is a time where the brain can really heal and repair and create different experiences of the traumatic processing, is the word I'm trying to get out and convey, that actually REM sleep offers our brain. Which I thought, when I learned this, I was like, what? That happens naturally while we sleep, if we just sleep well? That is what I know today of that experience.

**Kirsty Cullen**

Amazing. And so apart from the trauma side of things, what else might we see clinically in somebody who's lacking a good volume of sort of REM sleep?

**Dr Christine Schaffner**

Yeah, well, on the flip side you have improved memory. So again, the brain fog, the cognitive decline, your mood, right? So your mood is definitely regulated. So if you're not getting good quality sleep, when we have a poor night sleep, we're either way more emotional, we cry more easily or we're not able to handle the stress or more irritable or aggressive or what have you.

Also blood sugar. So that definitely I did mention. But Leptin is affected by REM sleep in a positive way. And Leptin is, you know we have insulin resistance, we can also have Leptin resistance. And then we can just perpetuate, right, the unresolved trauma that we are plagued by if we don't get into this phase of sleep.

**Kirsty Cullen**

And are there specific elements or specific environmental elements that negatively impact on REM sleep that we can target?

**[00:23:52] Dr Christine Schaffner**

Yeah, that's a great question. So there's a lot of lifestyle things like caffeine, alcohol, marijuana use, opioid, pain medications, other medications like benzos, which there's an epidemic in the US with the use of those. Also antidepressant medications. So I know antidepressant medications are getting more and more reevaluated.

Of course there can be short term strategies for these drugs. But are they really the best long term strategies for an individual? Of course, a rich EMF environment is going to affect sleep as well. So if you're in a hotel or if you're just across from the smart meter or have WiFi in every room, that's going to definitely impact REM sleep.

**Kirsty Cullen**

What I found really fascinating in relation to REM sleep and dreaming was that it's postulated in some studies that children with autism are suggested to dream less. And I thought that that was a really interesting research question around what that might suggest.

**Dr Christine Schaffner**

Yeah, I can extrapolate two thoughts around that. One is there is just anecdotally, I know you know this probably, from the nutritional aspect of B6 deficiency is often linked with low amounts of dreaming and REM sleep. And so you can think of all the biochemical pathways of why, also with Pyroluria and also neurotransmitter inhibitions and so forth.

I think that's an aspect that probably is consistent within the patient population with children on the autism spectrum. Then the other piece is I work closely with Dr. Marco Ruggiero, he's a dear friend and we've collaborated on several products together, and he taught me about really as I was learning about the glymphatic system, he was really evaluating and trying to find tools on how to improve a glymphatic drainage.

And he found in children with autism, they would look at the brains and saw that they had more of a pooling of fluid in the brain and also a lot of cervical lymph node congestion. And so what he thought was they're not getting a proper glymphatic drainage. So again, you would just go through all the impacts of REM sleeping when this is a time where the glymphatic system is most active.

You can think, okay, one contributing factor to the poor dreaming is that these children are not getting REM sleep as often as they should, and probably for many reasons of not only the B six deficiency, but the environmental aspects. Children with autism tend to be very sensitive to the environment, especially EMF. So I think that impacts us way more than we realize.

**Kirsty Cullen**

Fascinating link. We couldn't talk about sleep without touching on melatonin, so we will. So are you happy to just explain why melatonin is so universally important and the amount of roles that it plays in the body not only as a sleep hormone, but beyond?



## **[00:27:28] Dr Christine Schaffner**

Yeah, absolutely. So melatonin, the more we all learn about melatonin, I have this funny thing I say to my patients like, all roads lead back to melatonin. It has so many physiological effects on our body. So we can talk more about the pineal gland, but the pineal gland produces melatonin. Our gut microbiome produces melatonin, our mitochondria produce melatonin.

Melatonin is known for its circadian rhythm effects, so of course it's going to help to induce sleep and to start the brain into getting into a sleep state so it can go through those phases of sleep. And it has this also important quality that I believe that it assists the glymphatic system in clearing toxicants and pathogens from the brain at night while we're having increased glymphatic activity.

So it's highly neuroprotective. It also is a huge potent antioxidant and that's why the mitochondria makes it so that it can quell all those reactive oxygen species from the electron transport chain and so forth.

Our gut microbiome, again, our gut microbes do so much, and so they produce serotonin which leads into melatonin. And then many of our gut microbes are affected and are not able to make higher serotonin amounts because of glyphosate and so forth.

So melatonin can be very foundational in our protocols. It's actually also very healing for the neurological system. So we use it a lot to push things out of the brain that are creating neurodegeneration and poor neural cellular communication. We often use higher amounts and in the form of liposomal or suppository or transdermal.

You definitely want to use the higher amounts with a scale provider because of contraindications. And also what can be set forth when you're starting to unravel the body and to push and challenge the system by giving higher amounts of melatonin.

And I'll just kind of preempt a question that probably a lot of people are having. Why when we take melatonin, especially in higher doses, can we impair our body's ability to make melatonin? I just listed three aspects of where the melatonin is made in the body and I'm sure we'll discover more.

And we live in a very melatonin deficient time. We're chronically bombarded by stress, multifaceted types of environmental stress, chronic immune stress, even how trauma can affect all of these pathways in the body. So I don't feel that melatonin is harmful or will affect the negative feedback loop in the body.

I know Dr John Lieurance a book called the Melatonin Miracle Book or something like that. You can find it on his site. And he goes also through the confidence of that it doesn't disrupt the production and the capacity of our pineal gland or our mitochondria or microbiome.

And I talked to other colleagues and other colleagues who are quite conservative or very methodical and they too share my sentiment and that the benefits far outweigh the theoretical risks. And like anything as a clinician, there's a time to put the gas on certain protocols and a time to put on the brakes, and there's a pulsing that can happen.

But I honestly have been shocked and pleasantly surprised at how well tolerated melatonin and the higher doses are for my patients.

### **[00:31:26] Kirsty Cullen**

So it seems like a nice segue, Dr Schaffner, to move to the topic of detoxification, which I know is a particular specialist area of yours. Could we just start by talking generally about why brain detoxification is so important and pull together some of the references that you've made so far?

### **Dr Christine Schaffner**

Yeah, absolutely. So when we think about the diseases of modern time, again, I very much believe our knowledge of the body is constantly evolving, but I always like to say what we know now, right, and that will evolve. That, of course, the brain is so important in our autonomic functions and our physiological functions.

We're more than our brain but our brain, of course, is so critical to keeping us in optimal health. And so when we think about having a healthy body, detoxification used to be, I feel like, probably a seasonal event, some type of rhythm we would have with the seasons.

But as we get into modern times I feel like detoxification is a lifestyle and there is drainage versus detoxification and drainage leads into detoxification. There's a time to push and a time to hold back, of course. But the big overview of this modality is that the body is complicated. But also there are, as we just talked about, sleep.

The things that walk in our office as far as all the conditions or all the symptoms that walk in, again, they're complex, they are multifactorial, they're affecting multi systems. But if we get the body working better and its ability to clear waste, we often restore function in many mental levels that are far beyond a pill.

And so that's why naturopathic medicine and bioregulatory medicine and functional medicine concentrate on this so strongly. Because it's really our job as facilitators for helping somebody achieve health on all the levels that we want is what do we need to get out of the way so the body can do the work it innately knows how to do?

Detoxification is how to remove environmental toxicants of all kinds. And it's always in the backdrop for me with drainage which is supporting the organs of elimination. So liver and gallbladder, colon, skin, lungs, also kidney function and of course, the lymphatic system which is the through line within the fascial network of really not only communication but clearing toxicity waste and supporting the immune system.

And that is of course, the brain is in an isolation, right, so everything down here downstream, if you don't see me, just from the neck down has to be working and flowing well for the brain to appropriately detoxify.

### **Kirsty Cullen**

And for those that are unclear, could you just define what the glymphatic system is by comparison and why that is so important when it comes to sleep specifically?

Yeah, absolutely. So the glymphatic system is the glial dependent glymphatic system. So the astrocytes are a form of glial cells and they really are the key to this function in the brain. And so astrocytes are these star-like basically glial cells that have these starlight expiry projections that make this network along the brain and along the neurons to support the neuronal health.

**[00:35:34]**

And these astrocytes have these on the bottom of their, what we call, endfeet have these Aquaporin channels that regulate the flow of the lymph and cerebral spinal fluid to bathe the neurons with the nutrition and oxygen, rather, and remove waste and remove not only metabolic waste, but all that build up of aluminum and mercury and different viruses. Lyme and biotoxins, parasitic infections and different inflammatory cytokines that constantly get perpetuated in states of chronic inflammation.

So this system helps to remove that at bedtime. And again, it happens most actively when we sleep, especially during deep and REM sleep. And it's really a key to brain detoxification. And that lymphatic drainage has to drain somewhere. It's reliant on the blood flow into the brain. The lymphatic channels flow alongside the arteries, and they flow out of the brain by the venous system or the veins.

And so we have to have good inflow and good outflow in the brain for the system to work. And then the lymph system is very much a hydraulic system. So if there's a stuck area on one side of the body, it can affect distant tissues. And so we just always want to make sure that there's a place for the lymph to drain in the neck so then it can get recycled via the thoracic duct and the right lymphatic duct.

That also the abdominal lymph is draining because that's really important for not only the head but the neck, but also the extremities to properly drain. So we're looking at that whole body drainage in order to detoxify from environmental toxicants that really disrupt our health.

### **Kirsty Cullen**

And of course, the lymphatic system also carries helpful bacteria to the brain, fire immune cells, doesn't it? So it's not just about taking the trash out, as it were. It's about bringing some of the good stuff in.

### **Dr Christine Schaffner**

Yeah, it's a great point. We have a whole microbiome in our brain. Dr Ruggiero taught me that. And there's a ton of bi directional communication. We always think of these messages going from the brain down, but a lot of the time, the brain is collecting messages and microbes and things from the body, especially the vagus nerve.

We know that the vagus nerve actually has more communication going from body to brain than brain to body through the highway system and the vagus nerves. Yes, it's serving and getting replenished and repaired and also getting messages from the body about what's going on.

### **Kirsty Cullen**

So I know, Dr Schaffner, you've spoken previously about the pineal gland, which always fascinates me. So could you explain a little about its role and about why actually detoxification is particularly important for the pineal gland?

## **[00:39:07] Dr Christine Schaffner**

Yeah, absolutely. So pineal comes from pine cones. So it's a small pinecone shaped gland that sits actually right in the center of the brain. And I follow a lot of what Dr Joe Dispenza is doing, not only personally, but I share that with my patients. And we call the pineal gland a neuroendocrine transducer.

So it transforms light energy from our environment that the eyes pick up through the retina and that obviously goes to the brain via the optic nerve and basically it's called the Suprachiasmatic nucleus. I mean, there's a lot of brain parts to think about but just very simplistically, right, it's taking light information and basically transducing it into chemical information in the brain.

So that's why it helps us regulate our circadian rhythm so strongly. It needs that differential in the circadian rhythm to look at different types of light and different types of wavelengths of light to know if it's awake time, sleep time and so forth.

There's a lot of other aspects to the pineal gland. There are these small crystals in the pineal gland that can also pick up, again, this is just a bit esoteric for now and I'll come back for those who don't want to completely go there. But Dr Dispenza talks about there's this idea, over time, the pineal gland is the third eye.

What does that mean? It's a seat of our intuition, our ability to have a sense of the information we need to navigate life. And there's this thought that many people ascribe to and experience that we can pick up that information from something called a unified field. So the unified field is this sea of information and energy that surrounds us.

Space is not an empty vacuum but a highly charged, highly interactive space, or the quantum vacuum it's also called. And the quantum field, Nassim Hamein, Dr Dispenza, if you want to learn more, are far more intelligent in how to describe it, but for me it's this ability to potentially access unlimited potential and information.

So the idea is that the pineal gland is actually a way to connect to that field of information through the work of meditation and sleep and these things that we can do to support great pineal gland health. So that's why a lot of yogic breaths and the breath that Dr Dispenza teaches really stimulates the pineal gland to get into these states where you can be in this meditative contemplative time to potentially access different information.

So that is very fascinating to me. And again, another layer to go when we're looking at life. But the pineal gland is also highly affected because of its position and blood flow system to essentially toxins. So it's bombarded, like it gets the brunt of fluoride. The fluoride does calcify the pineal gland. That's not just an urban myth. It is true.

We have a local dentist who does the cone beam CT scans for our patients that of course we look at dental stuff and the pineal gland will be noted on, just a regular radiologist who's reading the interpretation saying that the pineal gland is calcified. So this is something that can be documented, it can be healed as well. So don't worry.

But you want to make sure that you're removing fluoride from the water. Also glyphosate, through the work of Dr Seneff, we know that it transports aluminum to the pineal gland through mechanisms of inquiries to intestinal permeability and so forth.

**[00:43:45]**

Mercury can bioaccumulate in the pineal gland. EMF can affect the pineal gland. There's also synergistic compounds and aluminum fluoride, aluminum glyphosate and so forth. It gets bombarded. So it's a good focal point of our focus when we're trying to heal the brain and to, of course, heal insomnia.

And I think that's probably why we have an epidemic of insomnia. It's like the chicken or the egg. But I feel like the epidemic lies from, I mean, any one of these things sounds intense. So it's like any one of these things which is happening in unfortunately, the synergistic fashion is disrupting our production of melatonin and potentially our ability to connect.

And so melatonin actually is also the antidote. Isn't that brilliant? Melatonin helps to clear the pineal gland from these toxins. Of course, we would educate people and try to limit exposure as much as possible and reduce or mitigate or harmonize EMF exposure as much as possible.

So, yes, I feel that the pineal gland needs very much a lot of attention these days. And I think, of course, your summit is going to be I'm sure many people are going to be talking about it and educating us, but it's like the new frontier of how to address brain health. We need to really look at the pineal gland as the source of healing for the diseases that plague the brain.

### **Kirsty Cullen**

Fascinating stuff. It really is. Let's move attention to GABA, neurotransmitter. It has a huge amount of roles to play in the body from learning long term memory, but it has a really important role to play in sleep regulation. I wonder if you could explain a little about what it is for those who maybe don't know and the role that it has in sleep.

### **Dr Christine Schaffner**

Absolutely. So GABA is pretty well known in our world. GABA is known as an inhibitory neurotransmitter to help with anxiety and stress. And it's really impactful for sleep. And also, the pineal gland actually plays a role in GABA production. I didn't realize that until I studied this.

But by inhibiting different parts of, different activities in the brain, that's why people who have low GABA enjoy alcohol, because GABA just think of it if you have a drink, like everything is slowed down. Your inhibitory pathways are sometimes, for some people, compromised. And so it just helps with slowing things down, inhibiting those stressful parts of the brain.

It also helps with the breakdown of serotonin to increase melatonin. That's something I learned. So that really helps with sleep. It also shows that, just another connection that I learned in the statistics, GABA levels are reduced by 30% in adults with the people with chronic insomnia.

And then again, low GABA is going to be associated with insomnia, anxiety, chronic stress, depression, difficulty concentrating, even headaches. And it's just a really important inhibitory, stress and reduction neurotransmitter and is really important for sleep because of its interaction with serotonin, which helps to create melatonin.

And then I mentioned before that it helps to enter, like a GABA when it's regulated by the pineal gland and the pineal sites in the pineal gland, it helps to modulate that entry from deep sleep into REM sleep, is my understanding.

**[00:48:05] Kirsty Cullen**

And are you able to explain some of the transportation issues, particularly for GABA, across the blood brain barrier? Because it's not just a simple point of delivery, is it?

**Dr Christine Schaffner**

Yeah, many people are like, oh, we need GABA, but how do we get it? It's like medicine, we can have all the right ideas, but it's getting to the right areas of the body to have an effect. And so we know that if we just take straight GABA, then it's very hard to absorb and to deliver, for the GABA that's ingested to get it into the brain. It's just poorly bioavailable.

There's been some biohacks like Liposomal GABA is definitely a biohack. Pharmagaba is definitely a biohack to make a more absorbable GABA in order to have its chance to get delivered into the brain. But also working with the enteric nervous system and the microbiome and all the effects that it has, like indirect effects as well.

The drug Gabapentin, why it works so well is they have a patent on how to get GABA into the, how to get it absorbed in the gut. Of course there are side effects to it, but that's why that works.

And then there's a transdermal approach that Dr Ruggiero, he created a product that we collaborate on and that he educated me on when we think about how the body is connected. So I love talking about the fascia and the living matrix and this idea that we are connected from our skin to our nucleus through this fascial network of interconnection.

And there's many different layers to this. But just for a moment, think about the fascia has other names, connected tissue, interstitial tissue, and so forth. It is full of collagen, but also these proteoglycans. And proteoglycans are proteins with these glycosaminoglycans.

And one glycosaminoglycan is called chondroitin sulfate. And chondroitin sulfate is part of the feathery like projections on the protein cores and it helps to move and transport throughout the fascial network. And so we use chondroitin sulfate with a form of GABA to basically absorb along the skin and then that is delivered kind of like a liposomal technology.

It's delivered through the fascial system because of its application near the brain, across the blood brain barrier and it has an effect very rapidly to improve all phases of sleep we found, not just that deep to REM, but also sleep latency. So that's what we have learned.

And again, it's Dr Marco Ruggiero's brilliance to figure this out. And then he showed me a lot of research around the interstitium and chondroitin sulfate and how this is, I believe, a whole untapped tool for our time, using the skin to affect the brain.

**Kirsty Cullen**

Fascinating. And what are some of the other nutrient deficiencies that you might expect to see with people with sleep disturbance or insomnia?

**[00:51:44] Dr Christine Schaffner**

So we talked about melatonin. We talked about GABA. I touched on B6. There's a lot of different, every neurotransmitter, when we just have our lens on biochemistry, every neurotransmitter has its ability to be produced as a stream of what we call cofactors. And cofactors help turn on enzymes to produce different neurotransmitters.

So that's going to be the world of B vitamins, the world of biotin, the world of NAD, the world of looking at methylation blocks. So that's one whole rabbit hole that I hope you cover on the summit and I'm sure you'll give resources on.

And then when we think about other nutritional deficiencies and ways to support body, serotonin, of course, is important because of its downstream production to melatonin. Maybe this is a good time, we were chatting right before the call about psychobiotics. So that's the use of the microbiome to support sleep.

So the more we know about the microbiome, our keys to our health lie in really learning about the microbial diversity that we are humans living in a sea of microbes within us. The psychobiotics I learned from Kiran Krishnan, who has the product Megaspore and that company in the US, he found different strains that affect especially GABA production.

And again, with the importance of GABA in mental health and also sleep, he found ways to enhance the synthesis through the gut microbiome and then the body knows best on how to transport what it synthesizes and to help balance the brain.

So there's, I'm sure, many more things. I look a lot about how to reduce stressors and interference fields and environmental stress and also there's a whole conversation about how different toxicants affect sleep and pathogens can affect sleep and all sorts of things. But again, all roads lead to melatonin is a way to address a lot of those things.

**Kirsty Cullen**

Yeah, that's the overall message.

**Dr Christine Schaffner**

That can be my clip.

**Kirsty Cullen**

And so lifestyle tools. There are many lifestyle tools that we've already spoken about here in terms of EMF exposure and light exposure. What about body temperature regulation? How does that interplay?

**Dr Christine Schaffner**

Yeah, I met the wonderful people at ChiliPad, which is just an American company and I'm sure there's going to be many more, but it has technology that basically has this mattress that's very thin on the bed that pumps water and you can regulate the temperature.

**[00:54:57]**

And that alone, having a cooler body temperature at night, impacts getting into deep and REM sleep for many people, especially women who are going through transitional phases with their hormones and they struggle with hot flashes, that keeps them up at night. Of course, not only the disturbance of a hot flash, but the heat in the body.

That excessive heat, very destructive to our sleep. Many patients with persistent lyme and chronic lyme have an infection called the BCR, and that often manifests as night sweats. So that can also disrupt sleep. I feel like if we get our core body temperature down, I think it's about one to two degrees in our core body temperature, it really enhances our sleep quality.

### **Kirsty Cullen**

Obviously, we've spoken a lot about detoxification and supporting detoxification. So are you a fan of taking a binder at night to aid and support that process?

### **Dr Christine Schaffner**

Yeah, there's a great ritual that we can do at night to enhance sleep and support detoxification. So I mentioned the hormone GABA. I mentioned Melatonin. We also open the Lymphatic chain at night in the neck so the brain has somewhere to go.

And then a binder. So we often use different binders. There's different Zeolites and Chlorellas and Fulvic Acids. I love BioPure ZeoBind. I love all the cell core binders, especially HMT. Those are great strategies for people to use at night to capture what's being mobilized.

For some patients, when we're going through a pretty intense detoxification protocol, we will use the chelation like DMSA, so they might be mobilizing metal from their brain. When we're using the higher doses of Melatonin, we'll use DMSA, and that can help with the grogginess that happens in the morning. It's not always melatonin. And the effects of the Melatonin hangover, it can sometimes be that mobilization of toxicity that's not addressed enough, that people are feeling groggy from in the morning.

### **Kirsty Cullen**

Dr Schaffner, thank you for sharing your expertise with us. It has been truly fascinating. If people would like to find out more about your work, specifically, where can we direct them to?

### **Dr Christine Schaffner**

Oh, thank you so much. I have a website. It's drchristineschaffner.com. I have a podcast. Alex has been on that podcast, and I have a number of guests who just inspire me, and I learn from.

And then I have a website also for my clinic. I have a clinic in Seattle. We do a lot of telemedicine all over as well, and that's immanencehealth.com.



**[00:58:05] Kirsty Cullen**

Fantastic. Wonderful. And I hope everyone has enjoyed listening today, and I am sure we will meet again soon.

**Dr Christine Schaffner**

Thank you so much for having me.