Introduction to Mycotoxins and Brain Health

Welcome everyone to the Micro Talks and in chronic illness summit I'm doctor Christine Schachner into today. My guest is Doctor Peter Kohn. And we're going to be talking about how Michael toxins affect your brain and human gut.

Welcome doctor Khan it's really fun to have you here. It's a pleasure to be speaking with you and to, just bounce ideas off. Yeah. No, I am so enjoy getting to know you.

And, for the listeners, Peter and I were just at a conference, and so this is really fun to get to see each other again today and just talk shop. We have a lot of shared similarities and interest in how we approach patients.

And we see a lot of the same things. And so I'm always excited to hear what you're doing and how I can also, support all of you who are listening and getting better because, I'm sure you've seen this, Doctor Khan that, you know, Michael Jackson, almost to summarize.

Right, this is definitely a root cause. And, you know, a lot of brain this function onion dysfunction, gut dysfunction. And so I know we have a lot to cover in this time.

And I know it will be really valuable for our audience. So, why don't we just dive in? So, how do you mycotoxins and your clinical perspective, affect brain health?

Yeah, absolutely. Michael, toxin is, definitely really inflammatory for brain and, specifically, Michael toxin can actually disrupt the blood brain barrier.

And there's many studies that show that Michael toxin actually can affect the astrocytes, which are the the cells that maintain that blood brain barrier integrity.

And when it does, once your blood brain barrier becomes disrupted, then not only Michael toxins, but other things that are normally kept out of the brain can get through to the brain, such as various chemicals and and more notably, actually your own immune cells.

You know, the, the brain is considered an immune privileged site. So what that means is normally it doesn't really allow antibodies to get into the brain when antibody does get into the brain, then potentially you can develop immune responses, auto immune response to cell brain tissue.

Because remember your brain's always, you know having normal cell turnover. You know all brain cells die as the old brain cells die. Then you get protein, the breeze and these debris fields, when exposed to antibody that are not normally there, you can develop neurological autoimmunity.

And that becomes a source of inflammation. So, you know, knowing that Michael Tyson can damage the blood brain barrier, it can be a potential way for you to develop neurological autoimmune, which becomes a problem because now your brain has antibody against, or your immune system developed antibody against brain that can create this persistent inflammation in the brain, and inflammation in the brain can be felt as many of these symptoms that people usually feel in the brain, such as brain fog, fatigue, short term memory issues, difficulty concentrating, depression, anxiety.

So these are things that are very commonly seen in doctor's office. People go seek, you know, psychiatric care, you know, taking various medications for.

But the root cause of that could be Michael toxin creating some type of neuroinflammation response. So Michael

toxin is definitely very damaging to brain.

Another way that Michael toxin cause problem with the brain is that, you know, the brain is very sensitive to any kind of inflammatory response. And, and so really, I always say that brain function requires three main things.

Brain function or neuronal function requires fuel, and fuel comes in the form of oxygen and glucose. So people have to have steady fuel delivery. Brain function also depends on activation.

So your neurons have to be constantly activated. It has to have neurotransmission and synaptic activity to keep itself in its own existence and maintain its own health and homeostasis.

And then the third thing that really brain requires is no inflammation. So when you have inflammation to neurons, neurons become very easily damaged. They become unstable in their function.

When neurons become unstable in their function, they can't perform consistently. And people go through this state called trans neural degeneration and trans neurodegeneration.

The trans is not like trans Atlantic kind of try and trans means like transient. So you get trans transient neurological issues, which means that your brain cell function becomes unstable.

So your symptom comes and go kind of like a Tia but not a Tia. You know, your brain fog comes and go, your cognitive function comes and go. Your ability to concentrate comes and goes.

So, so people would develop these neurological issues and becomes difficult to catch because it's transient, right? So you go to your doctor, you go to neurologist.

I say your MRI is fine. Your skin's like you don't have a neurological problem, but yet you have these transient neurological symptoms that come and go.

And this can be caused by Michael toxin exposure causing neurological degeneration. And as brain cells start to die off, they start to become unstable.

So this can lead to a lot of just wide ranging symptoms that becomes very difficult to catch. And then lastly, you know, one of the main things is that Michael Tyson really do a lot of damage, especially to your your vestibular area.

You know, your cerebellum can be hit, your vestibular system can be hit, and the vestibular system and your cerebellum controls your balance. Coronation integration of eye movement to your cervical function so people might get vertigo, dizziness, blurriness, not because of optical problem, but blurriness simply because of, you know, that the inability for your, vestibular ocular reflex to integrate.

Testing for Mycotoxin Exposure

So then your eye movement and your neck mifflin's not being poor native properly so people get these blurry vision simply because the eyes are just not tracking properly.

And so we see a lot of people with balance problems and these type of issues. And then, we also can see that the Michael toxin can impact a peripheral nervous system.

They can get like weird paresthesia, numbness, tingling. That's not a dermal tomo pattern. You know, it's not like you have a pinch nerve like the that this the distribution of these paresthesia does not add up.

So that could be also caused by Michael toxin issue. So, Michael toxin definitely is a big problem for, for brain cells and neurons. One of the key features is that brain cells are, you know, very fatty tissue.

Neurons contains a lot of fat, you know, the myelin sheath and the cell membrane, so forth. And Michael toxin happen to be lipophilic. So they're attracted to fat.

So when you have Michael toxin in your body, they can easily migrate into fatty tissue in your brain and therefore cause actually cell membrane destruction and lipid oxidation, which leads to oxidative damage, which is all just word for inflammation.

And then again, when your brain cells become inflamed, you lose that brain cell to brain cell conductance, so that nerve conduction velocity decreases from brain cell to brain cells.

And then you have slower processing speed. People feel like, you know, it takes a long time. The learning can go down. Use be able to retain information.

Now you can't retaining information. So there's a lot of problem that comes from Michael Thompson that impact a neurological system. In fact, I would say the most common symptom are neurological symptoms.

When it comes to Michael toxin exposure. That was excellent. That was a really excellent overview of describing all those pathways that can be affected.

And, you know, all of those can be happening, you know, in in one patient, right, at different times, as you said. And so we can see the profound effect on the brain in the neurological system.

And, you know, we're always I know you and I are both looking at like underlying causes. Right. And, you know, we both also look at these other infections and these other root causes of neuroinflammation.

But the way that you described it and, you know, it comes back to like the mycotoxins can be that, opening the door to invite all of this other dysfunction on top of that.

And that's why we see the complexity, you know. So now that was really, a great reminder for me. And, you know, I see all of that. And, you know, one of the things, you know, if you're struggling out there, you know, I think the scariest part of these symptoms is, I know, I'm sure your patients I see this, Peter, like, you know, am I losing my brain as it can come back?

And I do see, when people heal from this, their brain is, you know, it's totally able to be healed. And these symptoms can, resolve and you can have healthy, you know, cognitive function. But it's very, I think the scariest symptom for people going through this illness.

Yeah, absolutely. It can be. And especially because the symptoms can overlap with other problems too, by the way. Right. So so what I'm saying is not all brain fog and memory issue is caused by mold issues because there could be other reasons for the same symptom, but it's definitely something you have to check off that box, make sure it's not Michael toxin.

So we yeah great point. And I guess maybe, for those who are listening, how can we really check that box and make sure that mycotoxins are not, underlying the neurological dysfunction that somebody might be, struggling with?

How do you make sure that that, you know, the center ruled this out? Yeah. And obviously there are tests for Michael Toxin, right? So he has several labs.

I offer it to Michael toxin testing. So you can see what type of Michael toxin you have, which the purpose of that is not just to tell you whether you have Michael toxin, but to tell you what type of Michael toxin, therefore what type of mold you might be exposed.

So therefore you go look, because, you know, people assume that all Michael toxin is because mold in your house. Well, certainly there's a lot of these Michael toxin that's in your food source.

You know, cereal grains, corn, wheat, barley and rice, you cereal grains, you know, the way they're process and stored, a lot of time becomes very easily exposed to mold.

And they can start to, you know, develop these Michael toxins just from storage. And you eat them now, you become, you know, accumulating these type of things.

So so I think people have to realize it's not just from your house having water damage. It can be food sources. And if you already have Michael toxin or, you know, one who are sensitive, or even genetically predisposed, because there's genes that can predispose you to, you know, having more sensitivity or more reaction to more that you may want to consider, eliminate or reduce the consumption of those food that maybe hide mold food, you know, like cereal grains and even coffee and and things like that.

So yeah, we have to look at all sources. And, and obviously history is really important, right? You ask? Right. I think people become and even doctors, you know, become overreliant on tests.

Nothing replaces a very thorough history and asking the right question to draw out, because that's where all that really all the clinical pearls and really the clues to why someone is sick and you simply do the test to confirm your suspicion.

I think a lot of people become just completely depend on a test, and the tests have no context whatsoever. I think that's a problem. We have to learn how to be, you know, doctors have to be learn to be doctors, and the patients have to learn to understand that the tests just one part of an overall assessment is a great reminder.

And again, it's, you know, our job, right, is to put all of this information in test to be helpful. But they're they're not 100% and they're not always the full picture.

So that's why, you know, find a great doctor who will listen to you out there because, that's a big part of our job putting these clues together.

Brain Recovery Strategies and Chiropractic Neurology

So, Peter, before we go on to immunity, I would love to hear maybe just, some of your favorite solutions when you're thinking about mycotoxins, and helping the brain recover, obviously, there's several mechanisms that you're thinking about.

You have to go through that and identify and make sure you're treating the right thing. But, you know, just maybe some of your favorites, to share, so we can introduce people to some, strategies that they can look into further.

Yeah, absolutely. And I always start with this type of exposure type of problems first with getting away from the exposure. Right? I mean, I mean, you can take supplements, but if you're still living in mold, I mean, you can take supplements all day.

You still living in mold, right? So we have to first get people away from that exposure. So the the the the the the strategy may start with air purifiers may start with dehumidifiers and things like that.

Or start with a mold test kit for your home and identify where the mold is coming from, if it's from the home or from other source. As far as actual, you know, strategies, you know, so obviously you want to do things to help to bind to the Michael toxin.

So binders are useful here. And I usually use a combination of binders. I don't you just use one. So you know we I've been use activated charcoal and zeolite clay and bentonite clay in addition to humic and full acid club.

You know, binders. So, so we'll use a whole variety of different binder to really catch it all, so to speak. Really, the the damage caused by the Michael toxins is really the inflammation, the oxidative damage that they cause.

So I do a lot with just dampening that inflammatory process. So glucose iron is just kind of goes without saying because it's kind of glued. It sounds like a bulletproof vest for your cells, right.

It kind of protect your cells from that oxidative damage. And so if you have Michael toxin exposure, your level of oxidative damage may be higher than people who don't have more exposure.

So giving you extra bulletproof vest will just protect your cells from becoming damaged and problematic. And, and by the way, some of these molds, Michael, toxin actually can inhibit glutathione, production by blocking certain Bluetooth ion, you know, reductase and so forth.

So that can actually shut down your glutathione production. So taking Bluetooth silent is really is really one of the key components for me as far as helping people to minimize the damage caused by the Michael toxin.

Why are you trying to bind. They're trying to eliminate it. And then if there's some neurological symptoms, then we obviously have to look at the, the brain.

If there's blood brain barrier issues, they can very well have brain inflammation caused by microglial activation. Then we may use flavonoid compounds, things that can cross the blood brain barrier to help calm down that brain inflammation.

This could be turmeric or resveratrol. But this island is still useful. Vitamin D is always helpful for barrier compromises. So those are starting points for me.

And we may we may even go deeper than that. But I think for most people, those are probably almost always helpful because, I mean, very few people, don't need or don't get help I glucose ion.

And in my experience, not very many people have reaction to it. Of course, you have people who is always super sensitive that will react to everything, but for the most part, turmeric, resveratrol would say on vitamin D, most people do well.

So for those of you listening, that's probably a good place to start. And in the binders, of course, you know, use different type of binder to help finding. Awesome. That's great info.

And I'm just curious, with your chiropractic background, do you feel like, with those other things on board to really heal the vestibular system? Do you feel like the chiropractic, techniques that you've learned in your colleagues now are, you know, the best way to heal that?

Or do you feel like just as long as you're doing these other things, things line up to heal the cerebellum? And that was a great question. Yeah, it really depends because, you know, some people, they have a lot of cerebellar issue or vestibular problem or, you know, a proprioceptive issues to begin with, you know, and then if they already do and then they get exposed to Michael toxins, then those weak area will become even more problematic.

So maybe they were able to compensate for those vestibular issue and not be dizzy and not have problem. But now all of a sudden they get Michael toxin. Boom.

Now they're dizzy. Now they have balance issues, now they have vertigo. Or maybe they already have these problem brewing, so to speak. And so and in one sense, if you have Michael toxin exposure or if you are like acute, right, you're still living in an environment that has mold.

Well, I mean, you can rehab the brain, but you know, your results. Can you hear the ceiling as far as how how much that rehab is going to work for you?

Because you're still employing every day by the, by the mold. So we have to do a two pronged approach. You have to both do that and activate the brain.

Remember the brain neurons and brain cells thrive with fuel sufficient fuel. So they can't be you know that's oxygen and glucose. So no, the way we I look at oxygen is you can be anemic.

You can have iron deficiency. And anemia has many different forms. You can be B12 anemic. It can be many different type of anemia. You can't have low blood pressure or too high blood pressure also because that all going to compromise perfusion to your brain and then glucose, you have to have steady glucose or hypoglycemia just as bad as insulin resistance.

So I kind of look at the foundations first. Make sure those are all working. Doesn't mean like we don't address them all. But if somebody is anemic and they have hypoglycemia and they have mold and you don't get the blood sugar stable, you don't fix the anemia, it's going to be very difficult for them to feel better or get better from the more or not as quick. Right.

And as far as activation, remember, we say brain requires fuel and activation. This is where the activation part comes. So so what's a chiropractic adjustment anyway.

It's activation of our receptor based system right. Our nervous system is a receptor based mechanism right. Sight smell touch taste it's all environmental stimulus.

And we have receptors that pick up sights, smell, touch, taste just so happen touch especially joint proprioception right. Movement is one of the biggest input into the cerebellum because that's what cerebellum do.

The cerebellum what it does is process proprioceptive input. So that's why adjustment work. However, you can definitely adjust someone incorrectly or present too much of a stimulus and overwhelm the nervous system.

So that's why sometimes people get adjusted. Whoa, I feel like way dizzy after adjustment, just because maybe they just too much stimulus or adjust incorrectly.

So this is where, you know, it gets a little more detailed and nuanced. And, you know, as Board-Certified chiropractic neurologist, they're trying to, you know, identify the longitudinal level of the lesion and get really specific with the type of exercise or rehab you might do.

So it may not be an adjustment. It may simply be exercises. It may simply be some type of, cognitive visualization of your body moving in space to stimulate specific part of the brain.

So again, it gets more details. That's definitely not something I would just have anybody just do some stuff at home, have it assessed, and then do very specific exercise for that.

Yeah. No thank you for sharing that. That was really wonderful. And what should people Google or look for? You know, what kind of training does I want people to know who to look for and make sure they go to the right, the biggest organ, the, organization that regulate, you know, and certify, doctors who are trained in this type of practice is the American Chiropractic Neurology Board.

Okay. That's the certifying body and the regulatory body for for certified chiropractic neurologists. And we all have to, you know, take a very, you know, very difficult 300 hour course, followed by a very difficult board exam to be certified.

So people who usually go through the rigor of that training, you know, they they have that ability to, you know, do this type of examine and recommend the proper type of, therapies.

Thank you. I just wanted to hit that point because I've seen, when I've had, a practicing physician like that on the team, it really can make things, gentle for the patient.

Mycotoxins, Immunity, and Autoimmunity

And it can be sometimes a missing piece. So that was a part of the team? Yeah, yeah, yeah. Right. I know this team that we have. So great clinical trial there. All right.

So Peter, mycotoxins and immunity. So what do we need to know about that? Yeah. Michael. Toxins cause definite problem with immune system function. Remember earlier I said about the blood brain barrier compromise.

And then the brain is a immune privileged site, so antibody doesn't get through. And if it gets through, it can trigger autoimmunity in the brain. So that's not just a brain problem right.

It's also an immune system problem. It's an immune system problem that's happening in the brain. So you know that's why we can't really separate it. That's why you know, I talk about the brain immune gut axis because you can't really separate the brain immune and the gut.

They're all working together when someone has a brain gut disruption. So leaky gut leaky brain like what's what's happening there. Well it's the cytokines that's mediating that. Right.

Because the Cito architecture of your intestinal lining with the zany line and including in the clouds, is exactly the same structure as a blood brain barrier, which also has clouds and occlude ends.

And these in these proteins. So when you have antibody against intestinal tight junction protein of occluded and zany linen cloud, and these antibodies circulate by blood and when it meets the blood brain barrier it sees the same structure.

So it's like antibody. See the same thing that's trying to attack. It's attacking it. So this is the reason why leaky brain, leaky gut goes together and and the mediator there is the cytokines is the antibody is the adaptive immunity.

So we can't really talk about all the things that I just talked about that's happening in the brain with a potential for leaky blood brain barrier causing antibody to get through to the brain, picking up brain debris and developing self, you know, auto reactive antibody to brain tissue.

That's not just a brain problem. It's an immune system problem as well. Now the problem is once you develop the antibody to brain, if you have a leaky blood brain barrier, the antibody can just leak right back out from the brain into your circulation.

So now it's out of your brain. Now you should have circulating antibody that's floating around to brain tissue. And the cool thing is you can measure that right.

So there's tests you can measure antibody to these neurological tissues. And if you do then that indicates yeah that process is starting to happen. Now you may not have symptoms that's very severe or pronounced.

But if you see antibody attacking brain tissue you have to be concerned because that means that that reaction is already starting the the those nerve tissue are exposed to your immune system or your immune system exposed to nerve tissue.

Develop antibody. So if you let that process go and you don't identify the online trigger, which could be mold, right, Michael toxin or it could be an infection chain or it could be something that's damaging brain, even concussion.

This is why concussion is a big deal because you hit your head. Guess what you get. You get some brain debris, right? You get inflammation in your brain.

The brain is getting sloshed around getting hit. You're going to have some damage, brain tissue. And that can cause cytokines and micro glial activation that can actually trigger, by the way, brain inflammation can trigger leaky blood brain barrier because all these inflammation happening in the brain triggers Michael glial activation.

And that inflammation in the brain can start degrade the blood brain barrier and then that that process started

happening on the converse leaky blood brain barrier can also trigger microglial activation, which is brain inflammation.

So they both cause each other to some degree. So so what happens when you hit your head? Your brain gets inflamed and that usually then these leaky gut, because all this inflammation in the brain is causing blood brain barrier disruption.

And then, you know, these cytokines and that potential brain tissue is leaking out now in your systemic circulation. You have immune cells attacking that, creating neural antibodies.

And then not only that, that leaky blood brain barrier and antibody looks very similar to your gut barrier antibody. So then you get a leaky gut which we see this happening in an animal models where you lesion a rat's brain within hours, you see leaky gut happening, epithelial cells start to degrade, the villi started degenerating within literally within hours of, you know, imparting a brain trauma in rat studies.

So so this process happen and it's a systemic inflammatory issue. So really when you have brain inflammation, it's not just an old leaky brain leaky gut.

The way I see it is leaky brain, leaky everything. Your whole entire body becomes inflamed. And when you have leaky gut, it's not just leaky gut. Cause leaky brain is when you have you got the whole entire body becomes inflamed.

So we have to see this as a brain and you've got access problem. And this is my whole, you know, point of making masterclass and teaching about is get people to appreciate that it's all interconnected.

So it's not like, oh, you just have a brain problem. Take some brain supplement or you just have a leaky gut. Take a leaky gut, a supplement. You have to look at all of it, including looking at the triggers.

That's continuing to set fire to the system, which could be Michael toxins could be line, could be Candida, could be anything. Right. Dietary, you know, things stress, even, you know, energetic imbalances, perhaps, you know, that's kind of where you come in.

But definitely we have to kind of start seeing this as a whole rather than a, oh, what do you do for the immune system then? Yes, but it's really all of it.

So we all know, you've done a great job describing that interconnection. And, you know, I know people are listening are, you know, taking that in as well.

And you mentioned some really great, you know, markers, and antibody markers to look at. And so do you have a favorite lab? Are you using science labs, for this or any labs that people who are listening, should I go ask their doctor to get?

Yeah. Two primary labs. So Pyrex has a, multiple autoimmune, panel where it checks several of these, neurological antibodies. And then the vibrant America Vibrant Wellness has a panel called, Neural Zoomer.

And that that's much more, even more detail than this. Irish lab checks for multiple neurological antibody. That's the one that I use because it checks for so many different neurological antibodies, including blood brain markers that can indicate a brain barrier disruption marker that can indicate inflammation in the brain, a self marker that can indicate, problem with cerebellum.

You know, we can look at cerebellum antibodies Purkinje cell antibodies. Look at peripheral nervous system antibody. So it's not just CNS but also peripheral nervous system.

So it's a really really helpful test. I actually have a case where someone comes into me with, the symptom where her, you know, she's always squinting like this.

You know, she feels tired, but she's always squinting. And she's a nurse. Nighttime nurse. Nice. For many, many years. So I thought she was squinting because she's just like her security and rhythm is messed up.

She's not sleeping, so she's tired. And then turns out that when we did the the neurological autoimmune tests on this particular person, we use vibrant, she had, you know, these markers against, neuromuscular junction against acetylcholine.

And so that was a tip off to potentially that she may have, myasthenia gravis. At the time, she didn't have that diagnosis. And, you know, I was looking at her and she's like, well, she's great, you know?

Okay, she's she's doing this. And literally a week after I got the test result and went over with her, she actually got diagnosed by her neurologist having mercy on gravis.

She actually had a myasthenia gravis crisis where actually her lung shuts down because sometimes we have mentioned gravis, it can actually shut down neuromuscular junction to your diaphragm.

So she had like she couldn't breathe, had to go to the hospital emergency. And you know the thing she was okay. But, literally this test preceded her actual crisis by like a week, you know?

So that was a case where that was predictive of an actual or logical autoimmune disease that was brewing already. So definitely, it's, it's very helpful test.

It's not a diagnostic test in a medical sense, because there's people who have the same marker but don't have mice near gravis, but it just tells you that that process brewing, we better start to be proactive with it.

Yeah. No, that's a really, you know, amazing story. And hopefully, you know, she's, you know, on her way to healing. But, now that I use the neural in a lot to I think that's it for all the reasons why you just shared it.

And it has also, from my perspective too, I love how it shares like underlying infections too, like especially the viral infections. That could be another piece of, you know, creating inflammation.

So you get all of those perspectives and so now I think, fibroid is doing a great job with having a lot of these tests that are really clinically useful and insightful and more affordable to for patients.

So, that's great. That's so I guess, I mean, I know that it's probably all interconnected when we think about solutions, you know, for mycotoxins and immunity.

And I've already shared a bunch that I think would layer into this as well. But anything that you want to highlight as far as solution to think about when people are having these, antibody responses or these immune, you know, like murine, autoimmune or inflammatory, processes due to mycotoxins or other infections that you like.

Yeah, absolutely. You know, the way I think about it is that if we see, neurological autoimmunity on that neuro zoomer test or any type of neurological antibody test doesn't have to be vibrant any other life that does that, then immediately I goes into the I go into a mode where I'm not thinking about this as a brain problem.

I'm thinking about it as an autoimmune problem, and I'm treating it as such, like, okay, you have an autoimmune process. Now, I don't say you have an autoimmune disease because you may have antibody but don't have disease yet.

But the way we will manage it is we will manage it as an autoimmune problem. So how do you manage an autoimmune problem? Well, number one is to dampen that inflammatory response because people who are autoimmune automatically have more inflammation as a underlying process at baseline than people who don't have autoimmune.

Right. Because autoimmune equals inflammation. Because because your immune system is already more

inflammatory that way. So I treat it as an autoimmune problem, which means we want to dampen various inflammatory processes.

Dampen, the NF kappa B pathway, which is a final common pathway for inflammation response. We want to target perhaps 1 to 2 and T regulatory cells to to balance that.

You know, if there's any skew in immune function between TH12. And then lastly is look at really the game is play. The biggest difference that we can make is besides dampening that inflammatory response and calm down autoimmune.

So look at triggers you know and I always say the inflammation is like the fire. You know your body's on fire. Your brain's on fire. You got some fire.

Yeah. You're on fire. You're inflamed. Who's the arsonist who's setting the fire? Right. Because you can put down the fire and you can take turmeric all day and put down the fire.

But next day, the fire starts all over again because you're still exposed to that Michael toxin. You still have the viral infection. That's not clear.

And you still have, you know, you know, sensitivity to gluten and you're still eating gluten, whatever the example might be. So until we identify the actual arsonist and get that to stop, then you're basically recreating the inflammatory sauce every day.

Gut Health, Vagus Nerve, and Systemic Inflammation

Now, some people, by the way, when they're autoimmune, that's the sauce. That's the arsonist. When you are autoimmune, you already have an arsonist that's built into your immune system, which is which is sad, right?

This is a difficulty of autoimmune. It's because it's your own body. How do you get rid of that? Right? You don't want to just. Oh, the immune system is the problem.

Autoimmune. Let's get rid of the immune system. That's the allopathic approach. They give you immune suppressants and they shut down the whole thing. There's a time and place for that, right? Some people just.

If it's really acute, you need to do that. But long term it's about, you know, taking the, the the immune stimulation. Right. The triggers. So then your immune system can come to its own resting place.

And that requires a multi-modal approach. You know, there's not one supplement that does that and there's not one solution that's the same for everybody with autoimmune, because some people have more, some people don't.

Right. It's kind of it sounds like, like everybody has mold. Not necessarily. Or maybe some people have mold issues or they have Michael toxin positive, but maybe that's not their primary driver of their inflammation or their symptom.

Maybe they have more in virus and Lyme bus line. That's really driving it. The mold kind of like just there, you know, like if we take a 100 people who's completely asymptomatic, we did the Michael toxin test, I'm going to bet we're going to see a bunch of people that have Michael toxin and they're they're just like, I don't even know how problem they feel.

Just fine. So not a bunch I don't know. I mean, I don't think that test has been done, but I'm going to bet there's probably some people that have Michael toxin, but they're okay.

The point is not that Michael toxins not important, it's just that your body has way to compensate. And some people genetically tolerate a better. If your antioxidant capacity is really strong, you might be able to just handle it.

Your immune system's not all screwed up so you can balance itself, but in people who are susceptible or have a lot of other stuff going on, plus stress, plus EMF plus energetic imbalance, then Michael Toxin could be a huge deal, you know?

So we have to just go. That's why requires a health care professional that understands this and be able to kind of put it all kind of in a priority, right.

Because you might go after all of it. You might choose not to. You might choose to go after the most important things. First, let the body heal. So sometimes maybe there's more in line, but maybe the Lyme is more problematic.

You fix the line and then the more problem becomes less problematic and they're not getting as much symptom from the more because you fix the primary driver, which is a line, not just an example, but I really believe that there's a sequence to it in the sequence may not be the same for every single person.

I do follow a general guideline, right? I talked about if you're anemic, probably it's going to be very difficult. If your blood sugar sucks because you're eating in such a way that feeds this up and down roller coaster blood sugar, because that's your dietary choice of not eat well, then it's going to be difficult for you to heal from.

You know, more than likely, even if you're taking a supplement for that. So always got to do the foundations and then layering those other things as well.

But again it's a layering. So maybe there's a specific sequence and I'm sure you know and that's the art right. So doctor may have different ways to go about it.

And as long as you're getting people better it's all good. Yeah. It doesn't have to be one way or another. Yeah, yeah. No, I, I love how you keep on coming back to like, don't ignore the low hanging fruit and the foundational things because I think sometimes, you know, especially if people tried a lot of things and they go to a lot of doctors, sometimes we can think, oh, that's been done or that's been addressed.

And sometimes, yeah, and these things are so important to lay the foundation for people to respond to treatment. So I think that's a really good point.

You keep coming back to, so Peter, mycotoxins and gut health, you've weaved it a little bit in already, but I'm sure there's more to say. So, what would you like to add?

Yeah. So Michael Thompson being basically a straight up poison, right. It's basically poison produced by mold. So it's almost like the mold itself is really not the problem.

It's the Michael toxin that's the problem. It's the poison produced by them that's causing the damage. And the damage is an inflammatory one. Right. Because it causes such a it elicits a really strong immune response.

You know, when your body sees Michael toxin, it freaks the heck out. And that inflammatory response itself, even though it's trying to protect you, right, is your body has soldiers.

They're trying to kill something. So CS Michael toxin that you elicit that strong response even though it's a natural immune response. But it comes with a price.

This collateral damage associated with that strong inflammatory response. So when your body gets damage and that damage is going to lead to cytokines and systemic inflammation.

But another thing that that the the Michael toxin does, is it kind of it kind of shuts down mitochondria the function. So it impacts your mitochondria function.

So then it impacts your body's ability to produce ATP. Then that further degrades your body's ability to heal. And your gut lining. How does that impact the gut.

Well it's it's really the same thing. It's basically it's not that you swallow some mold. And then the Michael toxins, they're eating away your intestinal lining.

More of the inflammatory things that's happening. The immune system responds that lead to this over activation of immune function. That's the grading to the gut lining that lead to the leaky gut.

Now I will say this that the Michael toxin can actually just impact brain function in the way that we talked about earlier. When you break becomes inflamed, by the way, your frequency of fire of your neurons tend to slow down.

So, right, we know that the brain fires in frequency. That's why the EEG we're measuring the the beta waves and so forth. So we know there's a frequency.

So the way neuron works is that for them to send a signal from one neuron to another through this electrical chemical transmission, which is your, you know, action potential, it happens in the frequency.

Right. And that frequency of fire can slow down in the face of inflammation. So when Michael talks an impact brain and cause inflammation, that frequency of fire slows down either due to inflammation or lack of fuel or lack of activation.

So when you're inflamed, you may have hypo perfusion in a specific region of your brain where you can get blood supply to it. So then when that area of the brain not getting enough blood flow, then everything just works slower.

It's almost like you have no gas in the tank, so the engine runs slow, so then you're not sending signals through as fast. When that frequency of fire slows down in your cortex, it decreases the output of the cortex to your brain stem.

Ponto medullary area, which is where your autonomic nervous system lives. And then one of the major outflow of that is your vagus nerve. So everybody talk about vagus nerve like that's where it starts.

No vagus nerve is a downstream thing. Above that is your cortex. So if you have a less than optimal function of your cortex, because the frequency of firing and integration of your brain is slower due to inflammation or fuel delivery problem, then the output of that brain to stimulate the the autonomic center, including your vagus nerve, will be slow too.

So people always say, how do I stimulate the vagus nerve? The vagus nerve, the vagus nerve. Well, you might have to go above the vagus nerve because the flow comes from the top down.

So we may have to get the cortex to work properly. So this is where you know, and then if you have the vagus nerve then your peristalsis your gastric secretions go down, blood flow to the gut decrease something. You don't feel the gut lining as well.

So then there's your gut problem, right? It can be all due to the vagus nerve issue. But I will say that's you got to go about the vagus had to go to the cortex and and what do you go above the cortex.

What actually loops back down through the cerebellum. You proprioception. So basically movement drives signal to your cerebellum and which pushes into your brain.

So this is why we have to move right. If you're really sedentary you sit there all day. Your brain literally just degenerates over time because you require movement.

Or if you have, you're stuck, right? You joined this restricted. This is where chiropractic why chiropractor realized many, many hundred years ago that wow adjustment does something really magical.

Because restore motion or movement in a specific joint and therefore your brain's like, oh, now I'm getting nutrients from that joint, like a signal, so it can't be missing signal.

So that's part of it. But but the point is that if there's a gut issue is going to be mediated by the brain, and you've got. Right, we have the cytokines, we have this inflammation that's systemic.

And then we have the brain not just in the blood brain barrier issue, then brain inflammation, but literally the actual neurology itself, how our cortex is able to fire to generate that outflow from the cortex into your brain stem, and therefore the vagus nerve function there for the gut.

I love that. Yeah. No I feel like I'm getting a refresh in on my pathophysiology. So I really appreciate those. Yeah I do I love it. And no I think a really good point because the vagus nerve there's again so much awareness which is awesome.

But even people kind of can get a little myopic and not look at the big picture again or, you know, all of these connections. So and you know what? I, you know, what you're weaving in, in your conversation too, which I appreciate is, you know, again, it's a team, right?

And we need to know all of these things that we need to do within the body. And then you treatment. But, you know, really people I, I find when you have a good structured role physician or body worker or therapist on your team, I do I feel like that really helps my patients move, you know, and gain momentum.

So I, you're highlighting that, you know, through this conversation. Why? So someone taking care of your spine and your connective tissue and all of that.

So I think it's, really important is, So, Peter, I guess any, solutions or any other, solutions related to, you know, this gut, inflammatory kind of cycle that you want to share.

As we wrap up. Yeah, I think, I think that the, the biggest takeaway for me personally, how I manage people with mold is that I'm looking at not just the mold.

I'm looking at the impact that the MCL toxin has on the brain, the new gut. And obviously some people with Michael toxin exposure may have more brain presentation.

And another person with the same mold exposure may have more gut presentation. So we have to customize each person and not just say everybody's brain bringing guy.

Here's a five things you take for every single person. But but I'm always cognizant of okay, I need to support the barrier. And that's the gut barrier.

That's the blood brain barrier. And if they have respiratory issues. So if you have mold exposure and it's, you know, environmental mold or black mold and you have respiratory issues, then we may need to support the lung barrier as well.

Right. So so we were looking at those and we're always I'm always keeping in front of okay how is this going to trigger a potential autoimmune problem.

Because why don't you trigger an autoimmune problem. And then it turns into a different beast that is no longer just, oh, just leaky gut or not just, oh, you have some little brain fog.

It's okay. Do you have a immune system literally chewing up your own body tissue? If so, we have to get that to stop because immune systems job is to chew things up.

Usually is chewing out the bad guys. But if it if it deems your own body tissue to be the bad guy, it doesn't stop until his job is done. And so done.

Meaning it's going to chew up, you know, whatever he sees. And that's not a good situation. So we're always thinking about how could we protect the person from long term damages.

And so I'm always keeping autoimmune at the forefront of my thought as far as managing that. And when it comes to that, the tools are, again, you know, stuff to help with gut barrier.

And there's, you know, being talked about, you know, I'll glutamine and and you know, things that help with leaky gut and other things that and, you know, short chain fatty acids and so forth.

Wrap-Up and Where to Learn More

And then for the brain, specifically, these things that can cross the blood brain barrier like turmeric and resveratrol and then things, I just balanced one, two and support the T regulatory cells and maybe glucose, iron and vitamin D.

And then there's other things that we can add to it depends on how the person present. So those are the top things that I always think about is foundational tools.

And obviously there's Michael talks. And then we want to think about binders. How do we pull them out. And as we pull out the the Michael talks. And how do we support these drainage processes.

Make sure the person is actually able to eliminate, detoxification process working. So it gets even more than that. And then do they also have other things going on?

Viruses and so forth. And what do you decide which one to go after first? You know, because mold can be an immune suppressant. You know, it can suppress your immune system.

So then even though you're trying to fight something, but you can't. So sometimes, like, okay, do we fix the virus or the mold first. I mean it can hold up the virus so your immune system can fight the virus.

So we might go after the mole first. So because I think mold is just so toxic right. It's so it's such a toxic thing even in small amount it's still really toxic.

So that it may be actually one of the top priorities. Yeah. No. Absolutely. And that's a big you know goal for you know the summit is to you know highlight you know mycotoxins can be that as we say kind of entry way that you know allows, you know all of these opportunistic infections and you know, really damages our detoxification pathways and just wraps all the barriers in the body, as you know.

So, you know, well informed us today. So, no, I mean, I think, you know, if anyone who's listening, I'm sure if you've been focused on maybe a piece of the puzzle and haven't really ruled this out yet, I think Doctor Khan has given us a wealth of information.

Knowledge to really make sure that you roll this out. And this is not, you know, the missing piece to the puzzle to get you better. So, so, Doctor Khan on.

How can people connect with you? I know that you're putting so much great, education out there. So please share how people can, connect with you in your community.

Yeah, absolutely. I put out a lot of free content, you know, online, so you can go to my YouTube channel, which is, you know, search on YouTube. Doctor Peter Khan as can know h you see the ball?

I had a Chinese guy pretty hard to miss. Probably the only one talking about this as bullheaded and Chinese at the same time. And this and this. Good looking.

Yeah, not any worse looking or not any better looking. Just exactly this level of good looking. But you'll find me on YouTube and then, also, we have my website.

I ask Doctor Khan. Com and we also put out, information master classes called the Brain Game and got master classes, the big master class where I talk about this brain naming gut access problem.

So those are all free resources for people to look me up and learn from. Great. Well, no, I I'm so appreciate you sharing that. And I'll just put a plug in.

I know that you're putting so much great in free information. And then I know you've helped a lot of my community with your masterclass, so I'm so grateful that you put all of that information in one place that people want to go deeper.

You clearly know what you're talking about after, our interview today. And, it's always a pleasure to connect. And thank you so much for contributing to the summit.

Thank you for having me.