



Mold & Detox

Dr. Heather Sandison, N.D. interviewing
Dr. Margaret Christensen, MD



Dr. Heather Sandison, N.D.

Welcome back to the Reverse Alzheimer's Summit. I'm your host, Dr. Heather Sandison and I'm thrilled to have Dr. Margaret Christensen with us right now. She's an Institute for Functional Medicine faculty member for the past 14 years. And Dr. Christensen first became interested in functional medicine 20 years ago when trying to solve the riddle of her and her family's complex health challenges.

Unbeknownst to her at the time they were consequences of severe toxic mold exposure. She became intimately familiar with chronic fatigue, fibromyalgia, auto-immunity, and the hormonal neurological and psychiatric consequences of unrecognized biotoxin illness.

A board certified OB/GYN for 23 years, her initial boutique functional medicine practice has grown into the Carpathia Collaborative, a large multidisciplinary functional medicine practice based in Dallas, Texas covering the full spectrum of complex chronic disease.

The practice provides 360 degree functional lifestyle and nutritional medicine, and includes an onsite teaching kitchen, yoga studio, an education library that also serves as the site for community learning events.

Dr. Christensen is passionate about educating her clients and colleagues about root cause, whole systems medicine, most recently as the host of the highly successful Toxic Mold Summit. Thank you so much for sharing your time with us today. Dr. Christensen.

Dr. Margaret Christensen, M.D.

Thanks so much for having me. It's a good topic.



Dr. Heather Sandison, N.D.

So I can't wait to dive in. Can you just start by telling us what biotoxins are?

Dr. Margaret Christensen, M.D.

Well, Heather biotoxins are small fat soluble molecules that end up getting inside the layers of our cell membranes and also our mitochondrial membranes and many people watching the summit probably already know that our mitochondria are a little tiny organelles inside the cells, inside of our cells and they generate energy.

So when you have those poisoned or blocked or falling apart, because you've had exposures to lots of little tiny fat-soluble toxic molecules, it can really create a problem. So some of the common biotoxins that we deal with, people's certainly, probably haven't known about heavy metals, pesticides, all sorts of fat-soluble and I'll get in there and some infectious agents, including viruses and even things like Lyme and an area that I deal with a whole lot is toxic mold. And so these are mold mycotoxins produced by molds that grow in water damaged buildings.

Dr. Heather Sandison, N.D.

And so how do those impact cognitive function?

Dr. Margaret Christensen, M.D.

Well, that's a great question. So unfortunately or fortunately, whatever way you look at it, the nervous system in our bodies and particularly in our brain, all of our nerves and neurons have thousands and thousands of mitochondria per cell. So if you have biotoxins that are disrupting the function of the mitochondria and contributing to chronic inflammation in the nervous system, including in the brain, then it's one of the things that significantly impacts cognitive function.

You and I were talking just a little bit before we started that again, one of the major ways that we can have impact on the brain is actually through our sinuses. So if you were living in areas with high air pollution, for example, and or again, you're breathing in toxic moldy substances, it inflames the sinuses and right behind our sinuses is our brain and in particular certain organs in the brain.



So it can really create a lot of neuro inflammation there as well as many biotoxins also disrupt the gastrointestinal function. And we certainly know leaky gut leaky brain. Those two things are intimately connected.

So when you disrupt your ability to both absorb nutrients, as well as get rid of them and detoxify them through the gastrointestinal tract, you're also gonna end up impacting brain function.

Dr. Heather Sandison, N.D.

When you start to think about these biotoxins, it's really like they impact every system in the body? Cause if you're impacting the gut, if you're impacting the brain, then you're impacting hormonal systems, just like what your family was experiencing.

It pops up as all types of symptoms and it's part of why it's so hard for conventional medicine to treat. How do we prevent exposure to them? You've certainly convinced me that it's a good idea to do that.

Dr. Margaret Christensen, M.D.

Well, there's kind of four things that I talk about in recovery from a biotoxin illness. And also, you know, we can say this it prevention. So I talk about clean air, clean food, clean water, and a clear mind. So in terms of, on the prevention side of things, you know we can start by using things like air filters in our homes, help air filtration in our homes, and then not using any toxic substances, like fake air fresheners in those plugins and those kinds of things.

Also being wary of really any new products. They off gas, you know, rugs and carpets and cabinets, depending on what they're made out of can off gas, a lot of stuff. So indoor air quality is often much worse than outdoors. Like I said, the cleaning products that we use bleach and a lot of things like, you know, Lysol, whatever, they they're kind of toxic substances.

So there's lots of substitutes available to not be exposed that way. As far as, you know, things like heavy metals and that's a whole another big ball of wax. We can talk everything from dental and I believe you have a dentist so speaking as well as, you know, vaccines can be a source of heavy metals, again, depending on the air quality where you live and the water quality where you live, that can be problematic as well. And then having some



mindfulness about, again, a house or a building that you're going to move to or work in, you know, does it have a history of having had water damage or exposures.

And unfortunately it's extremely, extremely common. But I would just say for, you know at a personal level, you know, get a high quality HEPA filter for every bedroom in the house. And if everybody's sick in the house, then have some with lots of different symptoms and then somebody and one person's not affected at all, and you still end up and the dog is sick too, think about again, what is the air quality in the house like and is there a possible mold exposure?

Dr. Heather Sandison, N.D.

How might we know if we've been exposed? I think you just kind of mentioned that, it's unexplained symptoms, even the dog is sick. Maybe one person isn't affected. When there's this mismatch that can point to an environmental exposure, what other things can come up that might make you want to consider this?

Dr. Margaret Christensen, M.D.

Well again, what we deal with is a lot of, what I deal with here in this practice and a lot of those of us who are on the kind of front lines of environmental medicine, often we're seeing these chronic complex illness clients who've been sick for many years and going from doctor to doctor and often have mystery illnesses like chronic fatigue syndrome, fibromyalgia, POTS syndrome, et cetera.

But like you said, biotoxins can affect every single system in the body. And so for some genetically, it may turn on their auto-immunity. So any of the entire range of autoimmune diseases, whether you're looking at Hashimoto's thyroiditis to Crohn's disease, again, you can, there can be a biotoxin component, you know, particularly I think from some of the gut stuff from infections.

And then again, I had mentioned psychiatric is super, super, super common. Again, your brain is on fire and your nervous system is on fire, and if your guts on fire too, then all that's going to come out in anxiety, depression, you know, bipolar, schizophrenia, and you know from the whole range from autism to Alzheimer's. So, you know, you're talking about Alzheimer's on the summit, but, you know, I want people to think about Alzheimer's, you know what autism is, is sort of Alzheimer's in a little kid. And, you know, schizophrenia is the



same thing. These are neurodegenerative changes that are happening from chronic inflammation in the brain.

And we have that awareness and understanding. We can start very early to impact that. So, you know, neuropsychiatric, neurodegenerative diseases, those are all autoimmune, a lot of hormonal imbalances. So in women we'll see things like severe PCOS or a bad endometriosis, again, infertility issues all can be triggered from because of having a biotoxin exposures.

And then we talked about some of the neurodegenerative auto-immunity cardiovascular, that's the other big area. I knew I was missing something. So with men, we're more likely to see things like hypertension and cardiovascular dysfunction and things like erectile dysfunction, prostate issues.

Again, depending on what's impacted, but certainly all the hormonal systems and the communication systems in the body can be affected. And then detoxification mechanisms are markedly affected, which contribute to any disease process. And by the way, when you talked about prevention, the one major thing that I forgot to mention and preventing exposures is our diet. Number one, number one thing, start with organic food.

People have no idea what has happened to our food supply and particularly what it means that something is genetically modified and covered in Roundup and has had genetics in it that have been compromised or changed to actually trigger auto-immunity in us.

And, you know, the COVID outbreak is a stellar example of an abnormal gene and genetics in an organism that has triggered a whole lot of different problems in the body

Dr. Heather Sandison, N.D.

As we accumulate these toxins, we basically lose resilience. So whether it's COVID-19 or a stressful event or whatever it is that comes our way next, we are more likely to succumb to it if we have this high toxin burden.



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And so the goal becomes then one that preventing new exposures, but then how do we get them out successfully, because this is a little tricky, right? You and I both worked with Dr. Neil Nathan, and you can do this too fast. Where do you start?

Dr. Margaret Christensen, M.D.

Well, and let me just make one other comment, because I know you have a lot of different experts talking on here, but again, one of the big things that we see in neurodegenerative diseases, such as Alzheimer's, as well as just any kind of the chronic illnesses that we're looking at is this overlap of sort of three circles.

When you have the traumatic brain injury patients who have had some kind of head, neck or spine injury, and it doesn't necessarily have to be a concussion, I've kind of had plenty of gymnasts and cheerleaders and pole vaulters never had a concussion, but they've had repetitive injuries in the head, neck or spine.

And then that alone traumatic brain injury, we know causes chronic neuroinflammation in the brain. And again, we can see a dysfunction in the mitochondria with that. Chronic stress and or PTSD is another kind of circle that we look at that can really impact again, brain function. Because if you leave your limbic system in your brain, that's your fight or flight center in your brain that kind of runs everything unconsciously.

If it's stuck in the, on position all the time, because you've experienced traumatic events as a child, what we call ACEs, adverse childhood events, or again, just major traumas along the way, or, I mean, just look at right now, we have an entire country that's been traumatized in the past year and a half, entire globe with the COVID epidemic on top of lots of other things. And then your type of relationship with bosses whatever.

Many, many, many of the clients that we see as well have PTSD just from being in the conventional medicine systems going from doctor to doctor, doctor, doctor, but they telling them they're crazy, there's nothing wrong with them, or here's another pill and they're on 15 different prescription.

So PTSD and stress causes neuroinflammation, traumatic brain injury of any kind can cause neuroinflammation and then the biotoxin exposure.



Whether that is heavy metals, Lyme infections, toxic mold, pesticides, petrochemicals, all of those that in and of itself can cause neuroinflammation. And when you put those three things together, that's a lot of the clients who we end up seeing in a lot of the clients who end up having rapid cognitive decline or challenges and, or psychiatric system issues and or autism.

Cause you put all those three things together with vulnerable genetics that doesn't clear toxins well. Then that's where we're seeing the clients we see.

Dr. Heather Sandison, N.D.

That sounds like a recipe for chronic illness. So how do you start getting them out? How do we create solutions for these patients?

Dr. Margaret Christensen, M.D.

That's a really good, and I know you're going to have Dr. Dale Bredesen speaking to a lot of this as well. Again, the first thing we start with is improving the quality of the gastrointestinal tract and working on healing what we in Dr. Tak called increased intestinal permeability and I believe folks know it as leaky gut.

Although we're seeing that now in conventional medicine, now they're using that term. Wow, I couldn't even believe it.

Dr. Heather Sandison, N.D.

Progress.

Dr. Margaret Christensen, M.D.

But leaky gut leaky brain. So we need to start with working on healing, the gastrointestinal tract, and then opening all of our drainage systems as well. So making sure the lymphatics are really draining as well before you start really ramping up a lot of detoxification protocols. So we have a lymphatic circuit that we have folks to use, there's lymphatic specialists out there.

You can do some craniosacral work as well to help especially if you're doing brain fogs that really helped open those lymphatic channels. So you need to get the kidneys working well, lots of water going through the gut working well, and then gently you start upregulating



detoxification mechanisms. And we do that again, both with diet and nutrients. And there's a specific nutrient that I'll be talking about this called phosphatidylcholine that can be utilized to help that.

So, you know, that's what we do. And then we'll go after and start kill protocols on things like candida or yeast overgrowth. Again, if you have a chronic infectious illness such as Lyme or any one of its co-infections or possibly some viral illnesses along the way, then there's protocols that we can use for that as well.

Things like IV ozone and, and there's botanicals. But there's IVPC, which we're going to chat about. So there's just a stepwise way that we need to do it and then I use some advanced therapies also with neural peptides that we can utilize to sniff and to help decrease brain inflammation and encourage new growth.

And then the really, really important piece is to learn how to exercise the brain, to create new neural pathways, and there's a lot of ways that that can be done. I know you're gonna have Dr. Datis, Kharrazian speaking to that. I have one of Dr. Kharrazian proteges here in my clinic, Dr. Leila Doolittle.

So she does a lot of the brain exercise work with eyes and certain patterns and things that you watch and do. And I would have to say ballroom dancing is also one of the really important things I think that can be utilized to help the brain.

So there are step-wise ways that we first heal the gut help to upregulate all the drainage mechanisms in the body, and then upregulate detox and then go after kill and then go after really rebuilding the nervous system in many different ways.

Dr. Heather Sandison, N.D.

Beautiful. So with that, you know, part of the conventional medical system is very much trained us to say, all right, I have a symptom, give me a pill and make it go away. And what you're describing is a much more comprehensive approach.

So how do you help patients kind of recalibrate their expectations around how quick they might expect results?



Dr. Margaret Christensen, M.D.

Well that's a great question because we certainly know that for example, none of the Alzheimer's drugs really do anything. They don't really work very well. And, I'm just, you know, teach folks about you have this sort of this toxic bucket that has gotten full and is spilling over.

And the idea is not to put a lid on it with medications it's to open the spigot at the bottom, to start to drain that and then to identify what Dr. Bredesen causes the 36 holes in the roof you have to identify all the different components that we're working with. How much stress? How much toxins? How much nutritional deficiencies? You know, again, how many hormonal imbalances. So this is a process that takes, you know, you didn't get here overnight. This is process that takes, you know, quite a bit of time.

And you're looking at probably a minimum. If you're working with somebody, who's got cognitive decline, a minimum of 12 months to kind of turn things around, although you can see, depending on their symptomatology, you can see much quicker responses, but in terms of getting to a point where you're really laying down new neurons and creating new pathways, you're probably looking at least a year and then a lifelong process of staying in the lane of creating healthy neurons and not trying to treat what's already been damaged using medications that aren't particularly effective.

Dr. Heather Sandison, N.D.

I don't know if you've run into this in your practice, but certainly as summertime approaches, I have a lot of patients who are starting to feel better and all of a sudden they start taking on way too much.

So they're having burgers and beers occasionally, and then they're going on trips and they're, you know, it's summer vacation and they're feeling a little better probably also because of more sunshine and all of a sudden we're two steps back. What do you say as people start to feel better? You know, this is a great thing. And do you have a way that--

Dr. Margaret Christensen, M.D.

Well, again, I tell folks, you have to continue on your protocols at least six months after you start to feel better to continue the same things that we're doing, because yeah all of a



sudden, we're starting to get some things working, but you have to actually solidify that. And we certainly know that there's a lot of science behind how the neurons grow.

How long does it take them? How long does it take to recreate new pathways? And, you know, again, many folks by the time they've come in to see you, or I have had many, many years of feeling disrupted. So I generally sort of say, you know, at least three months per year if you're not feeling well, is the minimum it's gonna take.

Dr. Heather Sandison, N.D.

Oh, that's a nice calculation to offer someone. So you mentioned a little bit about biotoxins disrupting the gut. Are there other mechanisms by which they impact detoxification?

Dr. Margaret Christensen, M.D.

Oh, absolutely. And specifically, you know, toxic mold, one of the things that does, it really impacts the glutathione synthetase pathways. And so you can actually make up a mock-up directly cause direct impact on some of the detoxification enzymes in our body. That that's one way. The heavy metals can do the same thing.

But what happens is with many of these biotoxins, they're getting trapped inside the cell membrane layer. So it's helpful for folks to understand or know that our cell membranes, as well as all the organelles inside the cells, including the mitochondria are made of two layers. And on the outside, where my hands are, is the water-soluble layer of fossil lipids.

And on the inside, what you have is this layer of sort of like olive oil that should be flexible and moving. And then I'm sitting in the cell membrane or in the mitochondrial membrane are receptors, they're kind of like floating around like potatoes across the cell membrane and they are, the receptors work like our eyes or ears or our mouth as I'm telling the inside of the cell what's going on in the outside of the cell and vice versa.

So if you get these biotoxins, which are fat-soluble trapped in this lipid layer, in the phospholipid layer, you go from having olive oil to having like lard in there. And so it stiffens the cell membranes, it stiffens the mitochondrial membranes, and you can't get oxygen and nutrients in, and you have a difficulty getting toxins and energy out or whatever it is that cells trying to produce. You know, if it's in the gut, it's gonna be producing digestive enzymes or hydrochloric acid or something.



If it's in your ovaries and you're gonna be trying to produce hormones. If it's in your bones, you're trying to lay down new bone. So you're going to disrupt the function of the cells. Neurons are making neurotransmitters and they're not working. So biotoxins can act at multiple different levels.

Either direct toxicity to the cell membranes, or it triggers auto immune responses, so that the whole body becomes, can become involved with that. It disrupts energy function as well and then you can have an allergic response. An immune system response. So some biotoxins in particular if we were speaking of mold and mycotoxins suppress certain parts of the immune system called the innate immune system.

It suppresses that part and that's the part that actually goes after things like viruses and cancer cells and abnormal cells. Our innate immune system is kind of like patrolling all the time and identifying invaders and trying to get rid of them. But if that part is not working and the other part of the immune system is called the adaptive immune system, that part is working overtime. And that's the part that makes antibodies and cytokines.

So I think everybody's learned about what a cytokine is since we've had COVID, you get over-activation of antibody production and cytokine production and forgetting to look for the abnormal cells and for the invaders. And so this is what makes us much more susceptible to things like infections, to viruses, to COVID, to Lyme to other things.

If you've got a high biotoxin burden, you are more likely to have some of those other things going on. And so, yeah, and just as big and bounce. So part of what the other piece that we're doing is helping to bring this back into balance. They bring up the innate and bring down the adaptive.

Dr. Heather Sandison, N.D.

A lot of my patients don't realize that CellCept a commonly used medication in the autoimmune world is actually mycotoxin in pill form, So not only are these things effective immunosuppressants when they're in the environment, but like they're so effective that the pharmaceutical company has put them in pill form and give them to people who have overactive immune systems.



And of course, that's not like the process that we want to be supporting. We want to support health, not like you said, just putting a lid on that, but I think it illustrates just how destructive those mycotoxins can be.

Dr. Margaret Christensen, M.D.

Well, CellCept, I think I believe is a form of mycophenolic acid, which is one of the things that we test for. Mycophenolic acid can be produced by a lot of very nasty, toxic molds in water damaged buildings. And, you know, to your point, mycophenolic acid is actually used in people who are getting bone marrow transplants.

They use mycophenolic acid to knock out somebody's immune system entirely at very high doses, to wipe out their immune systems and then they give them somebody else's. They do a bone marrow transplant. So these are toxic substances. And many of the microtoxins too have been used in chemical warfare.

They have severe neurological consequences and why they've been used. So I think that that's an important point. I'll also bring up antibiotics. Many, many antibiotics or mitochondrial toxicants. Our mitochondria actually look like little bacteria. And the role of antibiotics is to poke holes in bacteria, in the wall of bacteria. That's how many antibiotics work and the antibiotic penicillin for example, is actually derived from the mold penicillium.

And so if you had a bunch of penicillium growing in your house and you're producing some of these mycotoxins that are coming off of it, it can be one of the reasons, again, you're having a lot of upper respiratory issues, a lot of chronic sinus infections. Everybody's got allergies, the kids have strep throat and ear infections.

And, you know, everybody's got LDD. Mom feels tired all the time and crappy and her periods are all off. Dad's super irritable and he's got erectile dysfunction and he's pissed off. So and his blood pressure has gone up. And the dog is coughing and having diarrhea. So there you go.



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Dr. Heather Sandison, N.D.

It really does start to make sense when you break down these mechanisms, why having a moldy home or being exposed to these toxins can show up in different people in different ways. And it can be really, really confusing both for the patient, you know, the people suffering and then also for the doctors as they go and see different specialists. And no one's really putting it all back together, the way you are in your clinic.

So tell me a little bit more about cell membranes, mitochondrial membranes and neurons, what they're made of and I think this is a gorgeous segue into talking more about phosphatidylcholine, which you've already teased us about a little bit.

Dr. Margaret Christensen, M.D.

So again, you know, we talked about that double layer of the cell membrane and is water-soluble on the outside, and then it's got these lipid tails and then those are called phospholipids. So 80% of the outer cell membrane is made up of phosphatidylcholine.

And in the mitochondria, you also have phosphatidylcholine on the outside cell membrane and something called phosphatidylethanolamine on the inside of the same memory, and there's also other ones phosphatidyl and acetyl phosphatidylserine. So again, you can utilize, phosphatidylcholine both given orally as well as IV along with some other nutrients to help both work on detoxification pathways and actually wash out these toxic substances as well as rebuilding.

Again, our body naturally produces phosphatidylcholine out of many, many different precursors, but when you've had overwhelming disruption in your cell membranes in the body, and indeed different detoxification mechanisms utilizing nutrients, like phosphatidylcholine can be very effective. But it takes a while.

Phosphatidylcholine has an effect on the liver as well. It helps to kind of produce more bile and flush the bile out. So this is a good way again to carry toxins out. So we use it both in for detoxification help with the cell membranes, as well as for rebuilding cell and mitochondrial membranes.



Dr. Heather Sandison, N.D.

And then when you're using it orally versus by IV, what kind of different benefits do you expect?

Dr. Margaret Christensen, M.D.

Well, again, you know, IV, you can do things a lot faster and you can use pretty significantly higher doses. Again, you have to prepare somebody to be able to do that with them. You have to prepare their gut and their liver and all that.

But certainly for any kind of neurodegenerative diseases and seizures and MS and Parkinson's, that can be very, I mean, again, a lot of time, those underlying causes are these biotoxins, whether there's infections or molds or heavy metals or pesticides and plastics, whatever it is. So we can utilize that. Orally, it just takes longer, but there's other components of the protocol.

And in the past, now it's known as a lipid membrane therapy. It's been called the PK protocol over time after Patricia Kane who's the brilliant cell biologists and scientists who started working with tiny tiny babies preemies. And, you know, that's how she started her work in this area and how to help their nervous systems rebuild and really pretty amazing.

So at the end, we can certainly talk about the beneficial role for women who are pregnant and be able to use phosphatidylcholine to help with good brain development. So there's other components to this. You also use something called butyrate. Butyrate is produced by the normal healthy bacteria in the intestines.

It helps to nourish and feed the lining the intestines, but also butyrate helps to break down those what are called very long chain, fatty acids. Those lipid rafts inside the cell membranes can be broken down using butyrate. And then oftentimes we're used include glutathione which is both orally and or IV.

And it's precursor called N-acetylcysteine, glutathione is a potent antioxidant and detoxification agent. So it helps to wash things out and then you need some kind of binders to bind up the toxins as they're coming out so they're not re-circulating.



And then what Dr. Kane talks about are different toxic chaperones, including bile salts and things like TUDCA Those are things that we can utilize all as part of the PK protocol, along with a clean diet, lots and lots of fluids, liquids, and particularly that have minerals and electrolytes in them. And you can get rid of heavy metals without doing chelation by using phosphatidylcholine.

Dr. Heather Sandison, N.D.

That's phenomenal. The different mechanisms that work here, when I think about using PC and glutathione as well, I think of them kind of Chris Shade, who we both know who works a lot with mercury detox, he calls it like push and pull or elimination and mobilization are the other words that you use.

And phosphatidylcholine is certainly more in the category of that push, it pushes it out of the cell or mobilizes it and so I think what you're speaking to here with making sure there's binders on board, preparing people in advance, making sure that we're not pushing more than we're pulling, we're not mobilizing more of them, we're eliminating and really getting out of the body versus just out of the cell.

Dr. Margaret Christensen, M.D.

That's, absolutely right. And, you know, I can tell you, I mean I have a lot of clients too who've seen other, you know, good functional medicine practitioners and all that who may have just not have had quite as much experience.

And the critical piece is, you have to prepare the body appropriately, or else you are pushing way too fast. Particularly, for example, doing things like IV chelation for heavy metals. That never should be the first thing to do ever in my book. And so you had to kinda be careful which way you do things.

Dr. Heather Sandison, N.D.

Yeah, yeah, absolutely. So what makes PC particularly important for the brain?

Dr. Margaret Christensen, M.D.

Well, again, you know, it's what nine pounds of fat sitting on top of our heads here. Fat soluble membranes and trillions and trillions of mitochondria.



Utilizing and also something called acetylcholine. So choline is the backbone that is this sort of the fatty lipid piece of this. And acetylcholine is a neurotransmitter. So depending on how long the lipids are, if it's really short, then it's a neurotransmitter called acetylcholine important to help in memory. It's incredibly important as well.

And then the cell membranes themselves and the neurons themselves. And then hopefully somebody is also spoken to myelin and myelination. So myelin also has a whole bunch of acetylcholine in it. So myelin is the insulating sheath that surround all of our neurons and in many areas of the brain, the white matter, that has a lot of myelin in there.

So a lot and lot of toxins get trapped in the brain. And then if you've had a lot of chronic sinus inflammation and you have a lot of gut inflammation going on and you have toxins and inflammation chemicals signals crawling up through the vagus nerve up into the brain. That's why we can see so many problems from behavioral issues to cognitive decline and the neurodegenerative diseases all really caused by some of the same underlying, sorry, all caused by the same underlying challenges.

So that's how it can be very beneficial. At the same time I'm using that particularly for somebody who's got some cognitive decline issues or traumatic brain injuries. I'll use nasal peptides like Rg3 or BPC 157 also to stimulate a new neural growth.

Dr. Heather Sandison, N.D.

Fantastic. And are you using Sealink or Cmax at all?

Dr. Margaret Christensen, M.D.

I have not. Which one?

Dr. Heather Sandison, N.D.

Clink or Cmax. There's some of the other neuropeptides.

Dr. Margaret Christensen, M.D.

No, I haven't tried those yet. I just I've dabbled a little bit, but those are the two main ones that I use. And also VIP vasoactive intestinal peptide, very useful again for turning on mitochondrial DNA.



Dr. Heather Sandison, N.D.

There's so much exciting stuff happening in the peptide world and especially with the intra-nasal ones being so close to the brain. So you hosted the Toxic Mold Summit and I'm thrilled to be hosting this summit.

I'm curious where am I gonna be in a couple of years? What are the few nuggets that you really took away that have impacted the way you practice just by hosting experts in this field?

Dr. Margaret Christensen, M.D.

Great question. I think that the work by ENT Dr. Donald Dennis was just mind blowing in terms of understanding the, again, the role of the sinus in psychiatric disorders and neurodegenerative disorders and again, ways to approach it other than another round of antibiotics.

And he does some amazing work using nasal antifungals and actually you're getting the sinuses in a surgical procedure that are just amazing. And he's also developed a lot of things around the whole world of mold, and mold toxicity.

So, you know, I definitely, I learned that I spent a lot of time both with Dr. Leila Doolittle who actually works here and Dr. Suzanne Gazda who is an amazing integrative neurologist, who again, really learning a whole lot about the limbic system and how limbic system ends up perpetuating a lot of dysfunction and the need for getting that under control and that was actually Annie Hopper's work as well.

And now we've have Ashok Gupta also doing a lot of work around the limbic system retraining and how important it is to be able to use our conscious minds and our conscious brains to override some of these chronic signals of distress dysfunction. So I think those are kind of three main areas of that were important learnings.

Dr. Heather Sandison, N.D.

And then your background in women's health and as an OB/GYN, I'm curious, when would you say we should start preventing Alzheimer's like, when does cognitive function sort of begin.



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Dr. Margaret Christensen, M.D.

Well, prenatally. You know, before you get pregnant, I would really suggest that both women and their spouses undergo some detoxification protocols and assessment and get on really clean diets and clean up their air quality, just all the things that I said, clean air, clean food, clean water, clear mind, because we know that there's a lot of epigenetic impacts too, on our gene.

So epigenetics means it's means above the gene. It's not our genetics itself, but if we have things in our environment that end up sticking to our genes and impacting the way they express themselves, then that can lead to everything from autism again that whole spectrum of challenges, including Alzheimer's.

So I would say starting prenatally by really trying not to get pregnant until you've really clean things up and make sure that your nutrients are really top-notch and all that during pregnancy. Again, you can take phosphatidylcholine and that can help to boost your child's brain development. And that's a pretty amazing Patricia Kane, as I mentioned, she, a lot of these teeny tiny preemie babies, you would otherwise would normally have grown up to be severely blind or cerebral palsy, or, you know, significant cognitive challenges.

So many of the babies that she's taken care of were just absolute miracles. And that's because she was giving moms this high lipids diets. Very clean lipids and lots of phosphatidylcholine and their breast milk would be like cream coming out and giving it to the babies. And just even to feeding the babies with this, which was pretty amazing. So moms can safely take it during pregnancy.

The quality of phosphatidylcholine is absolutely imperative. There's a lot of crappy stuff on the market. A lot of it is soy derived from non-organic sources. So there's really only two companies that I would recommend using. And that would be a Bodybio and a Membrain Health and Membrain is M-E-M-B-R-A-I-N, as sources for the phosphatidylcholine.

Dr. Heather Sandison, N.D.

Yeah and for IVPC as well, are you making sure that it's not--



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Dr. Margaret Christensen, M.D.

So the IVPC that I utilize, it actually comes through from a company in Switzerland. And again, there's a lot of compounding pharmacies that say, well, we can make phosphatidylcholine but I wouldn't trust it. And again, people who have sort of heard of this, but never really done any of the training behind it.

They don't understand that you can, the type of phosphatidylcholine that you get from a pharmacy or whatever those lipid chains, those lipid backs on them. It can be completely different from what actually you need and what's bioactive. So it makes a huge difference in some of the compounded, ones can create a lot more side effects.

Dr. Heather Sandison, N.D.

And then when you do the IVPC, are you doing it where you draw the blood out, exchange the blood and then push it back in, or are you doing the drip and D5W.

Dr. Margaret Christensen, M.D.

We do drip, you can do direct IV push. It depends what you're trying to do along the way. You can do direct IV push. We do it to mixing with the D5W and then we chase it where you have IV butyrate drip first, and then some PC, and then some folinic acid and B12.

And there's a whole way to do it, there is a whole beautiful dance, and so I would, for any practitioners who are listening or any, clients, you know, send your practitioners really to it's neurolipidresearch.org and--

Dr. Heather Sandison, N.D.

And is that's Patricia Kane's website?

Dr. Margaret Christensen, M.D.

Yeah, that's her website. and they have all the trainings and Membrain Health also runs a lot of the trainings now and that's her new company. And so it can be a very helpful and very useful.



Dr. Heather Sandison, N.D.

Very helpful. That's wonderful. You know, you shared with me the story of how you came up with the name Carpathia Collaborative.

Dr. Margaret Christensen, M.D.

Collaborative.

Dr. Heather Sandison, N.D.

Collaborative and it was just such a powerful story. Would you mind sharing with our listeners?

Dr. Margaret Christensen, M.D.

The Carpathia was the ship that picked up the survivors of the Titanic. So we have the Titanic of western medicine that's just treating the tip of the iceberg and not really looking at the underlying causes of the problems and we are foundering because of it.

So we have sort of the functional medicine approach of Carpathia and many of the other practitioners are out there who are picking up the survivors and, you know, we're using a whole different approach.

Dr. Heather Sandison, N.D.

That gave me goosebumps twice now. It's just so neat to hear. You are so passionate and so sincere in your just desire to help people get well. And I think probably a lot of that comes from your personal experience, your family's experience, and then if it shines through in your practice and all of the teaching that you do.

Dr. Margaret Christensen, M.D.

That's all true. Thank you so much.

Dr. Heather Sandison, N.D.

Absolutely, thank you for sharing your time and wisdom. How can our listeners find out more about your practice and all that you have to offer?



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Dr. Margaret Christensen, M.D.

Sure. Well, again, we were at carpathiacollaborative.com and that's a bit mouthful, but you can probably find me and Google me for the name. The other thing that I'm part of is molddetoxdiet.com. Dr. Gail Clayton and I, she was on the Mold Summit.

She is an amazing, amazing former pharmacist. She's has a doctorate in clinical nutrition. She teaches the nutritional biochemistry. She is very deeply involved in the auto immune system and understanding, and we have an advanced practice module for clinicians and caregivers to teach people about what happens to the immune system in with biotoxin exposure, particularly a lot of mass cell.

I didn't mention mass cells. That's a huge thing. That'd be mast cells and histamine release. And as you both, you and I know that very common, underlying a lot of challenges. So molddetoxdiet.com, we have a section both for lay clients for lay people to learn how to talk about, do all the things that I'd mentioned, clean air, clean water, clear, bind, clean food. And then we have the section there for advanced practice.

So if you want to take a deep dive and understand and learn how to actually apply some of these principles and to utilize some of the things that I talked about, the advanced practice module is good for clinicians.

Dr. Heather Sandison, N.D.

How phenomenal? Thank you so much--

Dr. Margaret Christensen, M.D.

You're welcome.

Dr. Heather Sandison, N.D.

For all that you're doing for your patients and educating other providers so that we can all just be helping more and more people rescuing them.

Dr. Margaret Christensen, M.D.

Thank you so much.



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Dr. Heather Sandison, N.D.

It's been such a pleasure.

Dr. Margaret Christensen, M.D.

You're so welcome.