Mycotoxins and the Developing Brain Transcript

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Introduction and Speaker Background

Welcome everyone to the Mycotoxins in Chronic Illness segment. I'm thrilled to introduce my dear friend and colleague, Doctor Tara Boyd, who's going to be talking about mycotoxins in the developing brain.

Doctor Tara Boyd and I have been working closely together for about seven years now, and she's one of the team doctors at Eminence Health and a little bit about Doctor Boyd.

She specializes in pediatric neurological dysfunction, complex chronic illness, mold illness, vector borne illness, and immune dysfunction. She's a board certified naturopathy physician that obtained her medical degree from Bastia University, and holds a bachelor's degree in biology and biochemistry from Harlan Simmons University in Abilene, Texas.

She's trained with myself for over seven years, and following graduation from last year, she completed a two year residency. Doctor Boyd also holds certifications in autonomic response testing, neuro therapy and hydrotherapy, cranio sacral and visceral manipulation.

She has a number of memberships, and she was born and raised in West Texas, and is a third generation medical practitioner who fell in love with medicine at a very early age.

It was always her dream to not only practice medicine, but also be a medical detective trying to find a diagnosis for those who no one else could. She has a passion for tackling the toughest cases head on, and has shaped her medical practice with a focus on children with chronic illnesses and pediatric neurological conditions, including autism spectrum disorders, pandas, Pans, ADHD and epilepsy.

Prior to achieving her medical degree, Doctor Boyd spent over ten years serving clients through massage, body work, and counseling. She knows that no single approach is right for every individual.

So it's been trained in a wide range of modalities, including environmental medicine, art, herbal medicine, homeopathy, nutrition, psycho kinesiology, ivy therapy, canape therapy, neuro therapy, cranial sacral visceral visceral manipulation.

No matter the person or pathology that walks through the door. Her goal is simple to educate, empower patients to find lifelong health and vitality. She's a true lover of nature and spends her free time gardening, hiking with her dog Chewbacca, skiing, ballroom dancing with her husband.

So please enjoy this wonderful lecture from Doctor Tara Boyd. Hi everyone! My name is Doctor Tara Boyd and I am a natural Catholic physician. In the Seattle, Washington area, at a clinic called Eminence Health.

And I have been licensed for about five years now, but I have been studying complex chronic illness and especially the way that that relates, into pediatrics.

Specifically in autism and pans and Pandas for nearly about eight years now. So my talk today is going to be on mycotoxins and the developing brain. So our topics for today are going to be molds and mycotoxins and how that affects the immune system.

How then that effect on the immune system is been linked to autism and pans and pandas. Then we'll talk about what to do about that. So we'll talk about removing the obstacles to cure detox strategies.

And then lastly some therapeutics. So the first thing that I want to talk about are what are mold spores. And then there are also these things called fragments which are similar to spores.

But more so when the mold is dead. So spores are the way that mold reproduce. So what they do is they actually put out these puff balls that contain millions of these spores.

And then wherever those spores land, they then grow more and mold. And so the spores are so small that they're completely invisible to the naked eye because they're they're microscopic.

Now, fragments are actually from dead in dried mold. The thing is, is that they can also be disrupted. And when we breathe those in, they can then also become pathogenic to us.

So both of them, when inhaled, can colonize the nasal passages. The mouth and the lungs and our airways. And they can create acute inflammation, and allergic type reactions.

Mold Spores, Fragments, and Immune Reactions

So let's first talk about spores and the immune system. So spores themselves can induce a multitude of immune reactions that can be inflammatory reactions.

An infectious type of reactions that mimic or look like sepsis such as aspergillosis. And then also allergic type reactions which are IgG mediated. So these allergic reactions can be anything from rhinitis to high being in welts and, skin rashes and itching to then also induction of asthma.

And then kind of the big bad here is mast cell activation. So mast cells are a type of cell that is found in every connective tissue of the body. And the problem with the mast cells is that, they release different types of enzymes and, chemical components such as histamine, proteases and cytokines that induce high inflammation in the body.

And then spores not only recruit the mast cells, but they can also stimulate that granulation and which is the release of those chemical components that are inducing inflammation.

And then once recruited, these mast cells can and do induce other types of allergic reactions to many other substances. So not only are you going to have these histamine and allergic reactions to the mold and the mycotoxins, but you're also going to, we find, have allergic reactions to a whole slew of things that you've never been reactive to before.

That could be foods, could be herbs and supplements could be medications, all kinds of stuff. So then how do molds become mycotoxins? So what actually happens is when mold spores feel threatened, they release these mycotoxins, which are these little chemical, toxic substances that they're releasing in defense of themselves?

Spores are a little bit larger, so spores tend to not cross over into the bloodstream, but stay mainly colonizing in the nasal passage in the mouth, the throat, the airways, the lungs, and the mycotoxins are much, much smaller.

So they actually will slip a little bit more easily into the bloodstream. And then they can create more of the systemic, issues and reactions. So mycotoxins mimic multiple types, types of xeno biotics with respect to how they damage our routes of detox and, and immune, modulation in the body.

And if you're not familiar, xeno biotics are different types of chemicals that actually should not be in the body. And this can be everything from drugs to drug metabolites to environmental pollutants.

We think of those agricultural chemicals, those types of things. And so if we think about the damage that they can do in the body, mycotoxins actually mimic that same type of damage not only to these detox routes, but they can also damage multiple biochemical mechanisms.

And we'll see a little bit of that later. So this is a list of basically what are some of the most prevalent and pathogenic mycotoxins that we find. And then the types of molds that they come from.

And so most of these molds we consider to be the most pathogenic molds out there as well. So Aspergillus is a is

definitely a pathogenic mold. And we just saw a minute ago.

There's actually a condition called aspergillosis, which Aspergillus can then get into the bloodstream and can look like sepsis. And then it also can cross the blood brain barrier and create some other issues.

And then in Nansen B one from through serum is actually another really highly pathogenic mold. And micro toxin, glial toxin is also really common. Okra toxin is also really common.

Those are some of the big ones that we see. See the most common. And then also this, Tricot city's check of these is, is very pathogenic. It comes from you can see these four here.

But sticky batteries is what we think of as our black mold. And we know how pathogenic black mold is. I'm pretty sure we've all heard of that before. And one of the reasons is because of this specific micro toxin.

And then the zero lead on that comes from the food serum. Is is also extremely, toxic to male and female reproduction, which we will see. And I am finding that more and more in, my female population that is, are struggling to, to get pregnant or hold on to a pregnancy.

I find this really quite often. So how do these mycotoxins then affect the immune system? So aflatoxin is actually going to decrease leukocytes and lymphocytes.

So this is going to be immunosuppressive. And when we have immune suppression we run the risk of cancer cells being able to overgrow. And we do actually see an increased risk of cancer with aflatoxin.

That's again you know, we think about it coming from that Aspergillus. And we see this quite a bit in the chido gloves. And this actually will disrupt cell division.

And so we think about our repair mechanisms. The fact that we need cell division in every organ of our body to, to continue living, but then also if we've had any type of, you know, neuronal issues, neuronal cell death, brain inflammation, brain damage, and we're needing some of that neuroplasticity of regrowing those, those neurons in the brain.

Mycotoxins and Their Systemic Effects

If our cell division is disrupted, then we're going to see an issue there, too. And the problem with this one is that it actually will cross over into the blood brain barrier.

So if it's crossing into the blood brain barrier, we know it's creating damage to the neurons. The other thing that we know about this one is that it creates damage to the spleen and the thymus as well, and that is also going to be immunosuppressive, because those are two of our main, immune organs of the body.

So the situation is nepro toxic, meaning that it is toxic to the kidneys, and can create quite a bit of an issue there. And then also it's known to cause, elevated blood glucose.

And this is usually through the role of the glycogen metabolism in the liver. And when you have that, artificially elevated blood glucose, we do see a little bit of an increased risk of diabetes like syndromes or insulin resistance.

In the presence of this, this micro toxin. And then there's the event in B one. This is also one of the ones that I think of as kind of a really big, bad, in the developing brain of children.

So we know that it crosses the blood brain barrier, which is a huge issue. And then what is the other huge issue that it's happening is the depolarization of the mitochondria.

So when we think about the mitochondria, we think about the electron transport chain. And basically that is a biochemical pathway where different, electron electrons and negative hydrogens and different things are coming in

and feeding into that chain that is then going to lead to ATP.

And ATP is the energy production of our cells. It's how our cells function. And it's how how we stay, aware and alert when we're thinking about mitochondria in the brain.

If you have depolarization, because those electrons are negatively charged, you're going to create an issue where they're not feeding into that that chain very well, and therefore you're not going to have proper mitochondrial functioning.

And we do see a lot with, with autism and even with pans and pandas that there's an issue, with mitochondrial functioning, in, in the brains of these kids.

So and we find this micro toxin to be one of the reasons why. The other thing is we know it's carcinogenic to the brain. Astro glia. The astro glia sites are what actually will help create that blood brain barrier.

And so if they're carcinogenic to that, then we know that they're damaging to it. And this is probably one of the ways that it crosses into the blood brain barrier so easily.

And then we know that it is immuno toxic to the fetus that is in its developmental stage. And we've seen there's, some really compelling research that shows that there's a higher incidence of autism and pans and pandas when we find this micro toxin, in our moms when they're pregnant.

So this is one of the reasons that, you know, my moms who come to me, because I do this type of work. I'm making sure that I'm testing all of them for mycotoxins and making sure that if they're there, we're doing some therapeutics, which we'll talk about later.

To make sure that that is not creating an issue with the the developing baby. So then we have glial toxins. Glial toxins inhibit phagocytosis. So phagocytosis is where we have, those cells called macrophages, which stands for big eaters.

And so they're part of our, our primary immune system. That are some of the cells that go after pathogens at the very first of infection. And so when you suppress phagocytosis you're suppressing the immune system.

And then we see with this that it then allows all of these other pathogens to overgrow, which can become a real issue. And then okra toxin, a okra toxin A induces a lot of oxidative stress and oxidative damage.

And it is known to do that. So in the brain as well. So it is neurotoxic. It will also do that in the kidneys and be never toxic. And then that oxidative damage can actually also then be suppressive to the immune system.

And so it's immuno toxic as well. The other thing about okra toxin A is that it decreases dopamine. And we do see dopamine issues in a lot of times in these kids, that are either on the spectrum or pans, pandas and then thinking of that sticky batteries so that black mold, the tri co cities, this is going to severely suppress the immune system to where you, have a drastic reduce of resistance to infection.

It also induces thrombocytopenia, creating blood bleeding disorders, and is highly carcinogenic. So that's one of the the ways that black mold got its bad reputation was that it can induce a lot of cancer in people.

When you're especially if when you're in it for a prolonged period of time and then the zero known, again, we see male and female reproductive issues in this infertility.

And then it's known to prevent, the early stages of development of the fetus. So a lot of my, my females who are coming in and they're having recurrent miscarriages.

I do see this be a factor, in a lot of, in a lot of those cases. Okay. So then how do these immune issues, and immune, stimulatory and suppressive, mechanisms from the micro toxins.

How does this then lead into brain inflammation. So we talked about those cells. And those mast cells are increasing the histamines and the cytokines.

And both of those are highly inflammatory, to the system and even to the brain. And we'll see kind of how they cross into the blood brain barrier in a little bit.

So spores and mycotoxins also can affect sleep. And we know that our brain heals while it sleeps, and it actually rewires and creates more of that neuroplasticity when we sleep as well.

And then also the lymphatic system, which is the lymphatic system of the brain. So it's how the brain drains and gets any types of toxicants or if there's any, you know, cellular debris or anything that needs to drain out of the brain, it comes out through that lymphatic system.

Well, that glimpse that system is ten times more active during sleep. So if we're, you know, hindering sleep at all, we're not having that good draining of the brain.

And then we can see right here these micro glial cells actually manage this system. So these are these like local cells. And you can see how they're attached in this web with the neurons of the brain.

And so they're helping with that that drainage of the brain. But we have other mechanisms of action of micro glial cells as well. So micro glial cells are actually a type of phagocytic cell.

So this is what a microglial cell looks like at rest. And then in the presence of neurotoxins or even mycotoxins or other types of xeno biotics, they then get activated and they become a phagocytic cell.

So they're now one of those types of big eaters. The problem is, is that they not only will go and try and clean up the neurons, go and try and eat, I'm sorry, the neurotoxins, or go and try and eat the mycotoxins or any other thing that they find to be toxic or pathogenic in the brain, but they're not specific.

So they will also eat up some neurons. And so then you'll have neuronal death. And when all of that is happening, you're also then going to start recruiting other cells of the immune system.

That is going to induce inflammation of the brain and then other things that happen. So activated mast cells actually release a component called triptans.

And this induces these microglial cells as well.

Brain Inflammation, Blood-Brain Barrier, and PANS/PANDAS

So not only do you have just pure mycotoxins that will induce them, but an activated mast cell will be releasing triptans that will also then be recruiting them, and activating them and creating more of that neuroinflammation.

And through some of these processes, this is how mast cells actually increase the blood brain barrier per ability. And we'll see in a moment. You know, having a permeable blood brain barrier becomes extremely problematic, especially if you're developing in the womb or if you're in the early stages of life, as a little baby or toddler.

And there are many studies, that show that maternal immune activation and inflammation during fetal development is highly implicated in neurologic and neuropsychiatric psychiatric disorders in children.

So autism spectrum disorder, also known as ASD, one of the big components, and we've just touched on all of this is a leaky blood brain barrier. And this happens through that mast cell activation, through the mild glial activation, and will allow some of those xeno biotics, heavy metals and other chemicals and substances across it, and, and get into the brain.

And once that's happening now you have all these other toxicants. So now you have some infectious pieces, but

you also have some other, toxicants in the brain.

And the body is going to go and try and clean that up. And when that happens, you start to have this kind of micro neuroinflammation. And this can be from, you know, it's cytokines from the immune system that are getting activated, that are trying to go in there and clean.

And what that ends up looking like is ends up looking like an autoimmune encephalopathy. So an autoimmune swelling or inflammation of the brain. And there's actually been some research coming out of Europe where they're now starting to want to call autism an autoimmune disease, and saying that it's actually an autoimmunity of the brain.

But in truth, it's the immune system being able to cross into that blood brain barrier because the blood brain barrier is leaky. And now there's other substances in there.

And so it's this big cleanup operation. But unfortunately, what happens then is that you have inflammation in the brain, which then can damage different parts of the brain, including the amygdala, which is where we have our emotional centers and our, you know, our social connection and that type of a thing.

So thinking about that symptomology, of these kids, on the milder, milder side, there can be this kind of misappropriate social conduct, but then we can start to get into a little bit more severe.

So there can be stemming, which can be anything from, you know, flapping of the hands to holding of the ears, you know, verbal stimming, even clicking of the jaw and stuff like that.

And a lot of this is because the brain is overstimulated, because when the brain becomes inflamed, those neurons are basically on fire. And now the brain is is overstimulated.

And this can, of course, lead into the child becoming nonverbal and then unfortunately, in severe cases, there's self-harm and even harm to others. And I do see, you know, as the children get older, especially if they're boys and they get into their teenage years and they start having testosterone in the body, that the self-harm and harm to others can, can become quite a bit worse.

But if we can reduce this inflammation and we'll get into that in a minute. With some therapies then, we see a lot of this, remit. So then Pans and Pandas.

So pans and pandas are fairly similar in their symptomology picture pans is pediatric acute onset neuropsychiatric syndrome. And then Pan does is is pediatric autoimmune neuropsychiatric disorder associated with strep.

So in pandas strep is the primary pathogen whereas in patients it can be anything. So Pans is kind of a catch all term. Because it can be happening from mold and mycotoxins.

It can be happening from different bacteria such as Lyme, Borrelia or Bartonella or any of those types of things. I also see it in some viral infections, such as Epstein-Barr, things of that nature.

But for the purpose of this talk, we're really talking about those mold and mycotoxins, which can lead to that, that pans picture. And then I thought this graphic was great.

I thought it was kind of cute for a not so cute situation, but it really depicts this molecular mimicry, because that is what's happening in Pans and Pandas is that you have a pathogen like this little pink guy right here who kind of reminds me of a little parasite, or even aspire like Borrelia.

But, what has happened is this pathogen has been allowed to cross into that blood brain barrier, and then it's trying to hide. So you can see how it has all these little pink spots on it.

And you can see over here on this happy neuron, there's also some pink spots. So what this pathogen has done is

it has put antigens on its surface to make it look like it's a happy little self cell, hoping that the antibody will leave it alone.

The unfortunate thing is that the antibody will actually look at both and start to look at both of them, because it sees other antigens on this pathogen and knows that it's not self, but it's now alerted to the pink antigen.

And so it sees this over here. And apparently doesn't see the neurons happy face, but sees this over here and decides that they're both foreign and they both need to die.

And so that is what molecular mimicry is. And so then these antibodies then become autoantibodies because now not only they're killing pathogens, but they are now killing self healthy neurons.

And this starts to really induce inflammation in the brain, and auto inflammation. And so those mold and mycotoxins that can then leak across that blood brain barrier are getting into the brain, and, are not only themselves going through a little bit of molecular mimicry, but they've created that massive, leaky blood brain barrier.

And so these other pathogens, can get into the brain a little bit more readily. And I even see that, you know, kids who are doing well, but then suddenly get sick again because that blood brain barrier is too leaky.

Can have flares of, of their panda symptoms, and those symptoms pictures are things like OCD, anxiety, some rage, awfulness, aggression, and even severe outburst.

And I the unfortunate thing is this can happen at any time. So, I've actually seen this happen in adults who were fine, but then they got into a huge mold exposure.

Their blood brain barrier became leaky. Then they got, you know, a spider bite and got some Bartonella, and then they started having pains, like, symptoms.

So while this is mostly pediatric, it can even happen into adulthood. So again, why we want to just be really careful of making sure we're not in a moldy environment.

So then what do we do? So I always think of our therapeutic order. So whenever I'm thinking about my patient and how best to treat them, I want to go with a naturopathic therapeutic avoider.

And so the very first thing that I think of is removing the obstacles to cure. Because if we want to throw supplements and herbs and all kinds of things that you forever, but you're still in a moldy environment, we're never going to get anywhere.

So we always want to make sure that we're cleaning up the environment, as much as possible. So the first thing here is, if there's mold in the house, we've got to get it out.

So my two favorite tests to test the home are the hurts me in the Hermie the hurts me tests for the five most pathogenic oils. And the Army test for a slew more.

And these are little cloths that you go around and wipe down and little vacuum attachments. And they actually then culture those grow whatever mold was in there.

And then they can tell you not only what's in there, but to what level and what degree. And so then you can start thinking about, you know, do we need to do any type of remediation.

So I want to talk about how there's a difference between remediation and treating. So treating and there are a lot of mold companies out there that do this.

And this is kind of the standard is that they will come in, they'll spray a fungicide on the mold, and then they'll spray a type of like white paint in capsule.

And they'll encapsulate it. And then what happens though is within about 3 to 5 years, that mold breaks free again. And not only that, but generally those treatments don't get at all.

And so I've seen, you know, people treat everything. And within a few weeks there's little bits because again, there's mold spores. Right. Or puffing out, there's little bits of fingers that start to grow out even further into the walls because they didn't fully get at all.

Remediation, on the other hand, is actually when they come in and they remove all of the mold that they find. So I do recommend if we find mold, we do a full remediation.

And then always making sure that our air is clean. So Hepa air filters are a really great way to make sure the air is clean. And then I do like to use propolis vaporizers, which, you can get from a couple different companies, but they actually, you know, vaporize the purpose into the air, which is sticky.

And the mold spores will actually stick to it and it kills them on the spot. So that's a really great way. And then always thinking too about cleaning your surfaces.

So if there's been mold in the house, but it wasn't too severe, and we did a little remediation and then needed to do some cleaning, there's a product called EC three and you can actually wash your clothes in the EC three.

You can use the sprays, you can use it on carpets and all that kind of stuff. And then there's HCL, which is hypochlorite acid. And it is also a really great way to, to clean out it kills the mold as well and clean that out.

And then you can actually diffuse the HCl in the air as well. So in thinking about removing the obstacles to cure. So I know that this is a talk about mold.

And I'm about to talk about electro smog. But this is a really important topic when we think about mold.

Removing Obstacles to Cure: Environment and Diet

I actually had a teacher who once said that it is mold job to bring us back to the earth, and if we agitated by putting it in the presence of a high electromagnetic field, it's going to do that job a lot faster.

So we just want to make sure that we're not agitating the mold because it will, the electromagnetic radiation from you know, everything from our Wi-Fi routers to cell towers to our cordless phones to now we most of us have, you know, smart refrigerators and smart ovens and stoves and all of that.

Plus thinking about to the smart meters, you know, that are that are actually on the house and, our computers and our microwaves and possibly dirty electricity coming out of our outlets, all of that is going to agitate the mold.

And if you look over here, you have these precious sleeping babies over here, and their little nervous systems are growing and are very sensitive and fragile, and we are bombarding them with all of this electromagnetic radiation.

Right. So we're bombarding them with, you know, magnetic waves and electric waves, and then those radio frequencies, which come from our Wi-Fi routers and the cell phone towers and those are, kind of the big that uglies.

And so not only do we want to think about, let's not agitate the mold so that it becomes much more virulent. And we can actually have, stronger, pathogenic reactions to it, but just our nervous system in general because, it is, you know, Wi-Fi and these high electro smog, environments are known to disrupt our sleep, which we saw earlier.

You know, that's when our brain rests and repairs and also rewires. And then also when our system is activated the most. So we want to make sure that, we're not interfering with our sleep.

And then also, you know, this also decreases melatonin. So Wi-Fi can actually decrease melatonin in the brain. And the, melatonin is highly antioxidant of an anti-inflammatory and is, in my opinion, one of the best ways to treat,

multi brains.

And so we don't want to be decreasing our natural melatonin in the brain by, having us be in that the presence of that electro smog. And then another way of removing obstacles to cure.

We need to think about cleaning up our diet. So I have over here the 11 highest foods in mycotoxins. And not only are these do these get mycotoxins or get mold on them and mycotoxins while they're growing.

But especially these grains. So the barley, the wheat, the corn, the rye, the sorghum, these grains, when they sit in their grain silos, become incredibly moldy.

And so they periodically, even if they're organic, they periodically spray them with organophosphates while they're in there, in order to try and prevent them from becoming too moldy.

So, you know, they have a, a level of mold that they allow them to become. So they're super high in mycotoxins and then also thinking about dairy. So unfortunately, because of the way that most of our cows are treated in the way that they eat, they are fine to have elevated levels of aflatoxin M1 and aflatoxin M1 has been shown to be possibly carcinogenic.

So we want to make sure we're removing those as well. And then depending on how bad the, you know, the, the infection is and the pathogen, and then also, the symptom, presentation, we also want to look at not having too many of these simple carbohydrates that will actually feed the mold and mycotoxins while we're trying to get rid of them.

And then if the mast cells are a picture. So if the mast cells are an issue, which usually they are when we've had this whole mold issue, then we want to also be careful of leftovers because leftovers, if they've been in there for 18 hours or more, they're already starting to grow a little bit of mold and you may not see it, and it may not immediately create any kind of gut upset or belly upset or anything like that.

But, but it can actually reactivate those mast cells and start to induce that inflammation all over again. So we want to be careful that. So then detoxing.

So one of my favorite sayings is the solution to pollution is dilution. And so in thinking about detoxing right now what we're talking about is really opening up our routes of elimination or detox pathways, draining our liver, draining our kidneys, draining our lymph.

So with our liver, we can think of things like liver compressions, which is a way to actually hold the liver, both on top and bottom and be able to squeeze and kind of milk it and milk out some of that bile and get it flowing again.

I also really like to use castor oil packs. It's a great way to d flame the liver and also help, with its flow again as well. And even in the kids you can do enemas.

So you just want to be really careful and make sure that you're doing them properly. But I have so many parents who are to do enemas with their kids. And when you can do saline, you can do extremely dilute coffee.

So you don't want to be too stimulating with the coffee. The coffee actually helps to activate the liver. And then you can also do some butyrate enemas, which really helps with not only, mold and micro toxin detox out of the liver.

But can also help with, colon integrity as well. And then there's a ton of different types of homeopathic drainage remedies, that work really well for the liver and then the kidneys.

Another huge route of elimination. So electrolytes and electrolyte water actually help with kidney perfusion. And that is a really important aspect when you're dealing with mold.

One of the things that I see, very often in, in people who and especially kids, that I see have issues with high

oxalates. And I'm seeing this more and more and more.

So, kids who have high oxalate issues and don't tolerate oxalate foods, I really find moldy kidneys. So using electrolytes actually increases perfusion through the kidneys.

And then we can use galactose to help with kidney tissue integrity and homeopathic to really help with that drainage and more perfusion. And then I actually see the oxalate issues go away as well.

So then thinking about the lymphatic system. So we want to make sure that that's all moving. So with lymphatic we also have to think about lymphatic and just like we did compressions on the liver, you can do compressions on the cranium as well where you're holding the cranium front and back and doing a series of squeezing, to really actually help manually help drain, that lymphatic system and then always manual and lymph movement.

So you can do manual lymphatic massage. You can do skin brushing at home. There's different types of, that it creams that you can use topically and manually massage your, your limp chains yourself.

And that. Sorry. Excuse me then at Eminence Health, we actually have a tool called flow Presto. Which is a phenomenal tool, and it's a series of compressions.

Detox Pathways and Therapeutic Support

So it's an entire body suit that you're in. That's in it's a series of compression movement, all moving everything towards the heart, as you should with lymphatic massage, but it's also infrared and pumps, which is pulsed electromagnetic field, which is a therapeutic electromagnetic field.

And it is a really great way to make sure that you're continuously getting that moving and flowing, which is really important with the detoxing and then with lungs.

Lungs is actually one of the best ways that we colonize our body, that we actually are exhaling, highly acidic carbon dioxide, and, and helping in that way.

So thinking about doing those deep belly breathing or the mindfulness breathing and then also, sometimes you can do a little bit of nebulizer of the vocal, and that actually will also help with lung tissue integrity and then skin.

Let us not forget our skin. It is our largest, organ of illumination. And, it's thinking about saunas, saunas, followed by cold showers, warming wraps.

Which warming wraps, are actually where you want to make sure the body is warm beforehand, but you're actually wrapping the body in a cold, wet sheet and then covering with blankets, and then the body has to actually warm that up.

And if you leave them there long enough, then they start to sweat and detox. So a really great way to do that. And then also peat baths. So peat also known as more mud.

So mud from the moors, will infuse the body with a ton of minerals and magnesium and things of that nature, but is also very drying. And so it draws out a lot of toxicants, out of the body, through the skin.

So those are really great ways to open up those, routes of elimination and start to dilute the amount of toxins, the amount of mycotoxins that we have in the body.

So then therapeutics, that we can think of always go to binders first. So one of the first things that you want to do is start to actually bind up those mycotoxins and those mold spores and get them out of the body.

So zeolite clays are one of the best ways to do that, because they not only bind to micro toxins, but they also bind to histamines in the body. So they're going to lower inflammation in its totality.

As you do this, Chlorella is always one of the best binders out there. It's a plant binder. So it's an intelligent binder. But the high chlorophyl plants such as Chlorella and even spirulina, are beautiful binders.

They do bind a little bit more to metals than they do, mycotoxins. But they are known to do that as well. And there's always activated charcoal. Activated charcoal is one of the strongest binders out there.

You do need to be careful when you're, binding with activated charcoal, because it will also bind to a lot of your other minerals and nutrients as well.

So you want to be careful not to do it for a prolonged period of time, but as a rescue binder, especially if you've been in an acute mold exposure, it's it's really great.

And then there's also these activated carbon binders. So there's a company called Cell Core. And we at eminence work with them a lot. And they have these really beautiful, binding remedies that are activated carbon and humic and full back acid.

And they tend to also work really well. And then we start to get into a little bit more thinking about killing. So, herbs that can help with killing of the mold.

And the mycotoxins are things like oil of oregano, garlic. And even though it's not really an herb, propolis again. And you can take propolis internally as a tincture.

And for those of you who don't know, propolis is actually what the bees coat the inside of their hive with. That's highly anti-microbial and antifungal.

But you can take it internally. You can vaporize it. There are actual, vaporizers and diffusers where you can you can inhale it. So you can actually put this little mask over your nose and mouth and you can inhale it and then it helps to kill any of those colonies in the nasal passage. And the respiratory tract.

And then also thinking of liver supportive herbs, because again, liver is one of our main routes of detox, especially of mycotoxins. So things like dandelion or milk thistle or anything like that to help with that liver drainage and clean up.

So supplements and there's a slew of supplements that's actually really great. A different types of vitamins and stuff. These are just some of my top.

So again that melatonin, melatonin is one of the best ways to detox the brain. And also d flame the brain. Now in order to really get in there, it should be like a zone or it should be topical.

So we can actually do higher doses of melatonin, topically to the skin. Or you can take a liposomal oral that's a little bit, a little bit lower in milligrams.

Again, butyrate because you can take butyrate orally, it's going to help to bind up some of those mold spores of mycotoxins. That might be in the gut.

And then it's also going to help with, with tissue integrity of of the intestinal walls as well. So it will also help with a little bit of permeability of the possibility of a mold or mycotoxins escaping from the gut into the bloodstream.

And then I love black human seed oil. So not only does it have some antifungal properties, but it is also highly anti-inflammatory and immune modulatory.

So you get this really beautiful therapeutic picture here with a black cumin seed oil. Now with kids, it can be a little bit difficult to get them to take it.

It is quite pungent. But most of my parents just try to mix it, in some sort of, you know, food medium that maybe

hides it a little bit. But then there are the kids who don't mind it and they just take it.

But it is quite pungent. But it's a very profound therapeutic. And then glutathione and especially glutathione in combination with Ala, these two can really help.

Again, with, you know, moving through the liver but also help to detox out the brain. And then the alpha, the alpha lipoic acid also helps with neuron integrity in the brain as well.

And then because some of those biochemical pathways have been disrupted at this point, it's you can use some cofactors like B6, and B6 can help with that.

Five Http that five hydroxy tryptophan, which also, you know, it's in that pathway to serotonin in the melatonin.

Binders, Antifungals, and Clinical Conclusion

And so these can help, with some of those, those neurons in the brain, and and help with that kind of, you know, ATP production and functionality of cognition in the brain.

Again and then medications. So, my favorite antifungal if I'm going to use a medication. So if I'm moving up in that therapeutic order, you know, we're just not getting to where we need to be.

So I end up going to medications. I Draconis, all also known as spore Doc's, is a really great antifungal. And I use it in kids all the time. It's, you know, it not only is it a great antifungal, but it's also fairly gentle on the liver in the kidneys.

So I don't see it being liver toxic or kidney toxic, which is why, it's the main one that I use. Also possibly using fluconazole if needed. And then kola Stier main, is a medication, but it is it's used as a binder.

So it is a very, very strong binder for mold and mycotoxins. I don't use it a lot in kids. I find it to be a little bit too strong, but sometimes I have to.

And if I do, we just really want to make sure that we're opening up all those other channels of elimination, especially the liver and the gut, because cold starving can be constipated.

So we just want to make sure that, you know, we're having adequate bowel movements and all of that. Okay. So in conclusion, mold reproduces by releasing spores.

Spores, when threatened or agitated, will release their mycotoxins. Both spores and mycotoxins have an effect on the immune system, which then will activate inflammatory markers.

These inflammatory markers cross and will even create leaks in the blood brain barrier. Then the brain becomes inflamed. This perpetual inflammation, especially if occurred in utero or in the early stages of life, can play a really big role.

Role in autism in pans and pandas. So then what we do from there is we want to remove the obstacles to cure. Think about how our solution to pollution is dilution and open up those detox channels and pathways of elimination.

Then we want to use natural therapeutics to kill, bind, remove and repair. And then, if needed, use those pharmaceuticals that will also help with our killing and binding and removing.

All right everyone, well, I hope you enjoyed this and I hope you learned some things. And, it was good to see you. Thank you. Bye bye.