



## EVERYDAY IMMUNE RESILIENCE

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Hi everyone, thank you for joining me today. Today I'm going to be going over how sleep affects immune resilience, and then I'll be able to take some questions from everyone.

So the key concept with today is really to discuss a few things: Mechanisms of how sleep affects immune resilience, which is kind of okay, and then talk about some clinical things that really may have an impact on why you may not be able to sleep.

So we all know sleep's important, but some times we all have a hard time falling asleep, and some people have chronic sleep issues. But for the most part, when you're looking at the immune system and sleep, they play a very intimate role with each other. It's really difficult to maintain your immunity, whether you're trying to fight infection or protect your immune system from getting an infection — you definitely have to have plenty of sleep.

So when we say sleep, there's a few things you have to understand about what that means, and how it impacts your immune system. One of the key things about sleep is circadian rhythm. So the circadian rhythm part of it is where a lot of people go wrong, especially about how many hours of sleep you get.

One of the things that you really have to do to really improve your immune function looking at sleep is having a proper time when you typically fall asleep and wake up. If that circadian rhythm is matched, then that has a huge impact on your immune system. If your circadian rhythm keeps changing every day of the week, and one night you go to bed at 10:00, the next night you go to bed at 2:00, the next night you go to bed at 10:30, you don't really have that established circadian rhythm. That can have an impact on the immune system. So one of the key things is really associated with getting proper sleep and a normal circadian rhythm.

The second part of having healthy sleep to support your immune system isn't just the circadian rhythm, the timing of your sleep being the same throughout the week...

Hi everyone if you're joining, I can see everyone. Thank you for signing up here.

So the second part of sleep, by the way, is how much REM sleep and how many cycles of REM sleep you get. So when you look at sleep, sleep has five stages. Once you go through all of the different five stages, the last stage is REM sleep. After about 90 minutes of sleep you finally get into the first stage of REM sleep. REM sleep lasts anywhere between 10 minutes to 20 minutes, and then while you're in the REM sleep aspect of it, that's when you're really having the best impact on your immune system.

Now, one of the things that is a dead giveaway that you're getting proper REM sleep is you're waking up remembering your dreams. And when you wake up and remember your dreams, all

that means is that you woke up in REM sleep. So some people will say, "I haven't remembered my dreams in 10 years." Other people will start to sleep well again, and say, "I can remember my dreams again."

One of the key factors is that you're getting deep, restful sleep to get into REM sleep, and then you're waking up in REM sleep, occasionally here and there. That's a really good sign that you're getting sleep.

So when you take a look at the topic today of how sleep can impact immune resilience, you really want to first of all ask the question to yourself, are you getting proper sleep? And what proper sleep means is, you're having a normal circadian rhythm, and going to bed at the same time and waking up regularly, that's the best thing to support your immune system.

And secondly, when you're looking at sleep, you want to make sure that you're getting good... You actually get into REM sleep. And the best clue that you have that you get into REM sleep is you're still waking up every few days or so really remembering vivid dreams — that means you're waking up and having the REM phase of sleep. And that should happen here and there as you have deep REM sleep. And then the third thing is, you should have a duration throughout the night.

So what do we see happen in a clinical setting? We see patients who wake up in the middle of the night, we see patients who can't get deep, restful sleep, we see patients who wake up totally unrested. Those are all clues that their immune system is dysfunctioning.

So the key things is, when you're looking at sleep, those are the key factors. Now, I can tell you from clinical practice, there's some very common reasons why people cannot get proper sleep.

Number one on the list would be hypoglycemia, some people just forget to eat, or don't eat, and their blood sugar levels spike down, or they're eating too much sugars — sugars throughout the day, getting insulin surges all throughout the day. And then when that's occurring, one of the things that happens is you burn... You use up what's called glycogen, your reserves of glucose, and when you are missing meals you'll burn up that collection before you go to bed.

The average person that has a normal, healthy blood sugar response and proper sleep is basically going to sleep for the night with no problems. But if you're hypoglycemic and your blood sugar levels drop throughout the day, then one of the things that'll happen is you just won't have enough of the stored glucose, glycogen reserve when they go to bed.

So then you'll use that up maybe three or four hours after sleep, but your brain will still need glucose when you're trying to sleep. And since you don't have this glycogen reserve, your body will pump out adrenaline and wake you up. So if you get shaky, light-headed, irritable throughout the day, and then you wake up in the middle of the night, sometimes you wake up again, your heart rate's going up, that's a good sign that your blood sugar is an issue.

Another reason why people have a hard time getting really good, restful sleep is they have frequent urination. One of the major causes for frequent urination is just diet really high in salt. So if you get a lot of sodium intake in, and you have a lot of salt, your body has to eliminate your sodium concentration by causing frequent urination.

Some people don't even realize how much salt they're eating throughout the day, or they could be significantly potassium-deficient because they're not eating enough vegetables. So for some people, they maybe want to just cut off on the salt, take some supplemental potassium throughout the day and see if that can help them sleep through the night. That's another clue, especially if you're not getting enough water and feel dehydrated throughout the day. Those are a reason why you may not be able to sleep through the night.

Another common reason where people can't sleep through the night, is they have very weak pelvic floor muscles. This happens to men and women, but more commonly in females, especially as they get older, or they've had children. One of the clues to you that your pelvic floor muscles may be weak and not allowing you to sleep properly, is that you may have some leakage if you sneeze, or you may pass wind if you bend over. Those are all clues that your pelvic floor muscles may be very weak. There's urgency to go to the bathroom maybe, not making it to the bathroom, those are all pelvic floor weakness issues. You can do pelvic floor exercises, and in a couple weeks that should be fixed. There are lots of videos on YouTube if you look up, "Pelvic floor strengthening."

And then the next key thing that you really want to understand as a major concept, some people have something called over-active bladder, and over-active bladder means that some people have maybe more than eight to 10 episodes of urination throughout the day. So if that's happening, that is really more of a complex metabolic-endocrine issue, there's been some studies on beta-sitosterol that's been able to help. But those are some things to think about. So those are the most common reasons, obviously prostate for men is another one, prostate hypertrophy; things like beta-sitosterol, supplemental beta-sitosterol is probably the best one to really help with those symptoms.

So just to get things started, I just wanted to give you some background on sleep and immune resilience. So I can take some questions here, about... People have posted here. Let me see, I've got a question here, "**What foods would you recommend avoiding with a positive result to yeast on Cyrex Array 4?**" So if you Google just high-yeast foods, or cooking with yeast products, you're going to see a lot of lists that are on there. But basically it's very starchy foods, or really the most common foods you really want to avoid when you're having some yeast issues. I think [he's having tech issues] get into here, we'll try to find some questions that are coming up. But that would be one thing to consider.

As I look for the questions, I also want to say, a lot of people ask about, **should you take melatonin, should you take supplements to help you with your sleep?** And the question is, I think if you're really trying to sleep, when you talk about melatonin, melatonin has the

potential to really throw off your circadian rhythms. So you really want to be careful with using melatonin.

When you're looking at the least disruptive way to support your sleep, magnesium has really been one of the best ways for most people — magnesium-potassium right before bedtime. It really helps people get some good, restful sleep. Another thing that helps people that have sleep issues is really associated with just, some people need some white noise. There's some white noise machines you can get at Amazon. The best ones are the ones that actually have a fan in them for people, not the ones that have forest sounds and changes in sound, those aren't ones that you want to get. You want to get the consistent white noise sound, there are apps out there that can also do that.

So let's just get some questions here. We had a question from P.N., "**Any ideas about why someone awakens consistently around 2:30 AM?**" Well again, the most common cause for someone to wake up around 2:00, the same time of the day is they have a normal circadian rhythm, they go to bed at the same time, but that's when the blood sugar levels drop. So if I saw someone that woke up at 2:30 AM, that's a common time for you to be depleted of glycogen. So when you go to bed, you'll burn off your dinner in the first few hours, and once you've run out of your glucose from dinner in the next few hours, then what's going to happen is you're going to depend on glycogen.

And usually, if someone eats, let's say, dinner by, let's say 9:00, then by 10:00, 11:00, 12:00, they'll burn up all the glucose from their meal just from the metabolic demands of sleeping, which your body needs to recover. And then around 2:00, 1:00, 2:30, blood sugar levels drop — and that can be a common sign, to have those different spikes. So let's first say, look for low blood sugar symptoms, especially if the person feels energized when they eat throughout the day, or in between meals they feel shaky, light-headed and irritable.

Okay, next question here. "**Some people are taking magnesium and zinc at night, and some say zinc in the morning. I have low morning cortisol, the rest of the day is normal according to four point saliva [test].**" Well cortisol — this is a question from Lisa. Well you know, zinc has a different effect on sleep. Zinc has very little direct impact on sleep. Zinc is good for the immune system. So something to take if you feel like you need it. Most people that take zinc won't really have any noticeable changes in how they feel in than their symptoms. Magnesium however is a really good tool for people to take at night-time.

Now, one of the things that you put here is that you have low morning cortisol, and the rest of the day is normal. So low morning cortisol, there's a phenomenon called the cortisol awakening response. And what researchers have found is that the first 15 minutes when you first wake up — so as soon as you open your eyes, in the first 15, 20 minutes afterwards, your cortisol levels should actually spike up. A lot of people have a failure to get their cortisol awakening response to change.

I found the best way to get the cortisol awakening response to change with patients is not actually a supplement. The best way to get the cortisol awakening response to change is for maybe two to four weeks, as soon as you wake up, just get your heart rate up. So if you wake up, kind of roll over, and then start doing some pushups and jumping jacks, and really change your physiology that way. And after like a week or two, your circadian rhythm will start to balance itself out.

But you want to start to train your brain to get your cortisol awakening response up. The cortisol awakening response, that first little morning cortisol that spikes up, isn't necessarily an adrenaline issue, it's a neuro-endocrine immune response. You have integration between your hypothalamus and pituitary working together with your adrenal glands.

One of the best ways to get your brain to retrain, to get that morning cortisol awakening response up so you can wake up and feel functioning, is to kind of push yourself for the first few mornings, and then try to get your heart rate up for about three to five minutes.

And after you do that for about 35 minutes, what you're going to see is, if you repeat your cortisol saliva profile, it should change. But also you should notice that you'll just wake up, start waking up in the morning with lots of energy, because your body has reset its rhythm. When your body has reset its rhythm you'll feel pretty good in the morning when you first wake up. So that's something to try for cortisol awakening response.

Okay, so let me get to another question here. Taluka, "**What is happening when you wake up feeling weird and easily irritated? Hypothyroid and super easily aggravated, having a large thyroid nodule, I wonder if this feeling could go away.**" Well, the most common reason for not feeling well when you first wake up, is actually your blood sugar levels are too low. So that's one thing, so again, that goes back to being hypoglycemic throughout your day, and letting your blood sugar drop, and just not having enough reserves to get through the night.

If you are hypothyroid, if your thyroid medication is off, that's another reason why you just won't feel rested and so forth.

You point out that you have a nodule. Many people have nodules; you should know that the statistics are, if you're 50 year old age group, 50% of them have nodules, if you're 60 and older, 60% have a nodule. You're 70 years old, and over 70% of that group has a nodule. So as you get older, you're going to have these different little nodules and bumps on your thyroid gland, it doesn't really matter, it doesn't really mean anything.

What you're really worried about is if you have Hashimoto's with thyroid swelling, or thyroiditis. But nodules are not uncommon. The only thing is if you have a single, isolated, solid nodule, not a [...] nodule, then you need to be ruled out for thyroid cancer. But that is also pretty rare, and if you feel like you have a nodule that's growing you should definitely have a physician do an ultrasound with you.

Okay, next question here, Mel, **"I wake up in the middle of the night with headaches. Is that Hashi's-related?"** Waking up in the middle of the night with headaches is not... One of the most common causes of that is dehydration. So if you're waking up in the middle of the night, you really want to make sure you're not dehydrated.

Now, this could be a scenario where you actually may need salt. Some people just don't get enough... You need to have sodium to retain your water, but if you have too much sodium then your body has to cause you to urinate so you can get rid of some of your sodium concentration. So there's kind of a balance between those two. But waking up in the middle of the night can be a sign of dehydration. If you're getting enough water you just may have some electrolyte balances, you may want to try an electrolyte support product, there's many of them on Amazon. But really, if you want to try and just, without even buying a product, if you just want to add some sodium in some water, and see if that helps you. That's the most common reason to have headaches in the middle of the night. There's other things as well, but that's when we start to have to dig into the person's case, which is hard to do in the Facebook Q&A.

Next question from Donna, **"What is happening when I wake up every hour during the night, usually being awake around two hours total during the night?"** Well, I think Donna, if you're waking up every two hours, I would go back to the list. Do you feel like it's a blood sugar issue, do you feel like you're not getting enough oxygen? If your spouse, partner can notice that in the middle of the night you're snoring really loudly, or you stop breathing for a second, you might get a sleep study, meaning a CPAP machine, because you're not getting proper control of your respiratory muscles.

If you have urgency going to the bathroom, and you have leakage, that could be your pelvic floor muscles are weak. If you're craving... If you're dehydrated and constantly thirsty, you might have too much sodium. So you kind of want to go through all those and see what works best for you.

Another question here from Colleen, **"Is there anything other than usual, natural exercise to get out of sympathetic tone? I'm stuck in sympathetic. Can I take anything like CBD that could actually help prepare sympathetic more often?"** So Colleen, when you're talking about sympathetic mode when you get a flight or fight reaction, it can be pretty complicated. There could be a complex dysautonomia, or it could just be you're drinking too much coffee. So I don't have a good answer for you, because I would need to know more information, and that would be hard to do with this kind of format.

Okay, let's see here. **"I have Hashi's, I tested positive for [inaudible 00:16:44], smoking in my biometrics reading twice, I've never smoked around those. Any thoughts about why I have tested?"** No, I don't have any idea why you may have tested positive for nicotine-type derivatives.

Okay, Lydia, **"Each morning when I wake up, at least one or two limbs are numb, especially."** If you're waking up with one or two limbs numb, that means you're getting poor circulation.

The most common cause of that would be having really low blood pressure. If your blood pressure's really low, you may want to take things like... You may actually want to take some sea salt, and maybe to consider nutritional botanicals like liquorice root, if that's appropriate for you. You have to speak with your healthcare professional. But things like liquorice root and sodium can help your blood pressure, but the most common symptoms of having numb arms and legs when you wake up that then go away is just poor circulation, poor blood flow, poor perfusion, secondary to low blood pressure.

Okay, wow, lots of questions coming in quick, I'll try to do my best. Jane, "**Can you please touch on postural hypotension and hypothyroidism? I frequently get dizzy upon rising, and [inaudible 00:17:55],**" okay. You have to know a few things about dizziness, and standing up quickly. When a person stands up quickly, there's two reasons why they may get symptoms of so-called dizziness. One of them is the blood pressure drops, they get a pooling of blood, because they don't make enough catecholamines for that response. Another issue is they actually have a vestibular issue — when they get up their vestibular system is trying to figure out where they are in space, and you can see those with neurodegenerative issues with the cerebellum.

One of the main differences between those two is that the people that have light-headedness, that have a blood pooling issue, that just feel light-headed, that kind of just feel like they might faint, but they don't have any sense of motion and movement. People that have neurodegenerative changes, especially with areas of the brain called the cerebellum, or vestibular imbalance which is an inner ear problem, when they get up they don't just feel light-headed, they feel like they're moving, or the world is moving. That's not the loss of pooling the blood, that's more of a vestibular issue.

So you might want to see what those things are, and see if those mechanisms make sense to you. If you get up and your heart rate goes up, you may have what's called POTS Syndrome, and that is... lots of mechanisms can cause that, but you should get an evaluation if you actually get up and feel your heart rate completely change, and have an autonomic response with that.

Okay, next question here. "**What is your strategy on increasing the length of time of deep sleep? Now that a lot of people are monitoring their sleep quality, my patients are wondering if there are nutritional solutions to increasing the length of REM or deep sleep.**" So, for the most part, the main things that have been shown to really impact deep sleep from lifestyle medicine is actually physical exercise. So physical exercise is one of the most effective ways to get into deeper REM sleep. And then also just the ability to stay asleep is critical. So going through multiple episodes [of REM], so if there's any of the mechanisms causing a person to sleep throughout the night, that would be an issue.

In order for you to sleep throughout the night, you've got to have cortisol levels coming down, you have to have melatonin levels going up. You've got to have perfect sodium, electrolyte concentrations that are maintaining you, and you have to have your brain being able to shut down exogenous stimuli, so you can have a healthy brain, a healthy, oxygenated brain. You've

got to have a healthy oxygen to you brain, and you can't have your palette muscles fall back on your throat, causing a sleep apnea pattern. So you've kind of got to dissect through and see which of those mechanisms really apply to your patient, or to yourself.

Okay, a question from Melana. "**My child wakes up one or two times every night, how serious does this affect his immune system? I have active Hashimoto's and have dreams and mostly remember them.**" Well, that's great, I'm glad you're having deep sleeps, so you have good dreams. If your child is waking up one or two times every night, for children things are a lot different. They're so adaptive that their immune system may not be as impactful... it may not be so devastating when they wake up a couple times throughout the night. If you're older, it could be a major issue for you. So I wouldn't be worried, too worried about your child. If you've got to figure out why your child is waking up a couple times throughout the night, the same things would apply with that. Is he just getting too much salt in, he's not getting enough hydration, is... what's the mechanism there?

Next question here, "**What is your recommendation on melatonin for better sleep, dosage and immunity?**" I wouldn't recommend melatonin for sleep, because melatonin, if you start taking it regularly, will start losing its effect over a period of time. And then melatonin can also start throwing off the circadian rhythm. I would only use melatonin if it's a last option, like for myself, if I got an infection, and I really wanted to boost my immune system, and I couldn't sleep, I would use melatonin for a short period of time. But when people start getting in the habit of using melatonin, it's going to lose the effect over time, and then you need to take more and more. And then over time, you can see what are called cortisol rhythms changing.

So when you're functioning throughout the day, your cortisol levels are high in the morning, and then they get low at night, and then it switches to the opposite way throughout the day. So you really want to be careful with taking melatonin. You're better off with taking things like magnesium to take you sleep.

One of the questions earlier was what kind of magnesium — whatever magnesium you like. They're all going to have a positive impact on your sleep, okay? Be aware that some people are — when they get really desperate, CBD is a good way to help people sleep, but that also loses its effect over time. So the biggest question is, why can you not sleep? Sometimes people have overstimulated brain, they can't calm down, they need to decrease the amount of stimulus they have from their exposures.

Question from Barbara here, You may want to look at your breathing, over-stimulated, that could be the reason why you may not be able to fall asleep. And you may need to decrease the amount of stimulus to yourself, you might look at your caffeine content, those are really important.

Okay, next question here from Ann, "**What do you recommend to find out if we have low HCL, or high HCL, and the cause of reflex symptoms?**" Okay, well that's kind of unrelated to sleep, but I'll try to answer this for you Ann. Hydrochloric acid can be measured with something called

a gastric [inaudible...] test, where you swallow a capsule, and then they give you an alkalizing drink, and they can measure the amount of hydrochloric acid you have. However, not many people carry that test, or do that test anymore. If you can't digest your food, like when you eat a protein-rich meal and you feel like you can't digest it very well, or feel like you have a brick in your stomach, that's a sign that you have low HCL. Also if you have any kind of reflux, or burning accompanying an inability to digest protein very well, that could also be low HCL. If you can't digest your protein, your protein putrefies, it creates a very acidic environment, it causes some reflux symptoms.

Now, if you take HCL, and you immediately feel like you're burning, and your symptoms are much worse, and your reflux is much worse, you may actually have a gastric ulcer. And the first thing you do if you have that is take a test for H. pylori, make sure you don't have a H. pylori infection. And then you can use things like deglycyrrhizinated licorice, which has been shown to help the lining in the stomach, and as your stomach starts to heal you can start adding in apple cider vinegar to help. And then once your stomach starts to heal, you can add in some hydrochloric acid, and that should really help with the symptoms you're complaining about as far as reflux.

Next question here. **"Does hyperbaric oxygen truly get oxygen to the mitochondria, or brain in general? Does it work?"** So hypobaric oxygen can change the pressure to your blood vessels to cause more oxygenation to your brain, and it does work. But most people that get into a hyperbaric chamber won't really notice anything. However, if you've had a brain injury, and especially an acute physical brain injury, you get into a hyperbaric chamber, it can be a game-changer.

We've had patients who've had brain injuries, and then we've sent them out to get some hyperbaric chamber sessions, and they may have had difficulty with walking, or speaking, and they'll come out after one session and notice a big difference. So there's different responses with hyperbaric oxygen, but for the majority of people, one of the biggest clues that's going to be a beneficial treatment for them is just the effect they notice after treatment, they get a positive response. You want to continue the sessions even after patients feels like it's not really helping them anymore. Most people that do get a benefit will stop noticing the benefit as each session goes on, which is a sign that their brain can be healing.

Okay, next question here, from Francis. **"Good afternoon, I'm currently taking Gastro ULC with a patient, she had to stop using it because blood pressure went up. This happens when she was taking one cap three times a day. She blamed the DGL for this response. She feels the [inaudible 00:26:06]."** Well, Gastro ULC is a product that has deglycyrrhizinated liquorice in it, it's made by Apex. Deglycyrrhizinated liquorice is nothing that would cause a person to be stimulated and react, so it's pretty unlikely that it's the product. Now, she could be reacting to something else in the product. Everyone is very unique. But that's the whole purpose of having liquorice, and deglycyrrhizinated liquorice. So if you look at supplements that are available in health food stores or by manufacturers, the whole purpose of making something called deglycyrrhizinated liquorice, or DGL, is to take out the liquorice adrenal stimulating

components of it and just have the flavonoids to heal the stomach. So I don't think the DGL that the person was doing would have an impact there.

Okay, Micky, "**How does one get your neurotransmitter test, one to see the questions that tell us each category of neurotransmitter? I saw it online, but you can't tell the category you're testing for.**" Well neurotransmitter testing, this is another key thing to be aware of.

Neurotransmitters as a test that some people run, are a completely invalid test. I remember, I submitted a paper on the non-validity of neurotransmitter testing. The urine levels that are measured by some of these neurotransmitter tests have no reflection of what's happening in the brain, so be very aware of that. There's various nutraceuticals that could support the brain, typically people that have lots of depression, especially when it gets cloudy, they have no motivation, nothing brings them joy, like going to their favorite restaurant or listening to their favorite musician doesn't bring them any joy, those are typically the same with low serotonin patterns.

And then people that have inability to get motivated, to get activated, to get things going, you see that with low dopamine patterns. There's lots of different options for you. If you get a chance, please check out my brain book, "Why Isn't My Brain Working?" If you look at that book, I wrote a whole chapter on how to look at all the different symptoms, and different nutraceutical protocols that have science behind them, that can really change these neurochemistry levels of the brain.

Lucy Piper, "**You don't talk much about mushrooms. Are they good for the microbiome?**"

Sure, all plant fibers are good for the microbiome. The more diverse your plant fibers are, the better it is for your microbiome. So mushrooms are a great way to support your microbiome and your overall health, as long as you're not intolerant to them.

Okay, next question from Nora, "**Hashimoto's, can iodine consumption trigger headaches, [inaudible] consumption.**" Typically, iodine can be a trigger for Hashimoto's patients, and the most common symptom is an inflammatory immune response. And that inflammatory immune response can take place in the.... trigger a vascular constriction event. When you look at some of the mechanisms for migraines and vasoconstriction, inflammatory pathways can do that, prostaglandins can do that.

And speaking about sleep, one of the things that we know is that when people lose sleep, one of the things that becomes elevated is an enzyme that produces what are called pro-inflammatory prostaglandins. That, combined with foods that are very inflammatory, like shellfish, red meat, partially hydrogenated fats, processed fats — that can then really lead to an inflammatory pattern. So be aware of that.

Leanne asks, "**Is there a connection between Hashimoto's and vestibular symptoms?**" Yes, there is a very strong link between Hashimoto's and vestibular symptoms. One of the interesting things about Hashimoto's is that the antibodies that are found in Hashimoto's, which are TPO and thyroglobulin, the antibodies that destroy the thyroid gland, what they

found is that those same antibodies bind to an area of the brain called the cerebellum, and this is an area where the vestibular system comes in.

So there's a lot of risk for Hashimoto's patients to actually develop what's called a central vestibulopathy, where you have these vertigo vestibular disorders, just because of their thyroid antibody elevations, because of that cross-reactive mechanism where thyroid antibodies bind to not just the thyroid gland to cause an inflammatory response, but also to the cerebellum.

Okay, Valerie says, "**Can you address night sweats?**" Well, I mean, the most common cause of night sweats are really associated with perimenopause, and in perimenopause what they are found to be caused by is actually not estrogen deficiency, but spikes of estrogens. So they've done some studies where they've looked at people that are suffering from hot flashes and night sweats, and they've found that during those periods their estrogen spiked. Now, the conventional model is to just put them on estrogen replacement, and when you put them on estrogen replacement, then what typically happens is there's no more spikes, because levels are either high or above normal all the time. And since there's no more fluctuations, there's no more hot flashes.

But some people don't want to take estrogens, because they're worried about risk for clotting. They may have a family history of estrogen positive cancers, so they want to look at natural options. So things like soy flavonoids, genistein, daidzein have been shown to be effective with that in several studies. And also just getting electrolytes under control, and hormone regulation and control are maybe the key things you need to do to deal with hot flashes and sweating episodes at night time, okay.

I have a question here from Ella, "**Zinc glycinate versus zinc piccolinate for lowering blood sugar?**" When you look at these questions between zinc glycinate or zinc picolinate, in studies they find very little difference between one or the other, for all types of functions. So the carrier molecule for the mineral doesn't seem to have much of an effect when it comes to zinc. So I think with either form of zinc, you should be okay.

All right, next question here. "**When will you be accepting new patients,**" from Emily. I don't know, we were overwhelmed before the Coronavirus, and we will post probably some time in 2021 when we can catch up with our existing patients in our waiting list, and then go from there. But thank you for asking. Just check out our clinic page on Dr. K News, and if you're interested we'll update that when we're able to open up a practice again.

Okay, next question. "**Does liquorice tea have the same effect as supplements?**" Yes, liquorice tea has the same effect as supplements, but it won't be as significant, or as powerful. So if you take liquorice extract, that would have a much, much, much more powerful effect than taking liquorice tea. Liquorice tea is great, it can help heal your gut, but actual liquorice can also have some stimulating effects, which for some people, that's what they're trying to achieve. For other people, it just will make them not be able to fall asleep.

Okay, next question here. Trish. "**Do you recommend Inositol to help with sugar balance in the short-term for hypoglycemics at night?**" So Inositol, the way Inositol works is that Inositol helps carry blood glucose into the muscles, and it seems to be more effective for people that have high blood sugar issues, like insulin resistance issues, but not so much for low blood sugar issues. For people that are hypoglycemic at night, the best thing to do is to have them take some protein before they go to bed, or even just supplement with some branch chain amino acids before bedtime. Or even exogenous ketones, beta hydroxy, beta eight, before bedtime, and those could be good strategies to really help a person who can't get their blood sugar under control, and is waking up because of the hypoglycemia, to be able to sleep through the night.

Okay, next question from Katherine. "**How do cordyceps help us?**" Cordyceps is a botanical, it's a very powerful compound to raise glutathione. That's one of the main uses for it, and it also has some powerful immune-enhancing anti-inflammatory responses. So those are the general mechanism of cordyceps.

Okay, next question here. Lena asks, "**What about Hashimoto's and infections?**" This is a big question. Well typically, infections can trigger all autoimmunities, as far as viral infections. There's been some great research that shows some parasitic infections can actually help autoimmunity, including Hashimoto's, so that's very fascinating, that some parasitic infections in the gut actually have a protective effect on autoimmunity. In areas in the world where they have lots of gastrointestinal parasites, they have virtually no autoimmunity and autoimmune diseases, or they're very, very low.

So not all infections are the same. So gut pathogens, especially parasitic infections, seem to have some protective effects for some patient populations with autoimmunity. And then when you get to infections, the worst types of infections for an autoimmune disease like Hashimoto's are infections in which the antibody elevations can have binding to the actual target site of the autoimmune disease, and they call that cross-reactivity, or molecular mimicry. For Hashimoto's, the most common infections that can raise that would be actually hepatitis C antibodies. Hepatitis C antibodies can bind to the thyroid directly and cause thyroiditis. So that is of concern.

We were just completing some research, we were looking at cross-reactivity of different pathogens. This was with Dr. Aristo Vojdani. We were looking at how different pathogens can cross-react with self tissue proteins, and that will help us understand how, for example, Covid-19 may trigger some specific autoimmune diseases for some people, but we're working on finishing that manuscript and getting that published soon.

Next question, going quick. Sorry guys, I'm trying to do my best, but they're coming in very quick. Okay, if I don't get to your question I apologize, I'm trying to get to them as quick as I can, okay. Bill asks, "**Is Meniere's Disease considered an immune disease?**" Yes, many people think that Meniere's Disease is an autoimmune attack against Reissner membrane, the area between the endolymph and the perilymph in the inner ear. They don't have a commercially available

antibody test for that right now, but when they look at histological slices of the actual structure that's involved in the Meniere's Disease, they see a histological pattern typical of an autoimmune response. So we know it's most likely autoimmune, however we don't know what the target protein to measuring blood is to determine that, or if there are enough of biomarkers would show up in blood, or if you actually have to measure perilymph and endolymph, which would make it impossible to identify that autoimmune biomarker.

Okay, next question here, Mara Beth. "**Do you feel CBD oil can help with leaky gut?**" CPD has a lot of promise for lots of different mechanisms, because the cannabinoid receptors are found all throughout the immune cells throughout the body, and it seems to have a very modulating effect. I don't know of any actual research that's been published that shows that CBD directly helps leaky gut.

However, for some people, we do know that if they have autoimmunity severe inflammation, that CBD has a positive effect on calming things down to some degree. I mean, it's not a cure all, but it does provide some benefits to some people. I would only guess that it would have some positive effects on helping with things like intestinal permeability, but I wouldn't think it would be a game-changer.

Next question here, from Bakhtar. "**How can I cut my sleep hours from nine hours to four hours? Sleeping for so long reduces my productivity.**" Well, some people just need greater amounts of sleep. One of the biggest signs that you're needing excess amounts of sleep is you're not getting good quality sleep. You may want to get a sleep study, see if you have any oxygenation issues. You want to make sure you're not hypothyroid, and you also want to make sure your brain is healthy.

One of the key things to also remember and understand is that if your brain starts to degenerate and your brain starts to become unhealthy, your body will require excess amounts of sleep. So some people have noticed, they'll say, "Hey, when I was younger I could get away with six hours' sleep. Now that I'm older, I need eight hours, or nine hours." One of the main causes of that is your brain degenerating. So be aware of that, so as your brain becomes less efficient in function over time, you may need more sleep.

I put together an online program, at Dr. K News, that's the Save Your Brain online program, which we go into... it's different strategies to how to evaluate your brain function, your brain health, and to apply diet, nutrition and lifestyle strategies to support yourself. So please check that out, Dr. K News, Save Your Brain Program.

I also put together, by the way, since I'm on that topic, I also put together a free Everydat Immune Resilience program, where we talk about lifestyle strategies to support your immune system, and we also have a program called 3D Oral Tolerance, which is all about trying to calm down your immune response to food and to environmental reactions. So please check out those on Dr. K News.

Okay, let's see another question here from Shaun. "**Dr K, what role does thyroid health play in quality sleep? If one is hypo, does that reduce the quality of sleep, deep or restorative, or increase the need for more sleep and decrease the toxification?**" So in general, if someone is in the hypothyroid state, they're going to require excessive amounts of sleep, and the sleep they will get will be of poor quality. So thyroid hormones are very important for activating metabolic activity of different regions of the body that are involved with the complex physiology of sleep. So your biggest clue that your thyroid... If you have hypothyroidism, that your thyroid hormones may be a factor, is you just wake up, just totally exhausted, totally fatigued, feels like you got no sleep, your muscle endurance is very compromised, you don't feel like you can even go for a walk. If that's the case, you should get your TSH levels measured, if they're high you may need to increase your dose. Or, if you have those symptoms and haven't been diagnosed hypothyroid, you want to get a TSH test by your doctor to see if you actually have hypothyroidism.

Okay, next question here, from Susan. "**Is there a relationship between Raynaud's and Hashimoto's?**" Yes. Raynaud's is a vascular phenomenon where your skin goes from red, white, blue, different color changes that take place. And with Raynaud's, one of the things that we'll see is that there's a high association with people who have auto-immune disease of all kinds. So you'll see these vascular changes, many people have auto-immune disease. They don't really know the exact mechanism, other than it's a vascular phenomenon. So there is no specific functional medicine explanation for Raynaud's, it's just kind of a mysterious vascular phenomenon that people have observed with a higher prevalence in patients suffering from autoimmune disease.

Okay, next question from Coleen. "**What are your thoughts on bio-films in the gut? I have healed my gut, I take biofilm busters, then kill pathogens under it, then flush them out, thank you.**" Yep, there's been lots of natural botanicals that can disrupt the biofilm. So when you get an infection, or you get some kind of bacterial overgrowth, or some kind of pathogen in your system, particularly bacteria, they start to all cluster together and build a film around them, like that mucousy later. We know if that biofilm was not disrupted, then it'd be hard for them to get rid of those infections. So there were lots of very different biofilm disruptors, things even like garlic extract is a very powerful biofilm disruptor. So it is important sometimes to take natural biofilm disruptors, you can find many of those just on Google, lots of botanicals do that. And we'll be talking about garlic extract as being one of the most powerful ones, and you could even look at wormwood extract, that's a very powerful biofilm disruptor. Different types of leaf extracts have been shown to be very powerful biofilm disruptors. But those consider them to be helpful, if you're having an issue with getting rid of a chronic infection, especially bacterial.

Okay, next question, from Karen. "**Do you recommend using iPhones to listen to podcasts or recordings to sleep, considering that blue light and EFM impacts sleep negativity, versus benefit of listening to something to fall asleep?**" You know, some people are extremely sensitive to EMFs, and they cannot handle an iPhone right next to them, and they need to project things, sound, from a speaker across the room. It's going to be very unique to yourself,

but at the end of the day you're going to have to see what you can tolerate, and see what works best for you.

Okay. Melissa, "**What is the relationship between ear ringing and Hashimoto's?**" So, ringing in the ear, tinnitus, if that's accompanied by disorientation, vertigo and hearing loss, that's called Meniere's, that's another auto-immune disease. But ringing in the ears is not uncommon with patients that have Hashimoto's, and the most common cause of tinnitus for them is they have very poor vascular dynamics. Their circulation is really bad. And as they lose the ability to get blood flow to their inner ear, there's branches off the brain stem that give blood flow to the inner ear complex. And with poor circulation and blood flow, sometimes they get what's called hypoxia in that area, and they start to get ringing in the ear.

So ultimately, you want to look at strategies to improve your circulation if that's happening. Make sure if your blood pressure's low, if your blood pressure is below 120 over 80, you might look at strategies we talked about, like sea salt or liquorice to get those back up. Other times, you may just need to exercise to improve your circulation, and raise a hormone in your vascular system called nitric oxide. The most common cause for ringing in the ear with Hashimoto's patients, if it's not an auto-immune mechanism, is really just poor circulation.

Okay, next question here. Diana said, "**I've been on 20 milligrams of melatonin a night for the last four years to reduce the recurrence of breast cancer. Is this an issue?**" Well I don't want to comment on your specific case altogether, but melatonin is a very powerful immune enhancer, because with all things you can lose the effect over time. When you're dealing with all types of hormones, that's one of the factors with it. So if you're looking at reoccurring breast cancer, I think there's many more effective strategies you can use to support your immune system and your health than just melatonin. But if you start using 20 milligrams of melatonin a night for the last four years, you're probably adjusted to using it, and everyone's different. Some people will have that disrupt the cortisol throughout the day, and some people won't really notice anything at all. So that's the best I can answer that question, I think.

Okay, let's go through some more questions here. Susan, "**What can drive reactive hypoglycemia, particularly in someone of slight build? Sub-clinical sleep apnea.**" So if someone has hypoglycemia, and they get shaky, light-headed and irritable throughout the day, and when they eat they feel better, the first thing that you want to clinically think about is, why do they have that? Now, the most common cause of actually being hypoglycemic is lifestyle and diet. They are basically missing meals, they're waking up having a smoothie for a meal, or a gluten-free muffin and some kind of sugary coffee drink. Those will cause you to be hypoglycemic, so... or they snack with cookies in the afternoon. Those things will just constantly cause the blood sugar levels to spike.

There's another group of people that, when you see that they have symptoms of low blood sugar, they get shaky, light-headed and irritable between meals, they can't sleep through the night. And then when you look at their dietary history, they're eating basically really good meals with very low sugar and starch throughout the day. Some of these patients will come in and say

to us, to me, "I wake up in the morning and I immediately have to have protein, I have protein and vegetables all throughout the day, every two hours. I still can't control my blood sugar." That's something different, that's something where their body's adrenal gland function is compromised to some degree functionally, and then you have to try to find the underlying cause.

So the first thing to think about is that you have symptoms of low blood sugar, shaky, light-headed, irritability, is your diet causing it or not? If your diet's not causing it, then it's beyond what I can answer in this question here. But there's something that's driving your stress response, and that needs to be figured out. For most people, if they just stop eating a sugary meal, like a fruit smoothie or something, and they're able to eat more protein and vegetables throughout the day, that would have a major impact in resolving the blood sugar issues.

Okay, let me move onto the next question here. **"Is there any way to assess thyroid status when TSH is borderline okay, but reverse T3 is high?"** Well if your reverse T3 is high, that's a strong indication that you're not converting T4 into T3. They call that an under-conversion pattern, and that mechanism is not caused by thyroid dysfunction, but caused by something that's impacting the conversion of inactive T4 to active T3. And the most common cause of 5-deiodinase suppression is actually chronic inflammation. So you may just need to get your inflammation down, or your autoimmunity under control if you're having this high reverse T3 pattern, that's the first thing to really look into.

Next question here, from Jenny. **"My cortisol just tested 23, I got dizzy, light-headed with sugar. Is this due to my cortisol, like managing my insulin?"** Jenny, that's too general, I don't know if I can answer your question, I'm sorry. I would need to know a lot more about you before I could figure out why you get dizzy when you have sugar.

Okay, next question here, from Colleen.

**"Does only taking 0.3 melatonin that your body..."** That one went way too quick. The question, I think, is a low dose of melatonin, what if you take less for more? Listen, when you start taking exogenous, it's going to have an impact on your feedback loops, it doesn't matter what the dosage is. A higher dosage will add more of an impact, but be... But just know that, why are you even taking it to try and help you sleep. So again, even if you feel like you can take melatonin, you may want to start with something like 5HTP. 5HTP is immediately converted to serotonin, and serotonin is one step away from melatonin. It's much safer, it's a natural amino acid — melatonin is the actual hormone. So that's something to be aware of. If you want to try something to try to help you sleep, the biggest question is always, "Why can't you sleep?" so if you can look back at the beginning of the video, I talked about lots of mechanisms that can impact sleep, like sleep apnea, weak pelvic floors, or overactive bladders, or hypoglycemia, those are the most common ones.

Okay, now, next question here. **"What are your thoughts on mouth taping at night to increase nose breathing?"** Yes, there are some very good tools where people block their nostrils, they can sleep throughout the night. That has a major impact on helping people sleep, those are

things that you may want to consider to support you. So that's something to take into consideration.

[NOTE: He may have misread the question, since he referred to taping the nose open]

Okay, Cathy asks, "**I can't fall asleep after eating cruciferous spinach, potatoes, even cook, otherwise I fall asleep no problem. What's the issue, please?**" You know, sometimes if you're eating foods that you cannot digest properly, and if you're having a hard time digesting cruciferous vegetables, spinach and potatoes, you may have some issues and need some pancreatic enzymes. If you get a lot of bloating and distension in the abdomen from poor digestion, you can have some disruption in your feedback loops, to your sleep pathways. So first thing I would do is really just think about taking some digestive enzymes, that could be really important for the symptoms you're having.

"**How can I find a knowledgeable practitioner like yourself to work with?**" Well, if you go to the [Kharrazianinstitute.com](http://Kharrazianinstitute.com), or you go to [drknews.com](http://drknews.com), you'll see under, "Clinic," or under, "Find a practitioner," a list of people. So we recently made a list of people, of healthcare professionals that have completed all of the... they're updated on all the new information that I'm teaching at the Kharrazian Institute. And on that trajectory, you'll be able to find practitioners, and they'll list whether they do teleconferences, or you have to be on-site. But it's a good way to find someone close to you, or work with someone that does teleconferencing if you're trying to find a good functional medicine practitioner. So check that site out.

Okay, next question here. Cynthia, "**Can you please comment on Parkinson's disease and insomnia?**" Yeah, this is a really good question that you bring up. One of the early signs of Parkinson's disease is insomnia, but a particular type of insomnia, it's where they kind of just shake and move around all in sleep. So usually with really Parkinson's patterns, the spouse usually feels like they're getting beat up, and then the husband and wife have to split rooms because of the constant flailing and jerking of the legs and limbs. So that's one of the first symptoms of Parkinson's disease, associated also with loss of smell. The first three smells that people lose with Parkinson's is the inability to perceive the scent of coffee, anise and liquorice. If those scents are gone, and someone's having stiffness and rigidity, and not sleeping well because of lots of shakiness and movements, those are all red flags for early Parkinson's disease, and that can happen 10 to 20 years before a person actually even shows any signs of tremor, so be aware of that.

Okay, next question here. Claire, "**Have been swearing in my sleep.**" Well, I don't know what that is, but that's kind of funny, interesting. You're probably getting into very deep REM sleep if you're having a vocal response, it may not necessarily be a bad thing.

Okay. Claire asks, "Wish you were in the UK," thank you. Tony Murray, hey Tony, good to I guess kind of connect in some way with you.

"**Any benefits of eating a snack before you go to bed? Is a spoonful of almond butter, or a handful of nuts, or avocado...**" Yeah, that's a great suggestion Tony, thank you. For some people that are hypoglycemic, eating a high source of saturated fat, like Tony is saying, can

really be the way to get through the night. So for some people it's almond butter, for some people it's avocado, those are ways to do it. If you really feel like you can't digest food before you go to bed, then you can try the exogenous ketones, or branching amino acids supplements, those can be helpful.

Okay, next question. Linda, **"I understand people with autoimmune disease are more sensitive to chemicals. Are you finding more of your patients have an allergy sensitivity to polyethylene glycol, since it's in everything, [inaudible 00:55:09] is an autoimmune disease."**

Yeah, chemical sensitivities are basically skyrocketing. I've published some papers on the different mechanisms associated with the literature found with causing chemical sensitivities, and this goes back to this concept of loss of tolerance. So overall, the population is losing tolerance, and that's why I put together the 3D Immune Tolerance Program, where we talk about whatever common chemicals you're getting exposed to, if you start to lose your tolerance, those are the ones you'll react against.

Now, I'm really concerned about what's going to happen post Covid-19 pandemic, especially because one of the ways we really build our immune tolerance and our immune resilience is by touching things and getting bacteria on our hands, and then getting it into our system. So with all of the different Lysol, and hand cleaning agents people are using, there's going to be less microbiome diversity throughout the population.

That is going to possibly even trigger more food sensitivities, and more chemical reactivities, because it's going to really have a significant impact on the microbiome. So that's one thing, so yes, I would see more chemical immune reactivities happening, that's a common reaction that's occurring as a phenomena, and it's going to continue to get worse. I think one of the worst outcomes of this pandemic, besides obviously people dying of the virus, but long-term ~~benefits~~ detriments to public health will be that we're going to be basically disinfecting everything and we're going to lose that microbiome, bacteria exchange we all need to keep our immune system healthy.

Okay, next question. From Milana, **"If hypoglycemic caused by HP axis [inaudible 00:57:05], is it a good idea to snack before bed?"** Yeah, for some people that would be a good idea, to snack before bed.

Just see how you function, if that seems to help you that could be a good strategy.

Okay, next question, from Deedee. **"Are ultrasound studies useful in diagnosing thyroid nodules? What should someone be aware of with the results?"** Well yeah, ultrasound would be the best ways to check for if you have any thyroid nodules, and it's an accurate test, and you shouldn't be concerned, because when they test to see if you have a nodule, they're going to classify the nodule as... if it's hypoechoic or not, if there's an echo in the sound. They're going to use sound waves, and if they find a nodule and they see that there's lots of echo through it with ultrasound, then those are usually benign. If they find a nodule that does not have an echo response, and it's more of a solid response, those are the ones that you're concerned for,

where you would need further evaluation. Like fine needle biopsy to determine the actual structural tissue, so those are the key concepts about that.

Okay, I think I'm out of time here. We're going to be doing these regularly. Thank you for all of those that have joined us, if I didn't get to your question I apologize, but we'll do these again, and thank you all for being part of my community, and for being involved with asking questions, and thank you all. I really appreciate your support and your involvement.