Introduction to Heavy Metals

One of the things that heavy metals does, there are many, but one is to substitute for the good minerals that we use in our body. So in substituting, one of biggest problems that they can create, which has downstream effects in every part of your health, is they will go and be a part an enzyme cofactor where maybe something like magnesium should have been or another good mineral.

and they will go and then when they get to the enzyme and help to bind with it, they actually torque the enzymes so it can't work anymore. This is Dr.

Talks. Hello and welcome to this episode of the Environmental Toxikins Autoimmunity and Chronic Diseases Summit. I'm your host, Wendy Trubo, MD, and my co-host, Dr.

Edward Levitan. And we're going to get rocking and rolling today. Today, every time I say this, but it's true, this is one of my favorite people. Paul Anderson is one of my mentors and he teaches, he's been teaching throughout the country, I think the world.

And every time I hear you speak, I learned something new that's valuable to my patients. So it's an incredible privilege. So now you can now do the official…

Now I give you that to be stuck. Paul, welcome to the show. Dr. Anderson is a recognized educator, as Ed mentioned, author, clinician, and integrative in naturopathic medicine with a focus on complex, infectious, chronic, an oncologic illness.

He's got three decades of clinical experience. So as Bostonians say, he's wicked smart. and he was the head of the interventional arm of U. S. National Institute for Health's funded human research trial.

He's written numerous books, he's a frequent CME speaker, and has also now created programs to train the next generation of providers. So that's really a privilege.

It's privilege to have you here, Paul. Thank you for being on the summit. That's great. So I know we're going to today speak about metals and just for the audience sake, I can go like this.

I Know this is a sliver. This is drop in the bucket for what like literally you've forgotten more than I've ever learned. That is how I feel. What? That a nice thing to say, right?

So we are talking about Metals, how bad of a problem they are, what do they do to our health and what can we do about them?

How Heavy Metals Disrupt Biology

Because ultimately we want to inspire and empower people to have improvement. How bad are heavy metals as far as environmental contamination? Very, very good starting point.

Yeah. So yeah, I will just give a disclaimer that when I teach a two-day course about this, there's usually about 800 slides that go with it with all sorts of research.

give the big picture and help you see the best way to deal with these things. But what I usually start with with patients is our human bodies are not really set up to use or receive heavy metals very well.

We can process tiny amounts and they will go in and out. But anything beyond that, and they have a lot of very

deleterious health issues that they can cause or aggravate.

So I think that the big thing to kind of think about, especially when you're thinking as a patient, would be what do they really do to us and why aren't they supposed to be in our bodies, etc.

So we have other metals, copper and iron and other things that we use for all sorts of real positive biological processes. One of the things heavy metals does, there are many, but one is to substitute for the good minerals that are used in the body.

In substituting, one of the biggest problems that they can create, which has downstream effects in every part of your health, is they will go and be a part an enzyme cofactor, where maybe something like magnesium should have been, or another good mineral.

And they'll go, and then when they get to the enzyme and help to bind with it, they actually torque the enzymes so it can't work anymore. Sometimes the enzyme will work, but it'll work It'll behave oddly or work very slowly.

So enzymes are what help us make our hormones, make or neurotransmitters in our brain, help regulate our muscles. You know, you could see that this could be a pretty far ranging issue.

Another real important thing that they do just at the base level, beyond enzyme activity, which is maybe their biggest area where they cause health problems, they also will bind at receptor sites.

So you might have a receptor on your cell where a hormone binds or some other important cell-triggering molecule. And when they get on those receptor sides, again, will either change the receptor so it won't fit the hormone or they'll slow it way down.

So the health effects are really on a couple of levels. So in our big classes for physicians, we spend the first half of the day going into health affects of just the big four heavy metals.

And of course, there are many others. But there are very clear associations with heavy metals and things like hypertension, blood sugar regulation issues and aggravation of diabetes, et cetera, aggravation of endocrine problems and perpetuation of the endocrine problems, autoimmunity.

and even some cancers. So they really can affect just about everything that our body tries to do normally and cause our bodies to maybe do it in an improper way.

Well, you mentioned four. I want to make sure that what are the top four? Well partly it's an arbitrary decision so that that part of the class doesn't last for three days.

That's the lead, mercury, arsenic and cadmium. And they are. Probably, I mean, there are many other toxicant metals that are very, very bad for you and we hear about them in cancers and things.

Probably have the most data around them, in connecting them to very very common diseases. I mentioned, you know, cardiovascular and endocrine, et cetera.

And so we focus a lot on that in the trainings because ultimately what we do to lower heavy metal intake and help with elimination really will help the other metals too.

So how widespread is this? I mean, I know personally that this has been my 10 tax that I've been sitting on like for my whole life. So I personally it's been very impactful in a negative way, but…

Is it two out of 10? No, it is like 8 out 10. I think all my problems stem from some kind of toxicant exposure, which includes… I wouldn't say that.

Your genetics… Your genetic is only 15% of it.

Why Exposure Is Increasing

It's only a little bit of the- But you have lovely genetics. Of the worst genetics, but anyway, speaking from personal experience, this is a huge problem, But I know the whole world isn't like dealing with me.

So how big of a problem is it for general population? Yeah, you know, I think that's one of the things also, once speaking with patients, Once you get past the idea, well, why are they bad for me?

The next thing is, Well, Why haven't I heard about this before? This didn't seem to be a problem for my parents or my grandparents. And I that that is an important point to make.

That is if we go back when my Parents were young in the 1920s and 30s, The amount of toxicants in general, whether they're chemical or metal toxicans, were so much less than they are now, to the degree that the Endocrine Society of America puts out the endocrin disrupting chemical reports, and they update them every two to three years.

And each time they updated them, whatever toxicant chemicals or metals they look at are more of a health impact than they were even two or three years prior.

This has a lot to do just with, you know, industrial use of things, home products that have metals in them that we didn't used to think maybe were a problem, many, things like that.

So the environment is a more polluted than it used to be. Even though, say, for example, you see certain trends with lead maybe getting a little better as we got rid of leaded gas, the problem is that the lead from all of that and the led from non-gasoline involvement is pervasive in our water systems.

In many cases, there are thousands of water system that have lead problems and air quality, etc. I think that the, you wouldn't even call it creep really.

You would call just the advancement of toxicity every decade is a big part of the problem. And that's a negative thing. So human nature causes us to not want to think about how toxic our environment is, but that that is very, very big issue.

Well, basically what you're saying is that we could have dealt with it if it were a small amount. And we may still have a smaller amount, but we're getting deluged with other toxicants.

I think we met up at the glyphosate, when I was talking about glyphasate. So there's glyphisate which is everywhere. If you drive a car, you are getting gasoline fumes unless it's electric.

You still take getting microfibers from the tires, like it's endless. Yeah, the air quality, water quality. The lead pipes in your neighborhood, and the flame retardant you sleep on.

And also, I think also we haven't talked about that the lead and mercury are generational. So if you're a great grandmother and your grandmother, it is maternal.

Essentially, you have a maternal lineage of toxins because it comes through the placenta and breast milk. Yeah. That is a huge issue. You know, I have intergenerational families that we see and you often will see, you know mom have a certain profile of metal toxicants and, and I've tested the first two children and it's interesting that they'll have, they each have half of mom's toxicant load because it does pass through, it passes down.

For example, we're better at this in North America than we used to be, but certainly not that long ago. pregnant patients who would get dental work done and maybe have a vision of an amalgam or they would even put amargams in pregnant women not that long ago.

And we would have babies born with mercury toxicity that we could see on testing and the baby was never

exposed except to mom's toxicities. It is a huge problem that sort of bio-concentrates as each generation goes along.

I have an inflammatory question. Don't hold back. We've been doing this work for a while, right? And when you go outside of anybody doing functional medicine or integrated medicine, let's say, it's still so French.

Is there. You do the teaching. Is there a slow uptick of receptivity? Because this is so outside of what we learned in medical school and what doctors think, and in Massachusetts it's even worse than most other places.

Yes, pretty conservative state you're in there. So I think that's a really important point too and I would always have this discussion with patients because they would get this information from myself or somebody else, they'd see their primary care and the primary would say well that doesn't mean anything or you know you don't have that problem.

Your blood lead was fine, I just checked your blood level and you were fine. And I've even had People with elevated blood lead and you know they get to the toxicologist and they'll say well that's only a problem if you're a child don't worry about it.

So yes there's a big worldview that that is quite different and patients didn't even know that. Their other physicians just aren't going to see it this way.

A very good way I think to talk about is there is the medical specialty of toxicology which is really for acute toxicities and management and keeping you from dying from acute toxicity, which is certainly a big problem if they do occur.

Common Sources of Metal Exposure

By and large, the specialty of toxicology is not interested in low level exposure, even though there is so much data on low level exposure and health problems, it's just that you're not going to die today from it.

It's going shorten your life. You're just not gonna die the day. So on one hand, I will say, so for example, our IV chelation training, the two days and 800 slides, we've done that 20 years now.

In the time span that I've been doing just that course with this group, we've seen more and more medical doctors coming and doing that training. Even some toxicologists, not very many, but even some, because they understand that this is playing a role in their patient's health.

They tend to be there in family practice. We get a fair number of allergists and other specialties who are interested. But that has become a larger group.

Now, you know, it's still a minority. So a patient going out, asking around, still going to be a minorit. But I think that's really the distinction is, we're not usually talking about acute toxicity that might end your life.

We're talking bout low level exposure that is going t damage your health. and the treatment and all of the intervention is different than what you would do for an emergency.

The one thing I'll kind of add on, you talk about low level exposure. What I want the listeners to understand is, yes, it's low-level exposure, but it is chronic exposure so it leads to, or it can lead to with the right genetics and right detox, quote unquote, right.

It can lead to significant buildup. So I just want to make sure, yes, one low level exposure is probably not going to do much for you, but most of us are exposed for a long time.

I'm really struck by our ability to diagnose chronic diseases went faster than our abilities to understand why those chronic disease were happening. And so, most humans say, oh, well, if I have diabetes or have chronic fatigue or I've osteoporosis or even hearing loss, that's just a function of getting older.

And my response is, no, it's a function of getting more exposures and you're going to get sick from those exposers and that's how it is going come out.

But I wish I had known about the impact 20 years ago to save my hearing and to say, you know, actually, I don't know about osteoporosis. I'm going check that.

For so many people who are just saying, oh, well, thin and I am white and old, so I've got osteo process. Well, yeah, probably have metals too because that is your generation.

Yeah, lead. And there are definitely associations, especially lead and osteoporosis, but some of the others too. Yeah. So where are people getting exposed to them now?

I mean, certainly, I always say to people, are you a weekend warrior? Because don't cut into your walls if your house was built before 1978, because you're getting a lead exposure.

Don't do that. But the lead gasoline is gone. How are Yeah, so as we mentioned earlier, there's the famous case of say the Flint, Michigan water system and lead for various chemical reasons.

Well, that reason, the basics of that is in over a thousand other municipal water supplies. They're just not as famously known for high lead, et cetera.

But generally speaking, even if you have well water, it's not uncommon in water supply to have any number of metal toxicants coming in through your water.

You can think, well, you know, I filter my drinking water, which is good. We should do that. A lot of people don't think to also filter the water they cook with and other things.

So water sources are one of the most persistent and common places that we see it. And you can have your water tested to see, but, that's one place you could reduce things The next is bioconcentration in our food supply.

One of things that they're a lot more open about anyone, I don't know if they're better than us, but European health agencies are very clear about airborne pollution and its deposition into the crop supplies and also waterborne pollution going into their crops.

So there have been cases where, you know, even with organic food, more commonly with commercially produced foods, where the fruit and vegetable supply has a lots of metal toxicant in it.

then if you eat animals, you know, they eat the plants and they actually bioconcentrate the metals too. So there's many, many sources and I'll tell patients, we eat and drink water hopefully every day.

So think about that as a chronic long-term exposure. It's pretty persistent. And then you can widen that out to your air quality and any number of other exposure places.

I want to just jump on that. The example I like is the high mercury fish. So the tuna, swordfish, maki-maki, Chilean sea bass. If you think of the 600 to 2,000 pound aji tuna sushi tuna It has to eat a lot of little fish to get that big and every fish has a lotta mercury.

And guess where they accumulate it at the most, obviously, is the yummiest part, which is tutorial, the fat, Which we do a lots also. No, we used to do.

We don't do that anymore. Human beings accumulate toxins in our bodies. Akituna anymore. That doesn't go for other tuna, but the big tunas, I just want to make sure from an audience point of view that people really get this is significant and the higher up in the food chain you go, the more concentrated it is.

Well, one serving of that true toro is enough for like six weeks of exposure, But some people are eating it every

week. Every day. Every week. And so if you're someone like me with terrible detox and celiac, your gut's a mess and you are not detoxing it.

So it builds up. But I have a question. Have you thought at all, Paul, or have you done any research into what's the impact of wildfires and forestry burning?

Because I know that forests will sequester a lot of mercury and when it's burned, that gets airborne and then ultimately, believe it, winds up in the oceans.

Yeah, that's, you know, certainly more in the news anyway, the last few years. And we here in The Northwest, I live near Seattle, so we're near the water.

We've had a lot of wildfires. So we've to look into that for patients quite a bit.

Wildfires, Thallium, and Bone Release

Airborne sources, when anything burns, pretty much any organic thing that would burn, but especially forests, if you consider the analogy of, just the vegetables, getting from the air and they get a little bit metal toxic, Any of these big trees and, you know, their limbs are out there to try and collect water.

But of course, it's also going to bring down all sorts of toxicants. So they are big bio concentrators. when they burn, not only they put off unfortunate gases that are not great for us, but they aerosolize the metals and those go around.

It's a bit of a maybe curious analogy, one of the often overlooked sources of real high mercury levels in patients is if they live anywhere in the area of a crematorium, and often people don't know that.

And so when you burn many things, human bodies, for example, but when your burn anything that's been bioconcentrating, it does go up in air. So the creminatorium analogy is well known to the government regulators, etc.

But if you imagine just that one source being able to toxify a part of a town, think of the forest fire. So that's another huge area. And as you said, if it doesn't settle in the air and our lungs and everywhere else, it goes to the water and then the aquatic life that we might get another dose of it too.

All right. If you're listening, raise your hand if you are thoroughly depressed. Okay. Let's convert this because it's fixable, right? I have a question because I want to, this is my personal.

Do you know, I mean, that I, have, a lot of patients that why does, why is there so much thallium in California soil? Like a a of people that eat the organic.

The Brassica family, broccoli and Brussels sprouts and all that stuff. And they eat only organic, the thallium is way high. Do you know why? What's the deal with California soil?

Yeah, it's accentuated in the southwestern United States and there's some environmental reasons for that. But it has also been increasing since, say, Fukushima, etc.

And one of the things, and this is actually kind of a curious timing. I'm working with a couple of chemical engineer friends of mine who are also physicians.

So they broke away from the chemical engineering world and decided to become doctors. It's a lot more fun, I guess. But we've been looking into degradation products from radioactive isotopes.

And what will happen is over time, depending on which isotope it is, you might start out as one thing, one metal, or one ion, and it will degrade to other metals over a time.

And so these are many of the ones that we see people toxic with. Well, in the areas, especially west of The Rocky Mountains, there are large portions of United States in western part that naturally have a lot of uranium in in rock tables in the ground.

And over time, the thought is that that and volcanic deposition of all that rock and the uranium and everything has sort of blanketed certain areas. In California and parts of Mexico are certainly a big area for that.

So that's probably one initial source. And then, you know, if we go back to Chernobyl and we know that, that radiation cloud circled the earth a number of times and Fukushima, et cetera, we're just getting more and more of that sort of plant toxicity.

Of course we get it too. But it's not uncommon at all now to see higher levels of thorium and thallium in uranium than we used to. There's two other things I'd like to say, because I think they're very clinically relevant.

One is I have had a fair number of military veterans who have been deployed to the Middle East. And so in addition to burn piles and the petroleum burning and all of the stuff that goes on there, universally, I've never tested a single combat vet who was not a lot higher than the average population in America and things like uranium because depleted uranium, you know, in weapons, et cetera.

So that's very common. The other thing that we're seeing now too, we were talking early about leaded gas and it's been gone for a long time. You know those of us now who are over 60 and who grew up during a time when we we are getting exposed to more lead in the environment.

Now what's happening is we have sort of an auto intoxication in bone release of heavy metals, so lead is a big one, thallium is big, thorium's a bit one and some other nasties that go into your bones.

So it's sort of a newer thing that we're training people to do is to, before we start to aggressively remove metals and of course you want to remove them from your diet and everywhere you can but before, you know, we chelate you or detox you, want to make sure your bones are stable before we do that so that you know your, bones will keep giving back heavy metals too as your bone health goes down.

So that's another place where it comes from. You could have been exposed you, know 40 years ago to something and it could be happily in your Bones until your Bone's get a little less stable and that'll do, that too.

All right, now go back to your happy place. Yeah, we have to get to the happy places. So, what are the things that people can do to, it seems, so why I always think of this, What are ways that it's around you?

What ways are you putting it in you and are there any ways you would put it on your body? That seems a little less. It's really around and in. How do people minimize their exposure or eliminate it?

Yeah, I think the biggest hammers that you have there to drive that forward are food and water. So, you know, although it's kind of a global recommendation, we will have patients take a look at the environmental working groups list of you know, the dirty dozen, which is now more than a dozen foods that are heavily contaminated.

We'll also have people look at, you can get from the, it's one of the government agencies, maps of exposure areas and endemic things like uranium and stuff.

So the first thing is to know your environment, know what's going on there. Removing everything that you possibly can, either filtering your water or making sure that your drink and cook with either deionized or appropriately filtered water is very, very important.

But food is such a huge source, that's sort of the biggest thing.

Reducing Exposure Through Food and Water

The other thing that in my more sensitive patients who, you know, they're probably, up to here with toxicity, we try and make sure that they have air filtration, especially in the bedroom because you're kind of static there usually and you are there for six, seven, eight, nine hours.

You have a lot of that going in. So having air-filtration at least in where you sleep can decrease the amount that you There is exposure, depending on your water supply, there can be exposure through shower and bathing, which you would think, well, it's external, how bad can it be?

You can actually get enough over time. Again, its repeated exposure for people who have either maybe wells or city water that's not great and clean. will recommend either house filtration or you can get pre-filters for your showers.

So there's a lot of ways that you, I don't think you could ever totally avoid it because the world is a pretty polluted place, but you really diminish it by those chronic exposures every day, water, food, and then air.

I have another question. So talk to me about when you talk about food, are you saying eat organic because it's got like, how do you know that your food doesn't have heavy metal contaminants in it?

Because you're not going to test every apple or are going presume that if you are eating flesh that you getting heavy metals, like how you do suss this out?

Yeah, I think, you know, the only way to know these things for sure would certainly be to test everything, but there have been enough wide scale, testing procedures done in food science, et cetera, to no patterns.

And so if you look at organic food sources versus commercially grown food There will generally be still some toxicants in organic food, but generally it'd be enough lower where it will make a difference if you're eating that every day.

Now, we do have people who say, look, I'm feeding seven people at my house and I can only afford so much organic. food, so we will have them at the very least look at The Dirty Dozen list, which is DIRTY DOZEN plus three now, and at least get those as organic.

But the more you can do, the better. It's the same with animal products. Animals are bioconcentrators and so organically raised, etc. animals are going to be lower, but not zero.

And with a very few exceptions, that's a pretty reliable difference that organic will at least give you lower amounts of toxicant than commercial food.

What about the bones from either organic or conventional grown flesh? When you take those bones and make broth with them, are you now leaching out the lead into your broth?

Do you want to know the answer to that question? No, no, it says bliss, knowledge is power. Let's land on the knowledge of power side of that. Yeah, this has been a big area where I have looked quite deeply because I our family does a lot of bone broth and that sort of thing that I make.

And so it's kind of the same pattern. We try our best to get, you know, organic sources of poultry or whatever the meat is that we're going to do, and then the bones come from there.

You still are going have some metals released even for more organic you know, organically raised animal bones, but it's going to be a lot less than commercial or feedlot type of animals and what they would have.

And there's actually been some studies done on that. Not a, not a of them, that some that basically show things like lead that would be in the bones of the animal are certainly going go into the bone broth.

So I just, personally, you know, because I am the bone broth maker, I source, we have a really great organic co-op

and some organic farms near us and we just source as much organic as we can.

It will be a little less if you're doing poultry because they're smaller animals and they are not going to bioconcentrate as many than say a cow that lives longer and is a lot larger.

So that plays into it too. What do you recommend? Did you have question? I'll just go safe. Do you raise your own chickens then? I used to. Yeah, I think I use to, but where I live right now, it would be difficult.

That would fall into the not in my backyard. You can't do that. Okay. So for people who say, okay, I'm clear, and getting a higher amount of exposure than my body can process, or I already have and I am struggling, what can people do if just avoiding it's not enough?

What do you recommend for Yeah, so there's a couple of levels then of metals going into the human body and then the pathways they might normally take to get out just naturally.

Now, like I said, we don't really have detoxification pathways for most heavy metals because our body didn't evolve with them as a factor really. They're kind of a newer issue at the levels we have now.

And this actually goes to our early discussion of, well, the toxicologists kind look at it this way and environmental doctors kind to look out this. I used to have a practice right next or really near to a battery factory, a car battery, and those folks were always having their lead tested and the lead would go up.

when your lead goes up and they said, well, the company doctor just says, we'll get out of the lead processing area. They put them on different work for six weeks and then their lead, goes down.

And I said where did they tell you the led goes? And they say, Well, it must be gone. It's like, no, that the LED goes in and especially in an instance like that or if you have a foodborne source, we only can naturally kind of eliminate through our kidneys mostly a tiny amount of the metals we get exposed to every day.

So if there's always more going in than can go out, it's the difference we have to worry about. Now there are things that can help. Your kidneys do the lion's share of removal, although your liver and bile through the gallbladder are another way out for it.

Detox Support and Supplements

So, naturally speaking, things that assist your kidneys in really proper and appropriate function of the nephrons is number one. Alpha lipoic acid is very useful for that common supplement that's used in detoxification, et cetera.

It's a relative of some of the sulfury, the thiol chelators. it's only one thiols, so it just got one arm. But what I would tell patients is it kind of pushes metals a little bit out, it doesn't really bind to them.

which you can eat, best way to get it, and then you could also supplement. And we're learning more about that is curcumin, turmeric. It turns out that in the fatty membranes and in your cells, the curicumin actually is better at getting metals out of your mitochondria in your cells and your nerves and brain and all that than anything else really.

Things like that that help the system just keep the stuff going out because you figure there's, you know, cleanest life possible. There's going to be some coming in every day.

So we want to keep it going on through the kidneys and maybe the liver or gallbladder. What kind of curcumin, Paul, just to interrupt, is there a particular form?

Just like with CBD, it has to be the whole full spectrum or it's… Yes, every company has their own. The interesting thing in any of the studies where they've actually looked at that is they never mostly, they didn't use anything special.

Some were dietary tumeric, which is not supposed to absorb very well, but you will absorb some of it. And a lot of, it was just plain curcumin without a of the high-speed additive.

So I usually use a curicumin either that's got the piperine, the pepper extract in it to help it absorb, or there's some other ones like that. Just clinically speaking, figure the the better it gets in, the, you know, better, it's going to help you.

But that's something that certainly, people, especially if they already use it in their food. that can be a very big help. But I think alpha lipoic acid and curcumin as far as actually moving metals and helping them leave the body are huge.

The other thing that's really important is, and we didn't really get into this earlier, but another nasty thing, that metals do is they raise the amount of pro oxidation.

And while we need some oxidation to do things like have immune function, we don't want it to always be on the pro-oxidant side. And metals definitely alter your oxidation reduction status.

So things like, simple things, like vitamin C are very important just to support the process of keeping your cells healthy while stuff is leaving. And then glutathione, you know, those are all kind of basic things.

They're not really, they're are not chelating, but they are helping your body deal with the metal and helping it remove. The final thing people will not kind to think about is We always try and get people eating, hopefully, enough fiber so that if they do dump things, which we do every day in our bile toxicants, that they'll just be bound up and leave as well.

So those are, I think, the non-medical, noninterventional things that I usually try to get to do beyond avoidance. Where does like a modified citrus pectin go into that?

Have you had results? So modified Citrus Pectin can be very useful as a protectant and an eliminatory. you know, product. It's, it's similar to, you once, let's say you've got enough fiber, et cetera, in your diet, but you really want to add a bit more because maybe you're actively detoxifying.

Modified Citruspectin is, is one that can be used. And then there's other, supplemental things that could also be added. The thing with modified Cituspectine that's nice is it affects both your GI tract and systemically.

Cool. I love this. So, I guess the last question I would have is if someone is not under medical supervision for this, do you have an upper limit of normal or an up limit intake for the things you've talked about to say, don't do more than that?

Or is it really, Don't Do More Than You Feel Good? Obviously, you're not recommended. Hold on, let me back up. This is medical advice. Just hypothetically speaking, if one were to take it, are there any ways one could harm oneself with the thing you talked So always a good question.

So generally speaking, the biggest harm say from vitamin C would be getting loose stools or diarrhea and that's usually how your body tells you you've maxed out on vitamin c.

Oral vitamin is incredibly safe and it's water soluble and we humans don't make vitamin so we need some every day. But if you notice that you're getting GI upset or loose stools, it's time to maybe back off.

the typical alpha lipoic acid and racemic mixture. Most people and most of the studies, they're taking somewhere between 500 and 800 milligrams on a daily basis.

And those levels are certainly appropriate for helping detoxification. If you took too much of lipoic acid, it has a fat soluble component and water soluable, you could potentially build up maybe too, but it takes quite a long time.

It's pretty safe for you and a lot of places in your body will use it. Your mitochondria are supported by it and many other things. Curcumin is incredibly well tolerated.

There's potentially one of the botanical or plant substance that has the most research studies behind it, at least published ones. And most people, the upper limit of what they can take has more to do with what can afford to buy more than the dose itself.

For example, in cancer research, which is unique, but it does show with humans, we would give people up to 4,000 milligrams intravenously. And most people won't take anywhere near 4000 orally.

We never had any of the problems that they said that people would have with that. So curcumin is pretty well tolerated. If you look at the population studies in areas where they eat a lot of turmeric, the doses are quite high and pretty safe unless you're allergic to it.

Then glutathione, again, Water-soluble, your body has a really elegant way of dismantling it. If you have too much, it'll use the amino acids for other things.

So it's sort of like curcumin, the upper limited dose is usually more affordability than anything. All right. We've talked about supplements you can do on your own.

Let's say one of our participants are interested in looking at what is my load? What should they ask their physician? Assuming they're open to it, what kind of tests are best or what are the different maybe grades of, okay, we start out with the blood lead and mercury, regular Quest Lab blood, lead, and Mercury.

What are different tests that our participant can ask for? Yeah, so again, you know, people need to keep in mind, and it's not a negative comment about their family practice doctor or whomever.

Testing, Chelation, and Long-Term Recovery

It's just their training doesn't include very much beyond maybe lead and maybe mercury in the blood. If you go to your family practiced doctor, that might be as far as they go.

They do a whole blood, lead, mercury. And that's okay because there are standards for that. The problem is that what we'll print out on, say, LabCorp request, will be usually a World Health Organization level, which is super high.

The normals are way above. Now with lead, they've lowered it because of all the water supply issues, but that doesn't mean they're gonna do anything about it if you're above that.

So blood, lead and mercury is not uncommon. There's nothing wrong with getting those. the CDC has a database called NHANES, N-H-A-N-E-S. And what we always recommend that people do First is to get a non-challenged, meaning just a random or first morning urine, have a urine toxic metal panel done, and then instead of comparing it to the laboratory normal, comparing to it the CDC's NHANES, because those data are collected over tens and tens of thousands of people.

It's all random urine. It is not 24 hours, none of that. So it's easy to do. And if you look at NHANES, because it is normed to the whole population, you will often see just on a non-challenged urine toxic metal panel that you'll have N-HANEs normals that are up in the 75th, 90th or above the 100th percentile.

The reason we have people do that now and norm it to those CDC values is if you are being exposed in your water or food, or if your bones are breaking down and that's the reason for it, it'll show up there.

And so before we aggressively say trying to remove the metals, we want to get rid of the supply part of it. You know, get it out of your food supply or your Water or make sure your Bones are stable.

If they go to the next step then and want to do medical procedure chelation, whether that's oral or intravenous, then

we will take that previous test with no chelerator and look at that as a baseline.

We'll give the chelaerator we're going to use medically as treatment and then will test the person after that. And that definitely needs to be a doctor who is trained in environmental medicine in some way.

So I think The listener needs to understand if you go to your, again, your primary care, they're unlikely to do much of that sort of thing because that's treatment oriented.

But if find your friendly neighborhood integrative functional medicine doctor right around every corner, ask for the provoked, first the non-provoked test and then go towards the provoke test.

That sounds great. Yeah, it's fun. Is there anything else that we should have our listeners know? Anything we didn't ask you that should ask before we tell them how to find you?

All right. Yeah, I think just a couple of big picture things. So I, think we did a good job kind of framing why they're bad for you. And you definitely need to deal with your ongoing exposures, especially food, water, and air.

I thinks the big things I've seen clinically, specially in the last 10 years that are really good to kind just remind people, because you have this in your head if you're detoxifying, One is this issue with bone breakdown, and that is becoming more and more of an issue because, you know, as the generation that was heavily exposed to lead now gets older and our bones are turning over, we're auto-toxifying.

And it doesn't mean you can't detox if your bones, are you not in balance. It just means you need to do some things to get your bone settled down and, the bone turnover working appropriately.

So that's one big thing. The next one, and this is just human nature, but as a patient and as human, you want to think, okay, I'm going to treat this particular problem.

But it's not really like treating a strep throat where I am going take a course of a drug and be done with the strept throat probably. This is an ongoing process.

And our body, there's no way to know what's on the inside, our total body burden. There's is no So your body will, maybe your first test shows, oh, you got a lot of these three metals and you're working on detoxing those, chelating, et cetera.

Well, might test three months in and those three are going down, but now there's another three that are coming out because maybe, they've been stuck inside your liver cells or somewhere else and your bodies giving more.

So I was trying to get people to think this is more of a lifestyle change. And yes, the detox and chelasion maybe were more intense in the beginning. But long-term, yes, we're going to avoid coming in into our lives through food and water and air, but also the detoxification process needs to be kind of part of your lifestyle after that.

And it may not include a hardcore thing like chelating, But it will include keeping the doors open so your body eliminates it. And I think those are important things because I've even had this with students where they'll say, well, I got to X number of treatments and shouldn't all the metals be gone?

No, that's not how it works. We are a reservoir for a long time. So I the idea of a lifestyle of detox is a better way to look at it. It's a journey, not a destination.

Although, destination may be nice if you got it, but… It would be wonderful if we could just move. I always think we should just get a big magnet and just pull up.

But yes. That'd be cool if it worked that way. You could just kind of like, yeah. I'm sure on Star Trek that, you know, the tricorder thing probably could do that.

We don't have those yet. Are you working on that yet? I used to joke with patients as soon as we had that it'd easy. When I did OB, people would ask, when's my baby coming?

I said, if I knew that, I wouldn't be doing OB. Super wealthy, just predicting. No, but I think you bring up a point that some people for the big stuff can be done in six months.

But some, most of us are years in the making and it is a lifestyle. So I, think that's a really good point because expecting, expecting quick results, unfortunately is just not it.

Especially as we get older, it just takes time. Didn't you, wasn't it you who said to me that the Eastern philosophy was that it takes just as long to untangle an issue as it did to make that ball of wax?

And so… That was true then, but that was without the toxicants, so I think it might be harder. It might need three times as much. All right then. Okay, no, we have to end on a hopeful no.

You're not staining the script here. So we got to go back to sunshine and rainbows. Ultimately, people get better, could get I do think it's also important to say, you know, we've all done this for a long time and definitely as people move through the process of detoxifying and depurating, moving things out, a lot of other, You know we were talking about how it affects so many downstream things.

I've had people need less medication, I have had them need more hormone doses, improve their blood pressure, all sorts of very big benefits from getting these things at lower levels in your autoimmune disease.

Yeah. You know, even the markers for autoimmunity drop. Right. Just I'm going to emphasize that you don't have to be at zero to get those benefits. Okay.

Thanks for bringing back the sunshine and rainbows boys. So Paul, I know people are going want to know how do they reach you? How can people find you.

Yes, so I tried to make it easier last year. There is a website, it's dra like Dr. A, and then n-o-w, dranow.com. And that's actually a hub website. So it's got my YouTube and my books.

And if you're a professional, it has got a link to the professional stuff and newsletters and all of that. DRANOW.com. Awesome. Amazing. Thank you. For the listeners, thank you for listening to another episode of the Environmental Toxicants, Autoimmunity, and Chronic Diseases Summit.

Our guest today was Dr. Paul Anderson. As I mentioned, he's wicked smart. We hope you enjoyed the interview. Thanks for being here, Paul. Thank you. Thank for tuning into Dr.

Talks. We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your well-being.

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