Introduction to detox science

Detoxification is a fundamental part of healthcare. There is no harm in doing it. A lot of people, they talk about the negative reactions of detox, and they call it, oh, I'm having a Herxheimer reaction.

You know what a herxhimer reaction means? What's that? It means you f*** up your detox. Meet Dr. Christopher Shade, a pioneer in detox science and the founder of Quicksilver Scientific.

With a PhD in environmental chemistry, he has revolutionized the way we understand and eliminate toxins from the body. Using advanced liposomal delivery systems and protocols trusted by top health leaders, get ready for a powerful, eye-opening conversation.

The toxins are gerontogens. accelerating the rate of aging. So you're taking them out, that's good enough. But the triggers that you hit to do that. You have a test that tests for organic and inorganic mercury.

What is the difference? The test itself is called the mercury try test. Try because we measure blood, hair, and urine. Is one worse than the other when it comes to organic or inorganic?

If you're like looking on the web, they'll tell you methylmercury is worse, but that's not really true. What type of symptoms or diseases can develop from someone having mercury toxicity?

On an energy level, it goes right into the mitochondria and damages the antioxidant system in the but some of the most notable symptoms you get anxiety and fatigue that mercury toxicity doesn't sound like fun doc if someone came up to you and said what is your go-to for the best cognitive health what would you tell them they should be Welcome to another episode of a Healthy Point of View podcast.

I'm your host, Sam Tahata. And as usual, we're bringing experts in health, wellness, beauty.

Why toxins are everywhere

We bring people from all over the world. Today's guest is one that I've known for many years. Before I even started Liquivita, I knew of this guy. And you know, you guys hear us talking about toxins all the time.

This is a guru on really the detoxification process. Yeah, man. So I got a lot of questions for you because we live, but we in a toxic world. Sure do.

Why so much toxins? Like what's going on right now? Oh, it's just, you know, we try to make everything real convenient for us and make lots of stuff and.

able to throw it away real easily. You know, you don't have to rinse your cup out, just use another plastic bottle. And, and we're just cranking all this stuff into the atmosphere.

There's a lot of better living through chemistry over the years, like, hey, let's make nonstick pots. But nobody's thinking about, when you're making your Teflon, where's all the waste going?

And so it's just through the decades we've been, we were putting PCBs in the water, were put natrazine into water. Now we are putting these forever chemicals into the water.

And now we're stuck with them all over the place. We're always exposed. Yeah. You mentioned forever. Chemicals, you know, like my fire department here.

They got a huge class action suit right now. Oh, yeah. That this actually turns. It has all kinds of forever chemical since firefighters are dropping dead of cancer and all kind of stuff.

Yeah, we have a right next to Quicksilver. There's a fire station and we're doing a 10 person study. We're looking at the stuff in home detox and I'm trying to get them out after the LA fires I sent.

of pallets of stuff out to those guys to just try to protect them and clear them out a little bit while they're going through all that stuff. And so firefighters, one, yeah, you got to coach yourself in all these brominated chemicals.

So your stuff doesn't catch on fire. and then you run it into the fire where everything's getting vaporized. You know, all the plastics have gone up and smoked.

There's batteries going up in smoke. there's metals in the air. every kind of chemical volatilized there and you're inhaling that. So it's like you guys, I mean, talk about on the front lines.

Yeah. Carcinogens to the carcinogenic frontline.

Mercury testing and speciation

Exactly. What made you actually get into this whole like heavy metals because initially you You I mean now you guys do all kinds of different stuff and whatnot, but that was our first like mercury was your big thing, right?

Yeah quick silver scientific quick. Silver is the old word for Mercury means liquid silver. It's an old european word like in german. Its quack silver And ironically, to be called a quack, you know, hundreds of years ago, that was a doctor who used mercury in chemistry, or in medicine, in mercury medicine.

And now, they call you a Quack when you want to take mercury out of people. But how did I get into it all? You never know. You know, often in your life you're just drawing along.

And I went to school and I was like, yeah, it was a reductionist scientist. Didn't really believe in a lot. I wasn't doing environmental science. Wasn't too into.

dropped some acid, saw God, and everything changed all of a sudden. And then I wanted to become an organic farmer. I joked that I got out of farming the year health foods came along.

It was all a little bit early. Then I started going back to school and looking at agricultural pollution and water. And then I was going to get a PhD and I just met this guy while I's interviewing who was doing global cycling of carbon and global cyclic of mercury.

And he wanted me to do some analytical work, make a new way to measure mercury because there's these different forms you got to measuring. So I did that for my PhD, patented the testing, and wanted to go back and work on people, you know, working on health.

And so I started the company doing environmental testing, but I wanted to flip over and so, I made a panel for testing mercury in people. And then the economic crash of 08-09 happened and I just made the jump in.

I'm like, "I'm doing mercury and people." And I met Hal Huggins and Dietrich Klinghardt. These are old mercury detox guys. And first I just had the testing, and I tried using the chelators on myself.

And I thought, I'll just test mercury and urine after chelasiancy, which forms from fish, was formed from the dentistry. I was taking DMSA and it just kept making me worse.

So I had all these amalgams, got them all taken out at once, taken the DMCA. It's not really working. Taking more and more, more. it's really coming out.

and i was watching these functional medicine meetings, these lectures coming through Boulder, Colorado, and I saw these guys like Nigel Plummer and Bob Rountree talking about the GI system and the liver and how all that works.

And I'm like, why am I putting all this stuff through the kidneys? I should be taking it out to the G. I. So I made our first product, IMD, intestinal metal detox.

It was like putting a chelator in high density on little grain of silica, like a little grains of sand and eating it. And that pulls all the mercury down to your GI, cleans out all of the Mercury that was from your dentistry that's all stuck in the GI and that is blocking the liver from dumping things.

It blocks your whole detox system. So this would go and clean all that up, restore the movement from the Liver down into the G. I. and I'm like, oh my God, this is amazing.

How do I really get into the system and make the cells dump out more and do all this. And I had to get glutathione into my body. It's your master antioxidant and detox molecule.

If you take a capsule, just like so many things, you either don't absorb it because your absorption is bad, or with glutothione you break it down in the stomach like any other peptide.

And so I had to get a cheat around that, and somebody introduced me to liposomes. And lipasomes are these little round spheres that look like a cell. They're made out of the same thing your cell membranes are made of, phosphatidylcholine.

We were talking about that. And if you make it small enough, they're like a thousandth of the size of a cell, and they'll penetrate right through the lining your mouth into the capillaries and go right into circulation.

Whatever you swallow goes right in. Right into bloodstream. So we can see it in the blood in two minutes. It'll peak in blood 20 minutes, but they got to be made right.

And so I first started looking at other people's liposomes or these pasty things or milky looking things. They weren't really doing much. I found one that worked, But it was someone was a little off about it.

Mercury toxicity symptoms and sources

And then I was like, you know, if you want something done right, do it yourself. So I got all obsessed on how to make them right. And I found a guy who knew how characterize them, laser sizers for looking at them.

How to centrifuge them certain ways to look at stability in the formulations. and we got really good at that. Just really, good. So we went from that to making the GABA L-theanine to make an EDTA with our live podcast, a little bit more direct chelation.

And then we just started making everything that way. Once we go to that, got good that we've got real good of making super complex formulas, you know, multivitamin, that has one for one particle for fat cybels, two for water cybles, mix them all together, making all these things that have terrible bioavailability like Querestin and resveratrol, green tea extract, berberine, and making them on these particles.

So they go in and all of these compounds peak in the blood at the same time. In the capsules, you know, limitations of capsuls, one's absorbing in an hour, ones in three hours, then what's your body doing?

It's like oh here's some signaling, here some signalling, it's all over the place. You want it all dumped in there at once, move some needle, and then move on with your day.

And so in our detox system as it is now, we call it push-catch liver detox. the toxins out of the cells into the blood, primes the liver, opens it up to pull it in, and then couples that to the movement of bile out the of liver.

Because bile, that green liquid that goes out every liver cell, goes into this complex thing called the bile tree, comes out, the common bile duct fills the gallbladder, it goes in the GI.

That's where the toxins land. OK, so you got them. That gets all locked up. So you've got to make sure that's moving when the toxins comes out of the cell and go to the liver, dump out with the bile.

And then you gotta make you catch them in the GI so they don't reabsorb. so all this stuff goes in all at once, moves all the stuff through the bio. Half hour later, after you take all your liposomes, you'd take the binder, ultra binder.

That catches everything. And then you tied that all up, because all that other stuff goes away then, and you tie it up into a neat little cycle of detox.

Liposomes, 30 minutes later, binder. 30 Minutes later you can eat or keep fasting. You got that cycle all tied up. Do that once a day, twice a, day three times a.

Day do half doses, full doses. Double, triple dose. Right. and you're just staging your day. What's that binder that you use? It's called ultra binder and that's a blend of different binders because you know people are like oh zeolite, oh clay, activated charcoal.

Each of those you have a super different toxins with all this different chemistry. And each of those binders has toxins that it's got good specificity for, meaning a little bit of binder, a lot of toxin.

Bad specificty, you need a ton of binding to get a bit a toxins. So a lotta different toxing classes use multiple different bindings. Okay. UltraBinder has activated charcoal, zeolite, bentonite it has imd our intestinal metal detox and something called chitosan and then it's got some acacia gum and some citrus pectin oh wow so it like really rounded out it just takes all that stuff ties it all up amazing amazing So so that I want to go to your roots with mercury.

Yeah. When I first got in the industry and I was working with Dr. Willis, we had a patient that had high levels of mercury and you had or you have a test that tests for organic and inorganic.

Correct. So I want to talk about why that test and what is the difference between organic inorganic and why are we testing that? Yeah. And so that was what I developed in graduate school.

We call it mercury speciation is. The technique of separating the forms of the test itself is called the mercury tri test.

Opening detox pathways with bitters and binders

Try because we measure blood, hair and urine. Now, blood has both forms in it and it's proportionate to your body burden. both forms. Methylmercury, the organic form, is what we're getting from eating fish.

Higher up on the food chain, more fish, so tuna, swordfish, that's a high mercury. You know, sardines and anchovies and stuff, almost no mercury, all right.

So you got one source from the fish then we have another source, from our dentistry, though dental amalgam was the silver fillings, which are only 50% silver and 50 percent mercury.

Actually a little less because there was a couple percent of a, couple of the metals in there. But it was tons of mercury in that. And that is a metallic form of Mercury that dissolves, that evaporates off of it and you inhale it, goes into your body and it turns into inorganic mercury, a salt form, Hg2+.

So you get the methyl form and the salt from and they go in different places. The methylmercury can go into your brain, but it also comes out well. And it goes out to the liver and gallbladder and goes into the stool.

It doesn't get peed out at all. Inorganic mercury circulates around, gets more into you matrix, your extracellular matrix and that'll include connective tissue and joints.

You might have more joint pain and skin issues. That goes both through the urine and through your bile. So when we look at blood hair and urine, Blood has both, hair has methylmercury, and the amount in the hair is proportionate to your glutathione processes that are moving methyl mercury out.

And so you look at the ratio between the blood and hair for how well the glutothione process is working, roughly it's a liver marker. And then you look at the inorganic to mercury in the blood to what's in your urine.

And that's a marker for how well your kidneys are filtering out the mercury. OK, so that can get very locked up very easily and you'll have high in blood, low in urine, people used to just measure mercury and the urine and it could be low because kidneys have blown out.

Right. I've seen that many, many times. You know, you got to support kidneys. that map of mercury in the body, which different forms there are. And you could also get inorganic mercury from the breakdown of the methyl mercury.

Okay. That varies person to person. So I'm looking at those ratios, what their sources are and what the excretion ratios are, and then you set up their detox.

Often at the end of detox, you'll see the urinary mercury is higher than it was at beginning. But the blood's way down. Right. And so that's that. That's how we that that we map it out.

So we track it when we detox. Is there is one worse than the other when it comes to organic or inorganic? Different. You know, if you're like looking on the web, they'll tell you methylmercury is worse, but that is not really true.

If you are going to eat a capsule of methyl versus in organic. OK. The inorganic that so from the dental amalgams, you're also it's rusting or corroding off there and you are swallowing it.

And that form doesn't get absorbed in your GI, but it poisons your gi and it blocks the ability of your liver to dump into the GI. So if you ate capsules, it would ulcerate your Gi, But it wouldn't go into your brain.

of inorganic mercury. Methylmercury goes right up into the brain. And so they're like, well, you know, if we do this dosing study, methyl mercury is worse.

All right. But in organic mercury, once it's in your body, is more toxic. And so how do we get the inorganic in if we didn't absorb it through the GI?

So the dental amalgams would evaporate mercury vapor. You would inhale, 80% goes into the blood, and then it circulates once or twice and runs into a reaction with an enzyme called catalase, which you're using all the time.

And it mistakenly gets into that and breaks down to in-organics. So then you got the inner organic in you from vapor, Or the methylmercury goes in with the fish ninety five percent absorption of methyl mercury from fish and then that's breaking down into inorganic and where that is the worst is if the vapor gets in your brain which you can and breaks down in the brain in organic very hard to get out when the metal mercury goes into the rain.

Methylmercury comes out pretty easily too. It goes in, comes according to the concentration in your blood. But if it's in there and it breaks down to inorganic mercury, it leaves a deposit of this.

And that stuff's very slow to come out. At a cellular level, the in organic is more toxic. So it's a broad question. That's why you want to see a whole map of the thing.

Of course, of course. So, you know, obviously we're talking about mercury toxicity here. And you've already mentioned different systems in the body that can get affected by it.

What type of signs, symptoms or diseases can develop from someone having mercury toxic? Yeah, now, mercury and pathologies are very broad. you know, cause it's going to kind of break the weak link in the chain.

It can interfere with every enzyme. Uh, so there's a lot of can do, but sort of the most notable symptoms you get, uh, anxiety and fatigue, the anxieties because it goes up into the brain and it works with the neurotransmitters.

You've got these, this pair called glutamate and GABA and they're like yin yang pair. And for all we talk about serotonin and dopamine, acetylcholine, 80% of all the signals are from Glutamate and GABA.

And glutamates is your, like, I'm on it switch. It's like a sympathetic autonomic nervous system. At its worst, it's fight or flight. But it makes you on, and it gives you memory.

Memories are also associated primordially with fear and safety. Where does the tiger come from? Where do the other tribe come? When that's real active, you're on.

If you are too active you get anxiety. So it stimulates the activity of that. Now GABA on the other hand is your Zen neurotransmitter. That one gets in and just boom brings you down parasympathetic, controls you, calms you.

Relaxes you takes away the anxiety. So the toxins, especially mercury, gets into that glutamate system and hyperfires it. So you're always hyper stimulated.

Oh, and that gives you the anxiety. And then when that burns out, you go into depression. then on energy level, it goes right into the mitochondria and damages the antioxidant system in the Mitochondria.

Okay. And then during respiratory bursts, you damage the metachondrial and then they can't make energy and they start making free radicals. So it hits you at that level hits at a thyroid level where it's blocking T four to T three conversion.

That's T3 is the active thyroid hormone, which also controls mitochondrial respiration. Wow. It's bringing that down and It hits your kidneys and adrenals, brings that down.

Detox reactions and proper drainage

So so you're losing energy and you are, you know, hyper stimulated up there. And that could be anxiety. It could cause forgetfulness, cause brain fogs, a lot of different ways that that hyper signaling happens in your brain.

Wow. That mercury toxicity doesn't sound like fun. No, no. Now. You know, obviously there's things that we could do to detox, but if you're still introducing this toxin into your body, what do you recommend?

I mean, I think what the fish is kind of easier. Hey, eat less fish. Right. But with the fillings, What are you recommending? Yeah, well, eventually you get it.

So we'll talk about two things. One is avoidance and the other is. supporting detox all the time. We'll talk about like intensive detoxes versus lifestyle, how we just keep it flowing.

But with the exposures, with The Fish Side, say you're like, oh, I'm pescatarian or I need omega-3s and stuff. You can find all the lists online, EPA, different groups saying what are the high mercury fish and low mercury.

So you're going to stay away from Chilean sea bass, swordfish, tuna, shark. These real big fish at the top of the food chain have the highest amount of mercury in them.

because they're accumulating over time. The more they eat, the more the run around, they consume and they build this stuff up. Lower on the food chain, these small fish, there's much less.

So just eat maybe less fish but choose smaller fish. Does it make a difference if it's like a farm versus wild? Uh, it's

actually farmed has lower mercury levels, uh, cause they're feeding them, you know, various things that are low mercury.

You know now then there's trade-offs and often you have less of the vitamin D and the Vitamin A, that naturally in there and various, um, things, but yeah, farming actually has less mercury, and then with amalgams you got to get them out eventually but you can't just rush to your average dentist and just have them drilled out because they go in and drill them with these high-speed drills and you get a way bigger dose of mercury right then than you were for the previous you know, a year or two.

And I remember seeing, I got my amalgams out. I had my wife get them out and then one of my employees ran and got hers out, didn't tell me and just went to somebody who didn' use any precautions.

She already had really high in organic mercury in her blood and it went up four fold the next day. My wife and I went to a biologic dentist who uses the I am tease smart protocol and our blood levels.

I mean it was just a barely a blip if you can tell it all really didn't change anything so it needs you need to be protected. And they use these low speed drills that kind of chunk it out, knock it, pull it instead of just drilling it vaporizing it.

Right. And then they have a dental dam. So that's happening on one side of this piece of nitrile and there's a vacuum on this side, vacuum, on And so if you get that done right, it's really, really a good thing.

And I remember my parents, they were getting old and my mom's side had a history of Alzheimer's and she was starting to, you know, her memory was getting, not so good and we're like, oh man, this is going to be bad.

I don't remember how grandma was, and then I got her to get her amalgams out. My dad at the time had great memory, still had his amargams in. And fast forward like 10 years and she didn't even detox, you know, it's a classic, mother of the kid.

Like, yeah, yes, Chris, I'd come in and you'd be like, Yeah, take it every day. I'm like bottles full. For three months, It's been nine months. But even without detoxing, 10 Years later, her memory was way better.

And his shit. And so it's really important to get those out, especially if you're battling, you know, some sort of or if your, prone to neurodegenerative conditions or immune conditions, just get that thing out of your system.

Now, until you can. Then there is, you know, there's a level at which you can detox. Now you cant do this with DMSA or DMPS. You can't do those while you have a mouth.

I tried all that. And remember I said you're like coated through your GI and mouth with, uh, with all this mercury, the DMS and DPS kind of pick some of that up and brings it into circulation.

But with using our IMD, your constantly just pulling out. You keep your glutathione levels up. You might be using liposomal glutothione. Keep your bio flow going.

Even just bitters, you're going to keep that going, keep you kidney supported until that time at which you can go and get them all removed. Of course, of course.

So, Doc, one of the things that I've learned throughout the process of helping patients detoxify from heavy metals and whatnot is that, and you mentioned this earlier, these heavy metal like mercury, they don't just sit in the blood, right?

A lot of times they sit on your intestines, you have to use certain protocols to aggravate that mercury. I would assume that's how you say it. there's always an amount circulating and there is always more in the solid tissues.

And so your tissues might have 10, 15 times more mercury than is in the blood. And then you'll have places where

like you're swallowing work. You have a ton in, in.

But let's just say tissues, you know, a gland or something. Got to get that out. you've got to go from the cells to the. Then to deliver to. Or from. To the kidneys and out into the urine.

So how do you get the whole thing going? So first, you want to make sure you're draining first before you throw stuff from the tissues in the blood that elevates your blood concentration, because that's more that can get to the brain and get the other tissues and redeposit around the way.

Detox timelines and long-term maintenance

So you need to open up drainage pathways, we call it. And one is getting the bio flow going. And we use mostly bitters for that. Like, you know, there's biters in your old fashioned cocktails.

That's actually the only place I know about cocktails, but yeah, so we have medical grade bitter's like Natalie will open up a person. She got a bottle of biter's in there and these are all medical grader herbs and you're using the traditional like Angostura Bitters is Gentian and some other flavorings and Gentia is a classic.

We think of it as a European herbal, but they use gentian and ayurveda in Chinese medicine. So there's gentien in there, we'll use dandelion root, which is good for bile flow.

We use myrrh from Ayurvedic medicine, and myrh is really good bitter for enhancing bileflow. A couple different herbs we put in our different bitters mixes.

and that will get all that flung. As soon as you take it, the bitter taste in your mouth opens up the gallbladder response, and then the transporters in the liver that are making bile and moving them, they get turned up.

So you've got to make sure, because everybody's like, oh yeah, that liver will detox it. Well, what's it going to do with it? You know, it's not burning it down to CO2 and you're not exhaling it.

It's taking this big molecule. it, you know makes a little nick in it and sticks something onto it something like glutathione or sulfate or glucuronic acid.

And then there's a series of transporters that move it like say you do that in a cell, there is a transporter moves it to the blood. Its going through the blud, this trans porter that tastes that pulls it into the liver and then another trans porter dumps it in the bile.

And if that last transporter isn't working from the liver to the bile, this stuff builds up in the river. And, if it can't get out, what does it do with it?

It's going to poison the livers, so it dumps it back into the blood. So, a lot of people that talk about the negative reactions of detox, they're getting stuff to mobilize from their tissues, getting it to liver, but it has nowhere to go, and then it dumped back in to blood And then where does it go?

Goes to your kidneys, tries to find a route out there, but they're getting all beat up too. And they are locked up. Then you get lower back pain from that.

You then have toxins circulating around and you have bile salts circulating and they lodge in your skin and start itching. And then the toxins start coming through your skin and you get the rashes.

A lot of people, oh, it's a detox rash. Detox rash means you weren't getting it out through the liver. It goes up to your brain, stimulates more brain fog, more anxiety and, you know, stimulating this thing called neuro neuroinflammation.

And so all these reactions to detox and they go, Oh, I'm having a Herxheimer reaction. You know what a herxhimer

reaction means? What's that? Means you fucked up the detox.

I mean, this just for the listeners, which we have a lot of doctors that tune in to the podcast is you have to have the protocol down pat. Yeah. Because if not, you can really complicate your patient a heck of a It's a relay race and you're handing off a baton to get out of there.

And if it's not right, like that batons like flies into the crowd, you know, kills a little old lady up there, redeposits in the brain, readeposit in thyroid.

So in essence, it is easy. Squeeze from the tissues, drain from liver drain through the GI, get the binder and the drain to the kidneys, to pull it through to GI.

But you have to have all those things open. So the bitters are opening the bio flow. You've got various diuretics like dandelion, leaf and golden rod, we use a bunch of Chinese mushrooms, Fu Ling and Zhu Ling, open up and have reparative aspects in the kidney.

So you've got that draining because you got these compartments. You got tissue compartment, blood compartment excretion valves. And when the excretion valves are blocked, the blood compartment builds up.

So first we open up those valves, drain the… It's like a sink. You drain that, blood's starting to go down. Now we can squeeze out from the tissues into the body and make it all the way through.

And for the binder, it does come out with a bile. Half the toxins just go right back in. That's why I need the binder. But then, with these systems, you're like, wait, when do I take my binder?

You're taking all these capsules. Like we said before, one thing's absorbing then. One thing is absorbing four hours later. When do i take When you put them all in these nanoparticles, nanoliposomes, and nanoemulsions, everything absorbs at the same time.

The peak in the blood is in 20 minutes. And we measured it over and over again. So it goes in there, triggers all those things I said, release from the cells, opening the liver, dumping.

30 minutes after you take all of those liposome, you takes the binder, picks it all up, ties it up into a little bump. Amazing, man. You really get it down to science.

So that detox protocol for mercury, typically, how long is that protocol? Yeah, so detox protocols in general, depending a little bit on what kind of toxins and how long you have them.

Right. Now, one, everybody should do detox protocol because we got a ton. But then you got some of the metals like mercury. Maybe you're looking at, you know, three, four or five months.

Lead, that's really a seven year period, but you'll actively do it. for at least six months. Some of these other things round up, we can get that out real quick.

You know, forever chemicals, those are a couple of years and you can't even affect the body to tie glutathione onto them. All you could do is keep your drainage paths open because they passively get out there.

Lead, EDTA, and chelation strategies

So, you know I say one to three months generally when you're in deeper, it might be six month, but there's that period of like formal high intensity detox.

that might be followed by a more minimal one for a while. And then there's incorporating it into your life. Now that you know about bitters, and you can just have a little bottle of that, you put it in your soda while you're doing this, a bitter's in soda.

You could just take it straight. Most of our stuff is intraoral, sublingually, just boom, boom boom put in there. And, you know, have that after your meal, help the digestion.

And that's just keeping everything flowing. Part of your nutritional plan. Like you start thinking, well, when I eat fruits and vegetables, I got to make sure I have certain things that are high in antioxidants.

Same thing with the bitters. Just make it. Yeah, it's just part of your plate. I mean, heck, we used to eat dandelion greens all the time and all those European greens that are so bitter and now we don't do that anymore.

We switch to a sweet palate. So introduce bitter back into there. If you're going to have cocktails, put bitters in there, keep that flowing. That's one of the things that locks up where one day you are okay, another day it is like, wow, that really hit me.

Didn't keep your liver open and keep it flowing. Then these binders, these are long term use. It's not like you take it every day for the next 10 years, but a couple of times a week, maybe at night before bed, you'd take them, let them go down in there and just clean things up.

And it's just not detox. When I started doing A4M, I was in the back with a little booth, sharing a booth with another company, hustling my wares. And I viewed myself, I said, all the sexy guys are up there.

They got all stem cells and hormones and all this stuff. I'm just the trash man. As I moved up along the way and our knowledge of the chemistry increased, we realized these same…

Now, one, the toxins are gerontogens. They're accelerating the rate of aging. So they're making you age faster. You're taking them out. That's good enough.

But the triggers that you hit to do that, Nrf2, AMPK, sirtuins, these are all anti-aging triggers. These are things that make you live longer. So it's a fundamental incorporation to your lifestyle.

Now back to the binders, do you know bioregulatory peptides? I know about peptide. Bioreulatory, there was this guy in Russia named Kabinson. and he found each organ has its own little peptide that regulates it.

And he would take these two main ones, one for the thymus and one the pineal, and had these people on like a 20, 30-year trial. You know, you're 80 years old, start taking these things every day.

Then they saw how long people lived, if they were taking them, they lived way longer. They're really, really good. But that same group, they were the best gerontology group in the world.

This was over in Russia, USSR at the time. And one of their scientists, this is back, it was a long time ago, like 70s or 80s, took these mice, aged them out to their like 40, 50 year old people.

Then one set he gave a big dose of charcoal 10 days out every month until they all died. The ones who got the charcoal had a mean lifespan, 43% longer than the ones who didn't, and a max lifespan 34%. And he talked about having a third organ of detoxification.

Once you couple the GI to the charcoal, it's like another vacuum of toxins out. And then when they went into the cells, they said the lysosomal structures were much different.

And what are lysosomal structures? We talk a lot about autophagy and senescent cells, and using senolytics, they kill off old zombie cells. Autophage is eating these old cells and old cell parts, old mitochondria.

So in the mice that were having the charcoal, this inner process of detoxification of your own decrepit being, your old parts was turned up. So you're regenerating yourself faster just by activated carbon.

Binders is part of your long-term lifestyle on a detoxification and longevity aspect. I know we talked a lot about

mercury the last few minutes. Now, when you talk about this process with the binders and making sure that it's leaking out properly, drainage out When we're looking at other toxins like, let's say, lead or arsenic or anything else, is it the same process pretty much?

A little different lead. We have this huge store in the bones and, you know, our whole system, we have glutathione. You bring in a glutothione, your turning up the glutithione enzymes with it.

And, y'know, were making this whole relay race that we call push catch liver detox. Most toxins will just move out that way, somewhere a little different.

That's why I use a liposomal EDTA, and this is what, like, I don't really like people leaning on DMSA and DMPS for chelation, but EDT, yeah, that one's got a lot of great benefits, so that's gonna need a lil' EDTa to get it out.

Is there a difference between the calcium disodium EDta versus just EDtA by itself? Oh, well, EDTA itself, you're never going to use because it's, uh, it not really soluble.

It's. And so what you do is you add a base to it and you, Uh, replace protons with the charge. So you'll end up with calcium, disodium, or no, yeah. Calcium, di sodium or just di sodium or tri sodium, tetra sodium EDT, depending on the pH here, the, Where that got into a problem, it was a fast push of sodium, just pure sodium EDTA.

Oral versus IV detox protocols

And that took a bunch of the calcium out of blood. Some doctor was given one to a younger kid and he died because you consumed too much calcium and the heart stopped.

So people like the Calcium Disodium, but that's for a faster push. A slow drip, doesn't matter which one you use. And in the liposome, we use the sodium form, but that's more like a slow drip.

You know, it's coming up over the course of 20 minutes, But we're only giving you, you know 200 to 500 max milligrams at a time, not like three grams.

But, with IV, You're going to come in once every two weeks or every week or Every month. We're doing it every day. So we are bleeding it through slower.

So you're talking about IV. So I want to talk about some of the differences between doing your chelation protocols intravenously versus some other oral supplementations that you have, which, you know, obviously I'm in the IV business.

We have over four thousand doctors that buy IV products from us and whatnot. And then all the clinics. But you know, I strongly believe that for people to detoxify a lot of these different toxins out of their body, even heavy with heavy metals, you don't have to go directly to the IV stuff.

Right. So can you talk about the difference and why someone would prefer would it would be the preferable option to do the ID route versus the oral route?

But I think we can accomplish a lab with the oil supplementation. Oh, yeah. Yeah, we totally can do it all with oral, but I like to see both and I see them differently.

Now, one, you don't have the time to do opening up of all the drainage. And so they come in to you and they're like, yeah, give me this big DMPS drip.

I want 300 milligrams IV and whoosh, a whole bunch of stuff moves all at once. Like I did Tony Robbins detox for mercury and he talks about that and you went and tried to have a DMP acid just blew him out.

I'm like, no, we're going to do it differently. It's the every single day chipping away, moving it, keeping the drainage

open. Once you establish that and you've got your glutathione processes up, your gluten levels up and your drainage, then you can throw the IVs on top and punctuate it with like a big move.

Plus, there's so much stuff you could put in there with it all at once. And so I think the Back when they were doing a lot of IVs, the guys who were really good doctors and knew how to open up all the drainage and get you there, they we're doing pretty good with it.

But some people got into trouble because they'd just go right at the chelator in the bag as the solution. And all of a sudden, all this stuff dumps down to your kidneys.

You blow out your kidney. I mean, Mercola talks about that. He got all DMPS happy and screwed up his creatinine clearance for decades. It was bad. And so you can do it.

Once we developed this system, there was a guy, Neil Nathan, who's a big doctor out around San Francisco. He'd been doing 30 years of doing IV chelation, and he took 10 patients and split them.

No, 10 doing an IV like he always did, ten doing our system. and He came on stage. I don't know what he's going to say. he goes, I got to tell you, Chris's system and it was every bit as good or better than the IV.

And that was even early generations before we'd really picked up the bile piece and have all the right binders to get all of the different toxins together.

So you can do it all with oral as long as you're doing these liposomal deliveries. The difference between them and a capsule are just absolutely, I mean, they're massive.

But, you know, like I said, Right, right. So, so, you know, I got a lot of buddies, obviously, as a former fireman in 12 years. I've got. A lot. Of buddies that are police officers.

They're on the SWAT team. And I. Got a buddy of mine who trains a. Lot of these first responders in the gun range. Yeah, and he talks about this. He came in, he had the mental fog.

Everything, everything that you could think of. This was actually he's in his 30s now. This wasn't his late 20s. Yeah. And he said, man, this isn't something's off.

Maybe my hormones, whatever. In, you know, I told him, says, dude, we need to do a heavy metal test. You're on the gun range, but you're a lead guy in.

His lead levels were astronomical. I am. So what can you, if there's any police officers or anyone who's in the gun range, what advice can give these guys?

Yeah, so they should be building their glutathione, maybe supplementing a liposomal glutothione. We just put out a glutithione with ergothionine called ergothyone.

keep their kidneys open because the lead goes and hits the kidneys. So kidney support formulas, and they're going to need, you know, a regular diet of EDTA moving this through.

DMSA works with that, but they keep the lower doses and keep everything open. And they just kind of have to detox quite often, especially the fire guys, they got everything.

You know? And so we have this thing called advanced push catch. That's a good one for them.

First responders, candida, and mineral support

But there they want to really have a doctor monitoring them because they're going to be using some of the more advanced stuff like the EDTA. That's a little bit more aggressive, little more.

Aggressive. And you've got to make sure one of. You know, EDT took some. Of the good minerals out, so you need a multi mineral at the very least needs zinc.

that's the biggest one that pulls out. So you got to have mineral balance going on because you're doing a lot of draining. You're draining through the kidneys, so you need a lots of kidney support.

About 25% of it goes to the GI, and so, you'll need some binder going in through there. All right. So, I remember taking a course with the A4M. And this was a while ago, probably like 2014, give or take.

And Dr. Guy De Silva, who used to be out of Sarasota, unfortunately passed away. Oh, he did. He passed a little while. His daughter Ashley took over his life.

Not Derek DeSilva. No, no guide, guide yourself. I'm like, why is there a guy that civil would teach a lot of the Ivy courses with Dr. Mitch Gann. Oh, yeah, I just talked to Mitch yesterday.

And, you know, he was really big. He had a mercury protocol for chelation and he is really Big. Glutathione was one. Yeah. The other thing that he's big on was everyone had to do a candy candida cleanse.

What's your input about that? Well, that that was big, you know, when I came into it. And, through the 90s and 2000s, there was a lot of talk around Candida and mercury and Candidas sequestering mercury.

There was. A lot. Of different theories on it now. My feeling and Klinghardt talked a. Lot about. That me looking at it, the Candido was dysregulating your detox, getting it and flaming your gut.

You weren't able to get the mercury out. And so we clear all that candida and everything can flow again. OK, and so there's another one, you know, if has a detox are cramped and you put the key later in IV, it's going to force metals to move around, but they're not going find their path out.

So that was one of the things he was doing to open up the path. Oh, OK. Interesting. When I found out about you and you had you know, and I've found that about the testing methods and stuff.

I remember going to the A4M and, you got these beautiful in Vegas. You're saying that the trailer thing that you bring. Oh, yeah. We brought the air stream with us.

Yeah. And this was the first time I ran into your guys. So I actually didn't run into you. Think you were like on stage speaking like that. And they took this ampule, opened it up.

Oh, yeah, and I drink it. And it tastes like I was drinking ocean water. You were. All right. That's original Canton or Kington. So what is it? Well, what the heck was I drinking?

Because that's awesome. It's filter sterilized seawater from off the French Atlantic. and you think, oh, Atlantic sea water, there's an area where there is an upwelling of water that down in the Arctic or in the Antarctic, it sinks down to the bottom of the crust, you know, bottom in ocean, rolls along the crest until it gets to Atlantic and comes up.

And that takes thousands of years. So it's super old water, hasn't seen all of our poison, and it has got all the minerals from along, the crusted at the bottle of floor.

Then it comes out and because it is so nutrient rich, there is a phytoplankton bloom there. and it's this beautiful spiral. It spirals upward from space.

You see this green spiral, and then it has a zooplankton bloom above it. They find it, they go out to where it is, then they reach down into the layer between the phytoplacton and zoplankon, have all these minerals complex with all of these phyto plankton extracts, And they pull it up and they filter sterilize it, never heat it.

It's in these delicate organic complexes. And you have all these phytonutrients in it and then they pack it in the

sterile glass ampoules in a pharmaceutical facility.

All was, it was injectable like IV in French pharmacobias. They started doing this in early 1900s, like 1910 type of thing. And it was a huge thing. And I have these big books looking at these miracle disease reversals from just getting all these perfect minerals in.

Then you'll see there's two of them. There's a clear one and an amber one. The amber is straight seawater. It's called hypertonic. Tonic is a salt level.

So this is relative to the salt in your blood, which is 0.9% sodium chloride. Seawater is 3.3%. So you've got the pure one, and then you got one diluted down to isotonicity.

They use spring water. In fact, they used to use Evian source water, And they bring it down 0,9%. and one tastes like tears or sweat, and the other one taste like ocean water.

Right. And same thing at two different dilutions does two things to your autonomic nervous system, you know, your sympathetic more like charged up, parasympathetic more calmed down.

The pure one kind of wakes you up a little bit and remineralizes. If you're a workout guy, you take that like after or during workout, the recovery is spectacular.

And they called it marine plasma because it had the same mineral ratios as your plasma has. And so the isotonic, they would use it as a plasma replacement.

It was used during the World Wars as plasma replacements. They would do big IVs on it. And they took these experiments with dogs and pulled all their blood out, filled them with ketone isotonics and these guys lived.

Then they put the blood back in and they were healing all kinds of things like cholera. deficiency syndromes and stuff. And then the French medical establishment kicked it out of the pharmacopeia in like the 80s or 90s.

So they made it a supplement. Now you crack these and you drink them.

Marine plasma, minerals, and nervous system support

Sometimes in the morning you take the hypertonic, wake you up, remineralize you after a workout, you do that. In the evening you'd take isotonic and that chills you out and increases drainage, helps kidney flow and so on.

it's pretty miraculous stuff and it is really intuitive. It's like mother ocean and this is like the womb of the ocean. That's really cool, man. How does that mineral content, how does it compare to like a sea moss or Shilajit or one of these type of…

It would be more like sea moths, the Shillajits. And again, when you match the ratios of everything, they're pretty much an exact match for your blood plasma, whereas a sea moss can concentrate certain things and it'll have higher or lower concentration of different things.

But one of the things you're looking for, you are looking ratios and the way this is using is bioregulatory, not just remineralizing. So it's regulating and mineralizing the seawater.

Now, the sea moths can be more concentrated amounts of some stuff and both of them will have these very rare elements that are very hard to find, especially the stuff that comes up off the bottom of the earth.

So those are more ocean elements, and you get like a shilaji, that's a mountain thing. And shillaji is really awesome. It's like old plant matter squeezed through these granite and basalt rocks up in the mountains, and they're pulling all the minerals out.

There was minerals that were in the plant matter. Then there's fulvic and humic acids that help deliver those minerals. And then they pull all these minerals outta the rocks, including these kinda esoteric minerals called orms or ormas.

That's big in a sort of alchemy world for being able to connect your mind at a more light speed type of processing, makes you more psychic. So Shilajit is really awesome stuff.

So you've got the best of the mountains and the ocean. We just put out a multi-mineral blend called Dr. Shade's Catalyzed Mineral Caps and they have all your normal minerals.

There's forms of calcium and magnesium and copper and zinc. molybdenum, these hard to get ones, and then a whole big dose of shilaji and a big does of seaweed extract.

So yeah, you're getting all the different forms, all of the minerals, I like to taste from a lot of different places. But if I'm just doing medicine, trying to heal people's regulation, then I'll just use this ocean stuff.

OK, yeah, because, you know, there's always a lot of talk, especially on social media. It's like, oh, should I use Himalayan salt? Should I do Celtic salt, Should i do sea moss?

Celtics, not Himalayans. Yeah, I know all this stuff. But in the salt world, Celtica's got too much iron in it and Himalyans, just evaporated Atlantic water.

Himalan, Maldon, those are really good. So, Doc, you obviously got him in the Celtic and the Maldon sea salt. They're both. OK, they're. Both French sea salts.

Okay. Yeah. And there's a new one that also that I just got exposed to. The Baja one. There's one out of one of like South Africa or something. Oh, yeah.

Ocean water. I don't I. Don't remember. Right. Think I got a bottle here. So yeah, I'd like to see it. Then there are some deep sea. It's Pacific. where they go down 600 feet in the Pacific and they pull stuff out of there.

That stuff's pretty cool too. Hard to find. I found it, I was trying to get it sourced in, but that one's cool. They just had an evaporative sea water one out at Baja, probably pretty good.

So, so that, you know, obviously we we've talked a lot about toxins and detoxifying, but you do a heck of a. Lot more now. Right. I started one of your products recently, the GABA with the L-theanine.

And then it also has a phosphatidylcholine in it. Yeah. So I feel much more relaxed since I've been taking it? Yeah, So we got a bunch of neurological formulas and.

We use injectable-grade phosphatidylcholine from Germany, same source that makes, in fact, some of our exact same phospholipids that go in essential. Do you know essential injectible PC?

That's injectble PC with sodium deoxycholate. And that comes from Russia. Its precursor was lipostabil that was being made in Germany. So, these injectable-grade phosphatidylcholines is what we make all of our products with.

And, you know, as an IV guy, phosphatocholine is amazing, and it's rebuilding your cell membranes. You can use it for acetylcholin function, not just your cells membrane on the outside, but your mitochondria are just being folded up membranes, endoplasmic reticulum.

Lipid replacement therapy, phosphatidylcholine therapy is a core part of detox, part mitochondrial function. So all of our stuff has that. Then you get to the brain calming stuff.

Yeah, you got the PC in there, phosphorus, but then GABA, GABAL, L-theanine, CBD, we have CBD with anandamide, which is your own endocannabinoid. We have CBD with skull cap.

we now have Magteen, the magnesium L3N8. with a big that's a thousand milligrams of magnesium l3 and 450 milligrams uh phosphatidylcholine in a shot so these are the things that calm you down we're too hyped up these days and a lot of people you know it's like oh uh I got to go do this interview.

I've got a focus here. Let me take some coffee and you drink some. Coffee and your even whacked out more. And then you're reacting to it. You're all buzzed out and find you take something like GABA.

All of a sudden you have more energy. you're starting to sense everything and take a million inputs. You're focusing on every single thing and nothing all at once.

And then Gabba, you just drop down into your tracks, take one step at a time. feel better, I feel less distracted, and I have more energy. And so in our hyper-stimulated world, these things that calm you down are really important.

We started using those therapeutically in the detox system because remember we talked about GABA and glutamate. Glutamates are hyper stimulated that locks detox up.

GABAs relaxes you, opens it back up, so when we are doing autism, They all have neuroinflammation going on. So they're all like this. I tell you, you see them like stimming and moving and stuff.

That's excess glutamate stimulation. And that's blocking detox. Then you try to detox and you just move everything around. We would give them some blend of CBD and GABA first.

And just a few minutes later, then we'd put in the detox stuff that would move the things, open up the liver, and then give them the binder.

Peptides, cognition, and the MAHA movement

And it was easy. I mean, we took these teenage autistic kids up to like full adult dosing. It used to be it would just take years to detox an autistic kid, but hit all the right buttons, one of them is the chill button.

So yeah, we do the detox, the brain chemistry stuff, cardio metabolic stuff. We have cardiovascular products, metabolic products that control blood sugar, turn up ketone production, straight longevity stuff and then we have a whole hormone system, a female hormone replacement system.

And now, We're doing the peptides. Amazing. Copper GHK, PPC 157, BPC KPV, BPCTB 500, the bioregulators, epitalin, thymalin, we're getting those. We were doing all those in sublingual liposomes.

And two reasons that's important. Well, one is so you don't have to do the needle all the time. A lot of people hate the nail. Yeah. The other is because the drug companies are trying to stop the compounding of the injectable peptide.

Right. And so it's like, all right, you don't have to compound them. All the ones that we're making naturally exist in your body already. So these are natural peptides that regulate the body, and they go down over time.

We're going to supplement them, so yeah, that's real exciting. And then we have a pretty pretty much hit in all aspects. Yeah, I could see that man. And the science is behind it.

That's what I love too. So yeah, yeah. You know, you look into a different problem, the chemistry of the problem. The compounds are going to work with it and because of chemistry, of compounds you're going design your delivery system to match them.

There's lots of difference. Everybody's like liposomal everything, but No, liposomes are for water soluble, nano emulsions for fat and alcohol solubles.

There's a lot of things that don't really fit into fat versus water, and you got to figure out how to get them in. So each

little sphere is like a beaker, you've got a tune the center of the beakers to solubilize the compound in there.

And then, once you put all that stuff together, the pathways you're working with, what modifies them, how they deliver them. Boom, your got killer products.

I love it, man. Doc, if someone came up to you and said, what is your go-to for the best cognitive health? I want to be sharp as a tack. What would you tell them?

You know, what everybody's expecting there is you're going to give them some stimulant. They want the limitless, like the movement. Yeah, yeah, exactly.

And, you know. We even have like a no tropic formula called nanofuel. I take it before we do these. It puts you spot on. You get all your words and stuff.

But, just doing stimulants all the time, You're gonna burn yourself out and you are usually trying to get on top of something that's holding you down.

So, you know, my go to for any of these pathologies is the old military thing. You know I got to take away before I put in and I'll do better for you by taking stuff out of you than putting stuff back in.

But part of that is, the triggers that used to get them out are regenerative triggers. And so when we clear the terrain out, your mind thinks way better.

And then I'll give you a little bit of this no tropic stuff and you'll be on the money. But with a poison system, I got to give so much. It's like giving you speed doses and then we'll blow out your adrenal stress, trying to keep up with advanced processing in the brain.

Wow. Well, you know what, man? That's a lot of people would come on this podcast and give a list of supplements. Yeah, here's your stack. Right. And you hit the nail on head on it.

We got take some stuff out of you to get you perform right. So today, you know, we live in such a toxic world and it's all over the news. We got a big movement called the MAHA movement, Make America Healthy Again, which I think I just met with Callie Means last week.

Oh, he did. Yeah, that was fantastic. I'll be going to the the Maha Gala here in Jupiter. OK, they're having it. So I had the Chief Operating Officer for Maha, who was the former Chief of Staff for RFK Jr.

on the podcast a few weeks ago. Oh, great. So great people, man. I love the movement. What's your input on a whole movement that's happening? It's fantastic.

You know, it's pathetic, the kind of blowback that you get. Like, RF K has worms in his brain. of the world does. It's like, wake up. And I've known RFK, watched what he's been doing for a long, long time because he was really into mercury for long times.

So he rubbed shoulders on that and a lot of people involved in that. But the awareness coming out now and the just like squashing of big foods monopoly on their ability to poison people.

Let's get rid of that and let's bring real awareness to some of these issues. The idea of the poisons and toxins in the food supply and in our daily exposome, everything we're exposed to, that coming to the fore, it is just fantastic.

At Health Optimization Summit, we heard a lot about what they're looking to do. how corrupted the whole system has become between the pharmaceutical companies, the insurance companies and the food companies.

And they're just in this web of just driving people down. It's not that it's their conspiracy to wreck people, it's their conspiracy, to continue to make money and they're not doing it with good stuff.

And so the side effect of this is that they are ruining people. The food pyramid and how we told people to eat and elevate carbs up there and all the poisons in there.

All that's going to be disassembled and the awareness is going come to how to really optimize health. It's gonna be a revolution. We'll see how far they get.

Obviously, Trump came out of the gate swinging so wicked, man. And it's like, we're going to try to make a dent in this stuff, you know? And so, yeah.

But this is a lot of stuff that you've been talking about for years, the toxins and all this. Oh, no. Nobody knows detox. They all know this is core things.

All those maha women, you know, a lot of them came from autism and the chronic illness world. You know? I mean, think now, everybody's like, oh, yeah, Lyme disease.

Oh, I have Lyma. Yeah, go test for Lymen. 20 years ago, they were taking people's licenses away for testing for lymen and treating Lyman. The doctors are getting, their lives ruined.

And now it's, like oh yeah. This is the CDC task force on Lymo. I'm like you guys suck. That's crazy. Deny, deny, and deny until you can't and then try to act like it was your idea.

Right, right. Doc, as we wrap up here, man, if there's two things. If there is someone, a patient or a potential patient that's out there or one of the medical providers that is listening to our podcast that can really resonate with today's message, what would you leave both of those individuals with?

If you don't clean up the terrain and you have some pathology, there's this fatigue, your hormones are off, you can't lose weight, blood sugar is off.

There are toxins all swimming around you that can do all of that. Either they're doing it or they are contributing to it, or not letting you get over it.

And detoxification is a fundamental part of healthcare. And even if you just go get like advanced push-catch box one month, you're going to do so much there.

It's so efficient. Most of our doctors say, yeah, I used to use these other systems and it's not like I can't get there with capsules, but it would take me 12, 16 months to get something done that I could do in two to three months with yours.

Right. There is no harm in doing it. It is not like it used to be where you can cause worse side effects than the problem. Everything just gets better and it's easy to do.

And so there's no excuse not to it because it is something that always helps. Love it, love it! So Doc, where can people find you? Quicksilver Scientific, we got Quiksilverscientific.com.

If you're a doctor, yeah, there's stuff on the website when you get there, but there is a treasure trove of educational information. And when get your own account, you'll log in.

There's learning management systems will lead you through toxicity, detoxification. It's a whole hormone use system in there. Is 41 and a half hour or maybe 50 at this point webinars on all these little aspects.

In fact, we have a whole Lyme line now, so we're doing the chronic disease stuff. We're working with the biggest Lyne clinics in the country. So get in there, get all the information.

If you're a patient, there's plenty in their on our core detox profiles. Our core supplements are all available direct to the public. And just get in and start working with it.

I want people to get to know their health. And then on social, there's Quicksilver Scientific on Instagram and Facebook, and dr. ChristopherShade is more me personally.

You'll see me up with like monks in Nepal and stuff and gardening. and some of this stuff on there too. Awesome, awesome. Thago, it was a pleasure having you on the podcast.

This is information that's much needed. It was great, Sam, thank you. Amazing. Guys, you heard it from Dr. Chris Shade. Listen, It's not about just adding supplements and overloading just a supplement to supplement.

You gotta remove stuff out of your system. you gotta enhance your detox pathways. There's a protocol, there's science behind it. Make sure you click on these links down below.

Follow Doc, follow his company. This is something that's needed, especially in this such toxic world we live in. So make sure to get rid of those toxins and then supplement.

And we'll see you for the next one.