Christopher Wark (00:00.098)
Cigarettes were like the ultimate aid shortener because they shorten your telomeres and that, you know, shortens your lifespan, drives your cells in the senescence where you start growing. And both the smoke aspect and the cadmium aspect, the cadmium shortens telomeres and that and the smoke together do that. You can block that by having glutathione system up. But yeah, cadmium is, even the EPA has.

a level in the blood of 0.7 parts per billion, that and above, you're going to have a shorter life. Even the EPA says that.

Christopher Wark (00:33.95)
Hey gang, today I'm interviewing Dr. Christopher Shade. Dr. Shade is an expert on mercury, heavy metals, and human detoxification. He's also the founder and CEO of a nutraceutical detoxification company, supplement company called Quicksilver Scientific. Those of you who've been in my community for a long time have heard me talk about Quicksilver. I think they make really, really fantastic detox supplements. They've got a great detox program.

And I've wanted to interview Dr. Shade for many, many years. I first heard about him, and maybe we can talk about this, from Tony Robbins. And he helped Tony Robbins, who had a serious mercury overload problem. And anyway, and that piqued my interest, and I went down the rabbit hole and learned about his work. And so anyway, Dr. Shade, thanks for taking the time to do this. Oh, you're welcome. Thank you, Chris. It's good to be here. As you said, we'd met at Fran Drescher's a couple of years ago.

We did. We met Fran did an event and we both spoke at it and got to hang out a little bit afterward. And yeah, that was cool. So I'd love to know how you got into detoxification, like what your career path, what, what led you down this, you know, down this path, being toxic. Yeah. You know, you don't always know what's leading you down some paths. We always like to think that, you know, we design our life, but we don't. And I, uh,

I was an environmental scientist and then I was very disillusioned with how environmental science works and I became an organic farmer and I was all into that. I thought that was super cool. We're going to work on health through food and healthy soil. It was a little early. I joked that I went out of business the year that Whole Foods was formed. So I ended up doing some education.

work, some research work around organic farming. Then I went back to grad school and I was into this natural health thing. And when I went back to grad school, I was first going to do work around environmental pollution, around agriculture. And then I ended up for my PhD working with a guy who was working on mercury as a global pollutant. And, uh, and.

Christopher Wark (02:47.926)
developed some testing for mercury that I wanted to then go back and apply to the human

realm. I wanted to get back into clinical. And so I got my PhD, I got my patent, I went and I started Quicksilver Scientific. And first I thought I was just going to do testing around mercury as a toxin in people. And of course, then I started using the sort of standard issue then, which were the pharmaceutical chelators. And they were just getting me sicker and sicker and sicker.

And I thought I was just going to do the testing around it, but chelation challenge for testing and chelation for treatment. And I saw how badly that was working. And ironically, I went to a functional forum here in Colorado, and I listened to a couple of guys talking about GI and immunity about liver stuff. And then there was a guy named Bob Rountree.

lecturing there and he was talking about nrf2 upregulation. He was talking about the immune system relationship to toxins and microbes. And so I say ironically, because he's speaking here tonight at our Colorado functional forum. And he was one of the catalysts for getting my start. And I was sitting there, I was really deep in just being adrenally and thyroid and mitochondrally

And I was like, oh, why am I trying to go through the kidneys? I got to go through the liver GI. And I had, I remembered a study that was done in 1973 where all these people were poisoned with methylmercury and they tried using the regular bloodborne pharmaceutical chelators and they tried a different technique where they kind of put a chelator on the little drop of plastic and drop it into your stomach. You know, you're

They were called resins. It's kind of like polystyramine or like charcoal, but these were little synthetic beads with chelators around them and you would swallow them and they'd just suck everything down into your GI and you poop it out. And I was like, that's how I have to go. And I used to make stuff like that in grad school for collecting mercury out of water. And so I, uh, I went back and I cleaned these things up for human use and I started taking them and boom, immediately it was pulling me.

Christopher Wark (05:14.198)
of this depth and this fatigue that I was in, you know, within a couple of weeks I felt way better. And then I brought this material we call it IMD and Tessal Metal Detox. It's still like the anchor in our detox. And I brought it out to some of the luminaries there. I was lucky enough to be introduced to Dietrich Klinghart and Hal Huggins at the time. These guys were the kings of mercury detox.

And they saw this and they saw it fill the hole in everybody's toolbox and immediately started using it. And it worked so well. I had to understand why it works so well. And it comes down as we talk through today, we'll talk about how detox works. We'll talk about the glutathione system. And this is anchoring the body's ability to link something like mercury onto glutathione and transport it through the liver.

into the GI. So once I understood it was part of the system then I had to start getting glutathione into the system. How do I do that? That led me to doing liposomes and nano emulsions and I

got a tune-up liver function. I got to get liver directionality, coupling detox to bio flow. I had to link all these things together and once I did that we had these really ideal detoxification systems and they worked so well and then we started applying that into

things like immunity and longevity, and finding that detoxes cordial longevity, and figuring out that this delivery system that gets so high of a bioavailability for glutathione can be applied to all these other called small molecule nutraceuticals, these things like berberine and resveratron, querstin, the curcumin, that are isolated by plants.

pharmaceutical company knows how strong they affect things, but they also know they're not bioavailable. And so they went down different routes. But now that we can bring this bioavailability together with these plant molecules, we have this whole potential for this new plant medicine that's so strong, really delivering on the promise of what natural medicine was supposed to be. How do you think you ended up so toxic? Personally.

Christopher Wark (07:26.29)
And from there, I was born in Bethlehem. Me and Jesus, he was born in West Bank. I was born in the East Bank of the Lehigh River. Now Jesus wasn't involved. There's a lot of Jesus there. There's a big Puerto Rican community, but not Jesus. But Bethlehem, Pennsylvania, where Bethlehem Steel was, I grew up there. And, you know, I grew up every day. I'd look into the sky to see these massive ugly clouds of smoke coming out of the blast furnaces of the steel or the orange.

smoke coming out of the coke furnaces. And I grew up, you know, breathing this stuff in and you know, having a, I mean, my mom cooked well, but everything was kind of, you know, poisonous back then. And dentistry, boy, I had a giving dentist. Every time I went to see the dentist, he gave me silver in return. Well, now that's half mercury, half silver, but they're old silver fillings. I had 17 silver fillings in those. Wow.

Yeah. So, you know, I really, I was really given a great head start where I grew up for toxicity. You know, if you want to be a detox guy, take the first 20 years of your life and just cram all the poison in and then try to figure it out. So you've given some clues, obviously. And my next question, follow up question is, what are the biggest sources of mercury, you know, in terms of human exposure? Where are we getting poisoned the most? Obviously, mercury feelings is a big one.

Yeah. So you got mercury fillings. You used to have vaccines. Mercury's pretty much out of vaccines. Thimerosal was the preservative. Thimerosal was the ethylmercurythiocyl salate. That was a preservative and the adjuvant. Then fish. And mineral amalgams are starting to go away. People are getting the white fillings now. Amalgams and fish are still the big two.

They have a different form, amalgams. It's a vapor that comes off and goes into the blood and circulates in the blood. And then it oxidizes to this salt form called inorganic mercury. And that's

what's toxic in your body. Then the fish form is called methylmercury. And that absorbs through the GI, almost perfect absorption through the GI, because it's associated with the amino acid cysteine. And the two link together.

Christopher Wark (09:47.018)
Methylmercurycysteine, your body thinks it's methionine, another amino acid, so you absorb it through amino acid transporters, you put it into your brain through amino acid transporters, you give it to your baby because you think you're feeding protein to grow a baby. So the baby actually has higher mercury levels than the mother does. So you got that methylmercury form and that inorganic mercury form. The amalgam also, you're swallowing the corrosion products of it that go through the GI, and that's really the nastiness of the amalgam is

One form you inhale goes to your brain, goes anywhere. The other form you swallow and it kind of seals up the detox pathways into the GI. And so it cramps your whole ability to detoxify. That's why of the two, amalgam I think is more insidious and worse. But they're both bad forms. You gotta be careful of both. Tony Robbins, he went from being a vegan to being a paleo guy. If you're a vegan you...

I would say you can't go to the hoof. You got to start at the fin. And so if it doesn't make noise and it swims around, that's an easier protein to eat if you used to be a vegan. And he went into eating tuna and swordfish all the time. They just mistakenly thought that the heavy metals are at the base of the food chain, but for mercury, they're at the top. And so he just was, you know, he's a monster and he's always going. So he's just eating salad and fish, salad and fish all day long until he had a...

extraordinarily high mercury level. Yeah, I you know, I heard him tell this story and I can't remember what he said his symptoms were. Do you remember what was it was like a crushing fatigue, memory loss and brain fog. Yeah. And so and did he come to you know, when he came to you, was the first thing he did was run do mercury test and just well, he or did he already know at one of his regular functional doctors and he said, Hey, we should just you know,

run a metals test while you're here. You know, it's just part of because this is like he just started something called fountain life, which George Diomopoulos, I forget his last name, you know, it's big, forward thinking leader and a couple other guys and they routinely do metal testing on their on their people cutting it. And so one of these doctors said, Yeah, let's just look at it. He had said, Yeah, you know, I'm not feeling so good. And so the guy threw the test out there and boom, this whopping load comes back.

Christopher Wark (12:14.282)
And then he's like, Oh, I better go do chelation. It just blew him out of the water. You don't want to try to move that load that fast. And what was he doing like EDTA or something else? No, EDTA is not used for mercury. That's used for lead. It's DMPS. DMPS is the injectable. DMSA is usually oral. The DMPS can be oral too. But DMSO, DMPS chelation, it just blew him out.

And his wife Sage did research and found me and called us up. And what was ironic, this woman who's working the front desk and was also kind of my executive assistant, she, you know, Sage is calling her and she's like, Oh, he's really busy. And then she comes to me in the lab and she says, look, I know, you know, a lot of consults, you're really busy, but would you do a consult for, and she has to read the name Tony Robbins. I'm like, Oh my God.

First, use Google. First, say yes to use Google. All right, Google stalk him. She said, no, I'm dead. She's like 25. You know what I mean? Is he Tony Robbins or just some rando Tony Robbins? No, she didn't even know who Tony Robbins was. She was in her 20s. He was more in his heyday, you know, more in our time. That's great. So obviously that's where I heard about you from Tony telling the story and Founder Products and have taken.

number of them. And so besides mercury, we know there's some other pretty nasty heavy metals out there aluminum, chromium, cadmium, nickel, lead. In your opinion, how would you rate those in terms of being pervasive and their toxicity? Like what are the other big ones people need to worry about? You know, unless you have some weird exposure to chromium, you know, you know, what was it Aaron Brockovich, you know, unless you're in some town.

where they're using it in an industrial process, nobody's gonna be chromium toxic. And in fact, chromium is an essential metal. And so we do need some of that. The big four are mercury, arsenic, cadmium and lead. All of them are pretty pervasive. The aluminum's not? Aluminum's sort of a pet.

Christopher Wark (14:31.906)
Toxin of certain group, you know, if you're in the clean heart group, it's responsible for all bad things in the world. If you're in functional medicine, you're like, what? And so I haven't really settled on how I feel with aluminum. I think there's nanoparticle aluminum that we're exposed to, vaccine aluminum, and those are much worse than the general food-based aluminum. Realized aluminum is the number two or number three element on the plant.

It's not like it was invented by humans. All clays are aluminum silicates. All soils are just chock full of aluminum. And so, I know it's an issue, but I don't think we've resolved how to detect one form versus another to see which is the worst. And then on the periphery got nickel, which could be a problem and create a lot of allergies and be a metalloestrogen. But the big four that were exposed to are mercury, arsenic, cadmium, and lead.

Since amalgams are pulling back, that's a good thing, and vaccines are pulling back, it's becoming a little less pervasive, but there's a ton in the fish and a lot of people our age still have amalgams. One of my friends here, one of the main people working here, we're just getting our amalgams out. She's 50 years old, and I think it'll be a radical change for her. Arsenic is pretty pervasive.

Christopher Wark (15:59.602)
the lead age, you know, we're kind of coming off of the metals age into the plastics age. Well, we've already made that transition. Yeah, we're more into endocrine disruption. You see everybody's, you know, what their sex is and how they identified stuff is the main game. Now, in environmental chemistry, that was 30 years ago. We figured that out. That was, you know, there was fish and frog populations near some of the plants where they make these things that they didn't know what to have sex with, you know, and there's whole populations falling apart.

because they lost their sex. Yeah, atrazine is probably one of the most famous, right? For causing frog genitalia mutation. Oh yeah, yeah. That was horrible. But there's so many others that were doing that. In the science world, we were seeing that 30 years ago, 20 years ago. And now it's emerging into our human world. Now we're seeing that. But back to the metals. We're out of the... There's still...

lead but not as much because the lead paint's all gone. The leaded gasoline, in fact, there was a huge, there's a great correlation between violent crime and use of leaded gasoline. And the measurements of that tetraethyl lead in the lakes. And it really seemed, lead is like a dull thuggards metal, whereas mercury is like a crazy man's metal.

Oh, it's Nick from Cadmium, a little different. Yeah, you know, there's like a crazy genius with mercury lead. There's just dumb, you know. Yeah, mercury, you become the Mad Hatter. Yeah, Mad Hatter. Woo hoo! And you know, like Mozart and a lot of famous people, a lot of different scientists were mercury toxic, and that was part of their genius. So those are the four. And

Arsenic is a lot of it is water derived. So in wells in different areas, you know, Idaho, New Hampshire, that's very geologic. It's in rice. It's in lower food chain fish along with in lower food chain fish like shellfish and stuff you're getting arsenic and mercury but lower levels of mercury and higher food chain you're getting just mercury. Some seaweeds have arsenic.

Christopher Wark (18:19.19)
I'm you know, it's kind of troubling seeing cadmium on the rise. I don't know exactly what the sourcing is You know a lot of electronics have cadmium in them cigarette smoking was the thing and cigarettes were like the ultimate age shortener because they'd shorten your telemeters and that you know shortens your lifespan drives yourselves in the senescence where you start growing and both the smoke aspect

and the cadmium aspect, the cadmium is the best metal at directly, you know, it's the only one that unequivocally shortens telomeres and that and the smoke together do that. You can block that, have a glutathione system up. But yeah, cadmium is even the EPA has a level in the blood of 0.7 parts per billion. That and above you're going to have a shorter life. Even the EPA says that. That's not crazy. You're not coming into me and...

I read that in you and I'm like, oh my God, you're the 99.999th percentile. No, you're at like, you

know, the 90th to 95th. You know, that means a lot of people have cadmium levels that high. And I'm seeing it crawling up. I'm seeing more tipping my scale and I'm, you know, and then when you're running lab, you're always checking like.

Oh, is our analysis getting biased and stuff? And they're like, no. And we have third per, you know, we have blind samples come in. We have all these ways we control, but I see it going up. And so it's, you know, what that means is that's not the 95th percentile anymore because everybody's creeping up that way. So cadmium has me a little bit scared in the metal. So, so you're saying the source is mysterious at this point, air, water, or food, and it's kind of hard to pinpoint. Yeah, it is. I, you know, I have to kind of dig back into the environmental.

data that's coming out and see if anybody's looking at that. I was always alarmed being in environmental chemistry. It's like, I'm sitting there measuring these minute amounts of mercury and like zooplankton and little bugs. And we're worried about the thyroid of a bird. And we have a mouthful of amalgams. And I couldn't believe this guy on my thesis committee. I'm like, don't you worry about these? He's like, yeah.

Christopher Wark (20:27.702)
We've been doing that for a hundred years. It's like, yeah, we were smoking for a hundred years too. Then all of a sudden we realized what was gone on, man. That was the dumbest thing I've ever heard you say for a PhD. And then, and it goes, plus there's, there's no good replacements. This is this 1850. I mean, what the hell are you talking about? Actually 1850 is when they started making those. Cause that was a good way to fill a filling instead of doing gold foil, you know, but at the time he said that there was at least 30 different versions of composite. Now there's way more than that. There was.

No reason whatsoever to be ever putting a mercury filling in. Uh, and while you're on this environmental scientists are asleep at the wheel in terms of impact to people. Is there a, in your opinion, based on the material, is there a preferred composite material for fillings? Cause I know there's a lot of people in my audience that have mercury fillings, they've been thinking about getting them out. This is not new information to people that have read my book. They know mercury is a problem.

And I'm constantly asked, well, what, what should I use for the replacements? And I don't know. I really don't know the answer to that. Uh, and so anyway, maybe we can, uh, give some people, uh, so yeah, something specific to ask for. Like, this is the only one to use and it's, you know, it's a mixture of different, you know, it's, it's lack of toxicity. It's bio compatibility, it's hardness, you know, people are into using.

ceramics and stuff. Now you never want to, I was a stonemason before, like the grout between the stones, you never want it harder than the stones. And now they're starting to use filling material and caps and stuff that are harder than the tooth and you don't want to do that. You want it to have a little bit of give. And so we'll see if she gets back to me. Of course she's always

on it. Diamond Crown and the name of the guy who makes it is Sam Wachnene.

W-A-K-N-I-N-E, that's for the dentist. But if you go to your dentist, ask for Diamond Crown, been on the market 30 years. So back when this German guy was telling me there's nothing other than amalgam, all this stuff was there. So it's interesting that you said about cigarettes and cadmium, is cadmium considered the most toxic element in cigarette smoke? I know there's a lot of junk in there. There's a lot. I mean...

Christopher Wark (22:49.23)
All serious smokers have high cadmium levels. I mean, this is, you know, some, here's an irony. Some of people's sources for cadmium aren't leafy greens. You know, I had this Kundalini yoga practitioner who was, I was working with for a while and I got all her medals down. I just couldn't budge the cadmium. And I'm like, it's, you're eating it all the time. And it's probably, you know, when she was a vegan and stuff, and I'm like, it's the leafy greens.

Just like tobacco is a big leafy green, you just don't eat it and absorbs a lot of that stuff from the soil and on the surface. And here's one of the tragedies around community-based or local organic farms is a lot of times there'll be a little parcel of land donated to somebody to go farm right next to a highway in between a couple of roads. And that road dust has lead and cadmium in it. There's a lot of cadmium.

Coming out of exhaust, there's a lot in gasoline and the lead we put in. And so, you know, so a lot of these, you know, there's some unfortunate consequences to some of those. So now that people are thoroughly terrified, let's, let's move on to solutions because that is the good news is yes, there are, there are, your body's designed to detoxify these elements. So there's things you can do to, to accelerate the process to assist your body. So, you know, what are the, what are some of the steps?

And by the way, are there different strategies for these different top four metals or does a, you know, is there sort of a comprehensive approach? Yeah, mercury, cadmium arsenic can go by the same strategy, which is a glutathione system strategy. You've got to get glutathione up and then you got to get the transport system working. And so as we unpack it, we'll probably work backward from GI deliver to sell and then talk about it back the other way too. Because

It's about what you can really go in and do. So mercury cadmium and arsenic go through mercury, I mean, glutathione system transport out. Lead, to get it out, you need some EDTA or some DMSA, but if you're doing just the system up regulation, you'll block all of its toxicity, and that's really a nice thing. And when we do that, we're also gonna be getting out tons of the organic toxins, the pesticides, herbicides,

Christopher Wark (25:15.242)
You know, the easy things like Roundup, those are easy to get out. The difficult things are metals take a while, mold takes a while, and then the halogenated hydrocarbons. So PCBs,

polychlorinated biphenyls, those are a little slow. The brominated, the flame retardants, PDBEs, polybrominated diphenyl ethers. And then the forever chemicals.

perfluoro octanate and perfluoro octane sulfonic acid. PFS. Yeah, PFAS and PFOA. Yeah. Those are fluorinated, those are Teflon chemicals, just like Teflon's no stick. There's no cut into that. So your chemistry for detox can't affect it. So all you can do is just wait for it to sort of diffuse into the urine and pee it out.

you know, into the GI, poop it out. And so those are real slow. All right. So let's go back to how do we work on getting these things out of the body? How do you push it? I know you have a, you have a detoxification kit that's called push catch, which my wife and I've done. And yeah, I mean, so I guess one is triggering your body to release the stores, right? Cause it's not like it's just sitting there in your stomach waiting to be mopped up, right? Yeah. And your GI waiting to be mopped up. So it's like, how do you.

trigger the cells, fat tissue, wherever it's stored in your brain. Like, how do you trigger that? And then the blood circulating circulating, you need filtration with that, that's pulling it from the blood into the liver, then dumping it with the bile into the GI, and then binding it in the GI. So you don't reabsorb it. So that's pushing the tissues.

filter out of the blood, dump with the bile, bind in the GI, poop it out. Or you're pulling from the blood into the kidneys and you're peeing it out. So, well, you know, I said we were gonna work up, let's work from the cell on down. We need the glutathione system to grab the metal, pull it off of whatever protein that's stuck to in the tissues.

Christopher Wark (27:38.346)
and link it onto glutathione. After that's done inside a cell, we need a transporter that pushes it from the cell out into the blood. All right, so just working up here on this piece. So that means you need glutathione, and you make glutathione all the time, and it starts getting low, it's getting used up, the inflammation is turning down the amount of glutathione you make, so you need to push that up, and you need to get more glutathione in the system.

You can do that by taking liposomal glutathione. If we have really good liposomal glutathione, there's a lot of terrible stuff out there. But a good liposomal glutathione or some of the precursors, anacetylcystine, that's going to work well if your system's working really well already. If your system is heavily inflamed or if you have chronic infections or anything that's really hurting the system, you're not going to be able to make it very well.

So we're either going to use liposome or NIC, sometimes whey protein has precursors in it to build glutathione. Then there's an enzyme that links together, that pulls the mercury or cadmium or arsenic off the protein and links it onto the glutathione. That's called a transferase. It's also called a phase two detoxification enzyme. And it sort of shifts the electron density of the metal so it can link onto the glutathione. So.

You need the glutathione, you need the trans-arrays, and then you need the transport protein because these don't passively diffuse out of the cell. They're actively pushed out of the cell. That's also called phase three transport. So we can work on glutathione levels with precursors or liposomes, but to turn up phase two and phase three, we have to hit this trigger called NRF2.

is a master switch. It's called a nuclear transcription factor, meaning that it's a little triggering molecule that goes into the nucleus. And it finds a whole family of genes with the same promoter region. It's kind of an address for a gene family. This is called the antioxidant response element because it makes you respond with antioxidant activity. And detoxification.

Christopher Wark (29:54.93)
is within the realm of the antioxidant activity. So when this goes in, it turns up synthesis of those enzymes, the transporters, synthesis of glutathione, synthesis of other elements like superoxide dismutase and metallothionine for what's called the chemoprotection system, which is an antioxidant detoxification and repair mechanism. So NRF2 upregulators are really good at getting the cell to push.

those stores out. So what kind of things are in our two regulators? A lot of polyphenols like we use Choristen and Ludiolin, Silimerin and Milk Thistle, EGCG, green tea extract, curcumin does some of that. And then the sulfur chemicals like poic acid is very potent at that, especially

R form of lipoic acid. You'll see alpha lipoic and R lipoic. R lipoic is stronger. And probably the strongest of them all, but also the most reactive to the immune system. Not everybody does well with it, is sulfurophane from broccoli seed extract. All right. So you've got some precursors. You've got glutathione supplementation. You have an Nrf2 up regulator. That's going to push us out into the periphery. Now we need to activate the liver.

to move those out and coordinate that with bile movement. And so some of the center of two-up regulation is gonna turn up liver function, but we need bitters. Bitters, you know, this is the old European cure-all. There's a region, Angostura bitters, has been at cocktails for a long time. It was developed by a surgeon in the US Army who had...

a, he was running a base in like kind of the Caribbean area. And he had have one thing he could treat everybody with to keep them healthy. And he made Angostura bitters because that was known for a long time in European eclectic medicine. It's been known in our faith. It's been known in Chinese medicine that these bitter compounds stimulate the movement of bile out of the liver. Now that's great for digestion, but. The.

Christopher Wark (32:18.09)
If a toxins in the liver, where does it go? How does it get out of the liver? It is actively transported into the bioflow. Every liver cell is fed by blood where it can pull toxins out of a drain by bio where it dumps them out in that green river and there's like a million little rootlets, it's like

an upside down tree and it's like roots in the tree, all draining down into the common bile duct was, which is the trunk and

So the transporters that move the toxins into the bio are also biotransporters. So if you don't have bio movement, you don't have toxin movement. And these bitters stimulate that bio movement. And the bitters you mentioned, are those also commonly known as Swedish bitters? Do you know that product? Yeah. Swedish bitters. You know, it's all what plants are you going to use? So in our professional line, we have bitters number nine and bitters X. Bitters number nine has a little bit more digestive elements as well as liver elements.

Bitters X is just straight up bioflop and Bitters X is a little bit more bitter. Now Swedish bitters, what are those? You know, you got a pallet of 20 bitter herbs you can use. What do you use? And versus Angostura versus Fee Brothers versus, you know, the little grandmother up in Germany, she's going to use stuff that's local to her, but they all have these bitter flavors and there's a whole bunch of compounds that are the same between all the different formulations. And so.

That's why bitters is just used. What are some of the big ones that people would recognize? Some of these bitter herbs? Gentian is probably the most common one. Dandelion root, dandelion leaf. Dandelion leaf is a little bit more pro diuretic. Dandelion root is a little bit more pro coliogog, which is bioflow. One that I use a whole lot of is myrrh. And people know the old frankincense and myrrh.

the Three Kings. So myrrh is a bitter, that's the main bitter detoxifier in Ayurvedic medicine. And it's used in all the gynecological formulas because it's able to purge out stagnant chi or stagnant blood from the uterus, also able to purge out stagnant chi or bile from the liver. And so that one's a really good one. There'll be a whole bunch of different ones in...

Christopher Wark (34:39.954)
in Chinese medicine, they use a lot of gentians there. So there's a bunch of formulas there. Long-gone Shi Gan Wan is one I used to use a lot because it sort of nourishes the yin while it's draining everything. And that's really, that's a gentian in there and a little bit of scuttle area. So yeah, like I said, gentian is probably your most well-known Dan Lion and then Mark. That's the part of the process. It's really stimulating the liver. Yeah. And so here's what happens if you don't do that.

Say you just take like podcast and you get the body to squirt some toxins into circulation. The liver's going to start accumulating that and then it's going to run up against this wall and it can't get rid of them. It's just pulled all these toxins in. It's not getting rid of the bio. Bio if you don't get it out into the bio flow, digests the liver. So what happens is then you have this reverse, this back flush back into the liver. These transporters, MRP3 and 4 dump.

the toxins and the bile salts and all the free radicals of the liver back into the blood. And then it

goes down to the kidneys and then the kidneys get overwhelmed. You get that lower back pain. It's starting to come out through the skin. You get itchy and then you get rashes. Itching is the bile salts lodging underneath the skin. Long before you have jaundice and turn yellow, you're chronically itchy. Chronically itchy. You just take some bitters and whoosh. It goes.

Oh my God, it's gone all of a sudden. And then it'll be, you know, the toxins start coming through the skin and start forming the rations. You have all those toxins go to the brain, you get that brain fog and, you know, anxiety, depression that's part of neuroinflammation. That's all. And everybody thinks that a detox feels like that. Bullshit. A improperly executed detox feels like that. When you couple the detox to the bio flow and...

come right behind it with a binder and catch everything in the GI because a bunch of it reabsorbs. Methylmercury, 95% goes back in. Cadmium is like 70%. A lot of malt toxins, biological toxins go right back in. So when you couple the movement of the toxins to the bioflow, to the binding, smooth as silk, and you just feel better. That's the way detox has to be done. That makes a lot of sense. If you shake it loose,

Christopher Wark (37:04.382)
It just is going to be reabsorbed somewhere else in the body if you don't follow the steps of the detoxification pathway. That's what I was doing when I was taking all those chelators. I was starting to stir the pot but I didn't have the bio flow open. I didn't have the kidney flow open. I was trying to measure the mercury coming out of my urine. It was like barely more than before I took the chelator. So of course, what do I think? I'm not taking enough chelator. And so I took more because I was just some hapless environmental biochemist.

You know, it really taught me all the things I was doing wrong, but now you do all these things, right? It's great. And so, you know, even if you don't want to well so we talked about nrf2 regulators glutathione builders bitters for bio flow and What about binders? All right binders simplest of them is charcoal Another super simple one is clay or zeolite not these like nano zeolites. I don't detox and stuff. Don't take those just you know like

Particles that absorb stuff and just go through and you poop them out in our ultra binder Which is just a beautiful cocktail of binders. You have charcoal. You have some betanac late You have zeolite Kite is in which is a molecular mimic for well cause good for molds and other biological toxins And then you have IMD are especially the thing that I made specifically for binding metals so each of those are different chemistries because there's so many different chemistries out there of Toxins each of those binders

has sort of its sweet spot amongst the inventory of the different toxins out there. So the more different ones you have, the more broad your binding is. But even if you're just using some bitters and then coming in 30 minutes later with some charcoal, you're gonna start draining the levels really, really nicely. That's the old European ideas of drainage is bioflow and diuresis. So, you know, and diuresis, it's, you know, dandelion.

leaf, corn silk extract, Soledago. These are things that stimulate your urinary flow. And you drink a lot of water. And if you're drinking tea, water, just get all that stuff moving and you'll lower your blood levels. And often to feel better, you just gotta get those blood levels down. To fix everything deeply, you gotta get the tissues to dump and then the drain.

Christopher Wark (39:24.234)
You mentioned sulforaphane being problematic for some people. Can you expound on that? One is very reactive sulfur compound. That's why it's a great enter of two up regulator. Here's a key nobody gets really. Every enter of two up regulator is a toxin.

hormetic toxin, arsenic is an nrf2 up regulator, methylmercury is an nrf2 up regulator, the phenobarbital they used to study all the time. What is nrf2? It's a stress response switch. It says I have too much oxidative free radicals or electrophilic or environmental free radicals. I got to turn up shit to get rid of them at itself.

So what you want is something that goes in there and flips that switch without a lot of collateral damage. Comes in, does its job and you clear it and you clear the mercury and the, you know, the roundup and everything all at the same time. Sulfurophane is super strong because it's the most toxic of them. And so if people are very sulfur sensitive, the CBS regulation, they probably have, they often have problems with that. You could try giving them molybdenum, which will help with that. But.

If they have something blocking their nrf2, so if they're mold toxic and a lot of practitioners tell me, ah yeah, my mold toxic patients don't do well with sulforaphane. So if mold blocks nrf2, and so then you put a hormenic microtoxin in there and there's no nrf2 upregulation, it's just a hormenic microtoxin. And if you take a lot of it, it becomes more toxins. So those people who are more sensitive and they're sicker.

You got to start with drainage. And then I like to start bringing them up with polyphenolic and RF2 up regulators and then work up to the sulfur ones like liposate acid. And, and if you want to go to, uh, until so far, and then you, then you can. Is there a particular test? Let me say one other thing. COVID is a wicked and RF2 blocker. Oh, post COVID don't take it. You're either, if you're on it before, here's the thing. If you got an RF2 up before you get COVID, it'll be a real short COVID.

Christopher Wark (41:33.93)
But if COVID gets in there, douses it, don't start with Nrf2 up regulators when you're coming out of it. Start with like vitamin C and CBD and curcumin, stuff that's like calming the system and circulatory stuff. For us- Anti-inflammatories, yeah. Yeah, for us, our big two post-COVID are CBD synergies, PN, PNs for pain. That's CBD, curcumin, boswellia, bit of curry, offlin.

That was always the best thing during and after COVID for lowering inflammation. And then we

made a circulatory formula called performance cardio. And that just pulls you right out of all that micro clouding that's going on all over the place. So in terms of testing, is there a particular series of tests or one test or that, um, folks who are just curious about their toxic load.

You know, or do they need a series of tests? Do they need a hair test, a stool test, a urine test, a blood test? Depends what you're going for. Well, I mean, just like- Talk about broad and then we'll go into metals because metals gets much more specific. But you want a broad panel. No test that goes, here's all the environmental toxins and here are the ones you got. Nobody's got that. Everybody thinks that there's like this magic machine and you just plug in what you want to know. That ain't it.

You're really having specific tests for each. The best we have is mass spec now where we can look at a number of toxins, but not all of them. And often we're looking at metabolites. Most of these aren't in the blood, they're in the urine, they're metabolites in the toxins, assuming you're exposed to it because the metabolites there. I mean, there may be stuff you can't even metabolize that's up there. So some of the broad ones, Viber in America has a broad one, I don't remember the name of it.

And probably the oldest or broad one is from Great Plains Laboratory. It's called the Envirotox Panel. There's a couple versions of it there. And so you look at a bunch of solvents and maybe some plasticizers and Roundup. Get as many as you can. All of them have Moldtoxins panels now. Doctors Data has Moldtoxin. I think they might have an environmental panel now, but I'm not totally sure.

Christopher Wark (43:57.742)
Mold is really difficult too. Usually you take a bunch of glutathione before you do it so that you can metabolize it more and push them out of the urine because you have false negatives all the time. But there's at least tests out there to cast a wide net and see what's going on. Then when you get to metals, you're looking at blood, hair, and urine. Blood and urine are the best. Hair is good for mercury. But on its own, it's not all that good.

Great testing can get expensive, obviously. So it's like, I'm trying to, you're trying to point people in a, without it becoming a wild goose chase, right? Just try to pointing people in, in directions that you're exposed to. Then you want to go do it. So, you know, in our metals testing, we have a broad metals panel that does nutrient metals, which is very helpful to know what are your, you know, uh, you know, zinc copper ratios, calcium, magnesium ratios, you have manganese, you have a lived in them, uh, and selenium.

And then you got your toxic metals and or any of those sticking out. So that's a nice map. And yeah, at 200 bucks, you got a good map, all the metals in there. And now if it's specific to mercury, then we do what's called the mercury tri test, which was the one that I developed for grad school. Uh, and that's blood, hair and urine separating different forms, methylene and organic mercury. That is the Cadillac of knowing what your disposition of mercury forms is in the

blood. What are the

the main forms, the blood is a marker of your whole body burden. Now that we're able to separate forms and measure down to really low, we don't need to do the challenge test anymore. And then urine is an excretion marker for inorganic mercury and hair is an excretion marker for methylmercury. So that's the best for mercury, but then just a general blood metals for all your metals. And a general urinary, I don't...

do the challenge test, but a general urinary test is good for, not everything you can see in blood. Like if you're worried about nickel, say you're a jeweler, you're like an amateur jeweler, do electronics, you're going to want to know nickel, that can only go in urine. Certain areas, there's a lot of uranium exposure. If you're living up in the mountains in Colorado, there's a lot of uranium mines. If you're down, if you're near Rocky Flats where they hit all of their...

Christopher Wark (46:21.802)
nuclear, nuclear work that was going on. If you're down in New Mexico, you're going to have to do urinary for uranium, neptunium, plutonium, but you're really looking for uranium there. So, you know, it is it is spread around all of these different ways that you look at it. So the metal says that you mentioned earlier that quick silver does, does that pick up mercury? Would that give someone an indication?

Yeah, now if you have amalgams and don't eat any fish and you're gonna have to do the mercury tri test if Fish is your you don't have amalgams and fish is your dominant source then blood is a good Marker for where you're at. You don't know how much of that you broken down into inorganic, which is the more toxic form But it gives you a general marker. So on our blood metals panel you got the nutrients and then the toxics are mercury arsenic cadmium

lead. Again, the mercury isn't speciated. So methylmercury is basically what it's showing you. It also has antimony. Antimony is not as toxic as those before, but it's like in that next rung kind of with nickel. And a lot of flame retardants have it. Gym rats get a lot of that. Electronics buffs get a lot of that. Why gym rats? A lot of the Chinese equipment, the antimony will be one of the flame retardant coatings. Interesting. Okay.

Antimony is a weird metal you don't hear people talk about very much. Yeah, you don't a lot. But it's glutathione conjugated. It sticks onto sulfhydrols just like the big four do, but it's just not quite as potent. Well we've covered a lot and I want to be respectful of your time. This has been awesome. I mean, so fascinating, informative. Is there anything else just in the next minute or a couple of minutes? Anything else that you're really passionate about that you feel like people need to know? We have a lot of cancer patients in our community.

Oh, no, this is great for them. Detoxification is one of the most important things that you're going to do to get yourself out of feeling sick, to optimize your health and for longevity. And when you're in something like cancer, there's stuff that's got to come out. Absolutely. Here's the

blocker.

Christopher Wark (48:41.842)
Autonomic nervous system, sympathetic, parasympathetic, sympathetic, fight or flight. When you're in sympathetic, fight, fighting or fleeing or all those like ehh activities are prioritized and everything else is deprioritized. And the things that are deprioritized are the parasympathetic things, rest, digest, repair, regenerate, detoxify.

So when you're in high stress, you lock, actually you lock that gallbladder flow, that movement out of the liver that shuts down. That's why it shuts down digestion and detoxification at the same time. So if you're always in that, you're never going to be able to release all this. And if you were approaching your detox out of fear, you're going to actually block it from working. You must relax into the love of the process.

of the self-cleaning, the self-love, the bliss of releasing yourself from these not-you things that are distorting the you. When I lectured at Franz, I don't know if you remember me saying, if you can't let go of something your mother said to you when you were a teenager, something your spouse said last week, how do you expect to let go of all the things holding you in the disease state?

You must find the gratitude for the opportunity to learn how to rid yourself of all these toxins on a physical, emotional, spiritual level. And so the calm, the mindfulness, and even if you're using CBD, GABA, things to like bring you down more parasympathetic, you need to look at this with self-love.

and healing. You know, that's really good. I think it makes a lot of sense for if you're, if you're holding on to toxic thoughts and toxic emotions, your body is going to physically be holding on to toxic elements. You're creating a space and your body is reflecting the mental space and these things that are not you are what you're using as a representation of the world around you and you're highlighting them every day. All the bad.

Christopher Wark (51:06.902)
you know, and you're creating the prison for yourself. You've got to flip that around. Thank you for sharing that. That's, this is a big part of my message. It's forgiveness is a huge part of my message, right? And it's like, that's letting go of the pain that people have caused you. And, uh, so yeah, man, what a great way to end on this. So where can people find you?

Quicksilverscientific.com and we have a newsletter where we're open to consumers. There's also practitioners, you go and get an account and you get access to all of our deep education. Social media, there's Quicksilverscientific on Instagram, Facebook. Dr. Christopher Shade is my Instagram handle. And other people, it's only once in a while do I get on there and answer somebody's question. So if the answer comes back all bubbly and happy, that's not me.

If it's like once in a while, really detailed, that's me. But that's a great place to follow us. But really do get on the site, get yourself, get an account, get logged in so that you're getting our education as it comes out. That's good. Yeah. And again, and we'll link to a lot of the stuff we talked about. There's a YouTube channel too, and that'll have videos about all. There'll be two minute videos on every one of the products.

And then some of my longer, longer videos and for the really deep stuff, practitioners get a log in and most of that stuff's inside the system. Good. Well, we'll, we'll link to all the stuff we've talked about so people can learn more and connect with you. And again, I I've used your products for years now. It's and I've just been so impressed with you and I'm thankful for you. Thankful for the work that you've done. And it's, it's really awesome. It's, it's just amazing. And I know you've helped a lot of people and we'll just continue to help more. So

Dr. Christopher Shade, thanks for your time. It's been awesome. I hope you have a great day. Thanks Chris. You too. Thanks for watching everybody. We'll see you on the next one.