Introduction to Environmental Medicine

Hello everyone. My name is Doctor Richard Horowitz and I am the co-host for the Doctors Talk Healing Lyme Summit 2.0. It's my great pleasure to introduce to you a friend who I've known for quite a long time, Lynn Patrick.

Thank you, Doctor Horowitz. You are a treasure. I'm going to say that about you. I'm happy to be here. I started delving into this area after I had already been in practice for quite a while.

This was, probably back in the late 90s when my mentor started introducing me to the idea that about 1 in 5 of all, all of my family practice patients were sick because of their exposure to toxic metals.

I was a little resistant to that idea at first, but then I started seeing that mentioned over and over, even in the conventional medical literature. Doctor Howard Hugh, who started the, Environmental Health Perspectives journal, brought to you by your tax dollars, actually published out of NIH, said the very same thing that 1 in 5 people who are coming into a doctor's office for a variety of complaints are there because of the damage that is caused by Nonaka personal but just everyday exposure to environmental matters.

So that was back in the late 90s. Fast forward to today. I've been exclusively specializing in environmental medicine, since 2004, approximately. And now teach a fellowship for health care providers, specifically a yearlong fellowship where we basically dive into toxicants, and their causative relationship to disease.

So today we're going to be speaking about everyday exposures to toxic metals, not, you know, we're not going to be talking about welders necessarily, or people in occupations where they're exposed to metals.

We're talking about people like you and me who just through living on planet Earth, breathing the air, eating the food, drinking the water, and whatever toxicants are found in the soil that the food is grown in are exposed to inordinately.

I'm going to use the word excessive levels of these metals that actually do cause disease. Right. All of this is explained in graphic detail in the conventional medical literature.

So everything that we're going to be talking about today is absolute verified by research, human research, not just animals and cells, but humans. Right.

You know, I, I started learning about it years ago when I published my first abstract on heavy metal toxins in chronic Lyme over 25 years ago, when a dentist friend of mine, Randy, he started getting some symptoms in a little tremor.

And of course, as a dentist, you'd expect he got mercury toxicity. And he said to me, you know, Rich, just for the hell of it, why don't you just check yourself and see?

And I checked serum blood and, you know, just little trace amounts were showing up. But then I did a six hour urine DMZ challenge, and I found out I was loaded with metals, especially mercury, because I was eating fish 5 to 6 days a week.

It was like my preferred protein source. And I don't think that most people realize I think most people know about fish. But we're going to discuss today a little bit about dark chocolate and a little bit of lead and cadmium getting in and arsenic, right.

Getting into baby foods and in shellfish. So, you know, we're we're pretty much exposed at this point, wouldn't you say? Pretty much just about because it's getting in the soil.

It's in the air. It's in the food. I mean, it's almost impossible at this point, really, to avoid these toxic metals. Well, I want to talk about the agency that nobody's ever heard of, maybe including you.

That kind of, advises the Environmental Protection Agency, advises the center for Disease Control and shows up at every Superfund site to help identify the protocols that should be used at that Superfund site.

A Superfund site, in case people don't know, is a an area where toxin exposure has been identified in the air, the water and the soil. And by law, the Environmental Protection Agency is, through Congress.

Congressional mandate has to clean up that area. So the ATSDR that's the acronym for agency for Toxic Substances and Disease Registry, actually puts out a list they updated every few years.

It's called the priority list. And this is a list of what you are most likely to be exposed to based on the air, the water, and the soil in your area.

Now, very few people know that about a quarter of all children and a little bit less than that for adults, live within three miles of a Superfund site.

Everyday Toxic Metal Exposure

You probably wouldn't even know that because they're not going to call you up and say, hey, by the way, you live within three miles of a Superfund site, which increases your risk for being exposed to the water you drink, the air you breathe, or the soil that's being blown around by the wind.

So what are these toxicants that you're most likely to be exposed to? The number one, can you guess the number one toxicant. The number one toxicant. And this has been you know, this is 2022 I'm quoting it's not some historical record is arsenic.

Now we are going to talk a lot about arsenic. But just know that that is number one. Number two is lead. Number three is mercury three. Then there's a couple of chemical contaminants like vinyl chloride.

You know, that was the East Palestine exposure. Polychlorinated biphenyls. We probably won't get a chance to talk about those. But their legacy, like DDT, you know, they're no longer, being produced, but we're still exposed to them.

Benzene is number six, and number seven is cadmium. So in the top seven, there are four toxic metals. Just by breathing the air, drinking the water, and potentially being exposed to soil, you may be exposed to metals at a level that our federal government says is excessive and causes disease.

So there it is explained by the feds. So so quick question. Aluminum because just for example, just a half hour ago, one of my patients, he's flying in from Europe.

I'm seeing him next week. We tested him in the serum levels. Lead was 1.3. You shouldn't have any in your blood. Aluminum was like five. Arsenic was 12.

It was above even the range that they're saying, should be positive at this point. So what do you do when when people are testing positive, right, for these trace metals.

And, and again, they weren't even calling let at 1.35. But I've learned from you and others you should have zero in your blood. You shouldn't have. There's no safe level of any of these toxic metals, correct.

For lead, especially that is that is a quote from the EPA, the CDC, the NIH, the American Academy of Pediatrics, for goodness sake, that there is no safe level of lead for children.

Anything above 1.0. Now, this is in the blood, not in the urine. Anything above 1.0. There's documented evidence

that that contributes to loss of IQ as well as learning problems and attention deficit in humans.

Anything above 2.0. So that is in the blood as well, contributes to risk for dying of a heart attack or a stroke. In addition, half of all the humans that are alive in the United States today, fully 50% have lost IQ points from lead toxicity.

So I was born long before 1990, as you may have been, although it's hard to tell from looking at you, but I was born in 1955, at which time the average blood lead level in kids was above ten.

So I just as a, you know, just of the nature of being born at the time I was being born in the United States have a lead body burden. And according to Doctor Anonymization from Columbia, who's published amazing amounts of literature on this subject, anybody born before 1990 has a demonstrable body burden of lead stored in the bones that may affect their cardiovascular mortality, meaning dying of cardiovascular disease risk.

So there you go. And the problem is regarding the storage of this since you brought up lead at. Tell me if I'm right about this figure. The half life is about 30 years. It's stored in bones.

So all of a sudden you go into osteoporosis with women, the bone starts breaking down. And already lead can cause hypertension. It can cause kidney disease. Right?

So all of a sudden you may get a second like burden of lead showing up simply because your bones are starting to break down as you're getting older. Actually rich that has been shown.

That's been demonstrated in women when they go into menopause. So they don't even have to have bone loss. Same thing with men. There is some evidence that when men go into what we call and reports, you know, as men get older, their testosterone levels go down.

There is a risk for a rise in blood levels of lead from the bone that may contribute to a number of things, but it's been demonstrated your blood pressure can go up right.

Just from that. So yeah, when we work with our doctors, when we train our doctors, we remind them that if you are working with someone who is older and they have a blood lead level that is concerning, you absolutely have to look at their bone health because otherwise that body burden of bone lead.

It may take a lifetime to shake that out of the body or get rid of it, and it's just not going to work. And this is an unfortunate but realistic view of where we are right now.

You know, we made the unfortunate mistake as a human species to mine lead out of the earth, to put it in our petrol, you know, to put it in our gasoline and to put it in our paint.

And we have literally, as Sherwin Williams has said, covered the earth itself. So we are now dealing with the fallout of that. Now, luckily, levels of blood lead have gone down precipitously in this country as well as the rest of the world.

When we took lead out of paint and out of gasoline. But that didn't happen. Honestly, until the early 90s. We did not eradicate lead from small, aircraft.

We didn't. And there's still some small aircraft that use leaded gasoline boats. You know, it really didn't get out of gasoline until the early 90s. So we're still dealing with the fallout from that, right?

And the and the cadmium, also the the cadmium, the half life also is around 30 years also. Right. These a lot of these metals, I mean some of them like ethyl versus methylmercury and stuff, I mean they, they vary some of them are shorter half lives, although they still stay in your body for very long time.

And I guess and of course, with Mercury, the problem is the methylmercury that's getting into the brain right from,

from eating tuna in some of these different larger fish.

So the point being, though, we all have these, right? Everyone's pretty much walking around with it. But the people who suffer with a chronic, fatiguing musculoskeletal, neuropsychiatric illness, whether you call it chronic Lyme plagues, chronic fatigue, fibromyalgia, long-covid these are creating free radical oxidative stress.

And they're overlapping the same symptoms we're seeing in this patient population. Correct.

Lead, Bone Storage, and Health Risks

And to put a finer point on it, the folks that have a difficult time recovering from Lyme and mold exposure very often are being, hindered, I'll put it that way by the effect of these metals on their immune system.

And we know this much more clearly for metals like mercury than we know it for lead. But lead is also an immuno toxic metal, as is arsenic and is cadmium, right.

They all have effects on the immune system, some of them worse than others. So the theory, that we work with, and this is actually been demonstrated in the medical literature, is that if you remove that source of free radical production, then those funny little, hydrogen oxygen molecules that are bouncing around, causing an amazing amount of damage to your mitochondria and your immune system and your cells in general.

If you remove that burden, your immune system has more resilience and is able to function more effectively. Now, this has actually been shown in some studies where they've looked at dentists.

You know, dentists have a double whammy. They not only sometimes have amalgams in their own mouths, but the air that they're breathing in the dental office.

And this was demonstrated by a really good study that just came out in 2019, actually, the air, their breathing in the dental office has significant amounts of mercury in it, sometimes higher than the EPA would actually allow for indoor air exposure. So these dentists have immunologic problems and neuropsychiatric problems that have actually been demonstrated by testing from a really good team out of the University of Washington in the University of Arizona, Diana Chavarria and her team have followed over a thousand dentists for quite a while.

This large cohort of people that we know, their exposure, and they're willing to submit to all kinds of testing that, yes. This it's proven that mercury is significantly immuno toxic now.

And the problem we're facing with all of this is, you know, in my live population who have Bartonella co-infection, we see all the time I published last year and I read did a long term study this year in the journal microorganisms.

We showed that these people get chronic variable immune deficiency with, low immunoglobulin G subclass deficiencies. Then some of these people get long Covid where they get T-cell exhaustion.

One of the guys today has natural killer cells below the CD4 CD8 cells. Right. So what we're talking about is we're talking about these infections lowering your immunity, whether it's Covid and or Lyme or Bard, and now you're getting these toxins in your body.

Mold has. Right. Also an effect on the immune system. And it basically is immuno toxic. And now we're talking metal. So really it's amazing. People honestly do as well as they do considering what's getting into their bodies these days.

And if you are patient that you just talked about, the patient has, a body burden of mercury. So let's just say historically a sushi eater, you know, which sushi dish tends to be a little higher in Mercury than other types of fish, tuna and had amalgams in his mouth?

I'm assuming it's a he rate. Even if he had those amalgams removed, the level of mercury in his kidneys and his

liver and his nervous system might still be impeding his recovery.

And that's the hard part, right? Is that very often and specifically for, this particular metal methylmercury from fish and inorganic mercury from amalgams, they become residual in the body.

So even if the amalgams are removed, there's still might be a mercury burden. And and that's why, by the way, that's why when I removed my amalgam fillings, when I discovered I was high, I killed myself for about a year and a half and kept pulling it out.

And, and we'll talk, of course, in a couple of minutes about the differences and how you remove these metals from the bottle. So, so, so question one, we're dealing with the ones I'm checking for, by the way, is, you know, mercury LED arsenic, aluminum and cadmium.

I'm checking the blood all the time. And I am finding trace amounts of this. And then of course, when we do urine testing, hair testing, whether it's provoked or unprovoked, we're still finding it, right?

In a lot of these people. So are you recommending to people, for example, when, let's take Mercury, for example. It causes fatigue, it causes headaches, it causes neuropathy, it causes cognitive issues. Okay.

So it causes all the stuff we see in chronic Lyme. And years ago, I showed that about 25% of my chronic Lyme population, when I collated them, their symptoms got better.

Like we thought it was the chronic Lyme. And it wasn't it was the metals. So in your world, when you're seeing these people with overlaps with chronic Lyme and long Covid and the rest, what kind of results you're seeing and are you seeing trace amounts?

Are you you're checking blood, urine, hair. We'll talk a little bit, but are you finding the same things I'm finding. So that's a, a three dimensional question.

I'll try and make it unidimensional. First trace amounts needs to be defined. So the problem that we're dealing with in medicine right now is that we have this branch of medicine called toxicology.

Toxicology historically has been looking at people who are acutely poisoned and for whom that exposure could mean death, acute, you know, immediate. Right. And so those people are hospitalized.

Usually they're removed from the environment because most of this is occupational exposure. And they're treated for this acute toxicity. What you and I are seeing is non occupational non acute chronic long term exposure.

The levels that we see in people's bodies are vastly lower than that. Acute toxicology insult. You know that acute poisoning the what I teach my doctors is that we have a good database to understand metal toxicity that comes directly from the center for Disease Control.

So the center for Disease Control with your tax dollars, really good thing, really good use of money is that they, have a study that's ongoing called the Nhanes stands for National Health and Nutrition Education Survey Study, where they literally send out a whole fleet of busses all over the United States and gather the blood and the urine and a good dietary recall and all kinds of laboratory testing from what they believe to be reflective of the standard American population.

Right. So I'm going to say up to 5000 people every two years. And then they create a database. So they look for mercury and arsenic and cadmium and lead.

And we get to see what the American population looks like. Now, the CDC says we believe the 95th percentile, which is the top highest 5% of those values to be levels of concern.

We as doctors can't use that as a diagnostic criteria. We're not allowed to do that. But we know that they know that

these are too high, right? They're a level of concern.

So these are the values that we use to actually understand the connection between, for example, mercury and disease or lead. And disease. So this could be a standard blood level of mercury a blood level of lead a standard here.

Go pee in a cup urine level of cadmium or urine level of arsenic. And we look at that, not only that database that we're just talking about, but all of the studies that have been done linking disease to these metals.

There are thousands and thousands of them, right? Just not something, unfortunately, that's taught in regular medical education. You had to learn this after you got out of medical school, right?

Mercury, Lyme, and Immune Dysfunction

So, going backwards now, remind me what the question was. So when we're talking about the fact that these, what you according to is trace amounts, although, again, I'm not I'm getting them below, like this kid who just came back literally a half hour ago before we got on this call.

He ended up having, like, you know, an arsenic level that was at 12. They were describing ten, right from Quest Labs or Lab core, whatever it was. So it was over the range and I'll have to check with them.

Did you recently eat seafood? I know they they've taken our acidic out of most of the wood products at this point. Right? A lot of it is coming from seafood. At this point.

I have to check kind of what his basis is. Lead was 1.3. How much dark chocolate I've got to ask him at this point, you know, is he eating? So I was talking about like, you're finding the same things I'm finding.

And of course, the problem is we are only getting a small picture of it because, we're only finding this, but you've got to look at hair, you've got to look at nails, you've got to look at urine challenges to really see what the total body burden is.

And what no one's talking about is, by the time you get exposed to glyphosate and PCBs and, PFOA and all the stuff that's out there, we're not we're talking thousands of chemicals.

These are just a couple of them driving the free radical oxidative stress and making people sick. So you even when we're talking about 1 or 2 metals, keeping in mind that's all of these toxic cans, right, that are making us sick.

I think the concept of total body burden has been completely ignored by medicine. There are a few amazing researchers who are starting to gather data on how we identify total body burden.

But for the most part, we are in kindergarten. Sadly, in medicine. In trying to equate but getting back to answering your question, I have something important to say.

I think that this is nuanced. And so without going into a lecture on this, I will tell you that blood lead reflects total body burden. That is the one place where we can I can look at somebody's blood lead and I can say, this is how much lead is in your bones, with the exception of somebody who's got an, you know, uncontrolled osteoporosis, because then they're just leaking tremendous amounts into their, urine and their blood lead may or may not be elevated.

Right. So with that is an exception, for the most part, 99% of the time you look at a blood lead, you can see the body burden. If you look at a urine cadmium, that is not provoked, you just hear go pee in a cup.

That actually also reflects total body burden. We see. I don't know, if you've got some patients in mind, but we see low levels like, point five micrograms per gram creatinine in the urine, especially in older patients.

We know that there's risk there for kidney damage and bone damage. That's considered a very low level. And most of your laboratories in functional medicine laboratories will not report that as elevation.

So I agree with very few of the reference ranges and standard laboratories. You know, you reference labs and I agree with some, but not all of the reference ranges in your functional medicine labs, because I've studied the literature and I know that it's more nuanced in that.

But the thing that you are absolutely right about is that much of this burden is held in the bones, in the kidneys, in the liver. We forget that mercury is stored in the liver.

It is the second highest reservoir of mercury in the body. Everybody thinks it's the brain, but it's not the brain, it's the liver. And so when people go to their doctor and the doctor will say, well, you've got elevated liver enzymes, but, you know, it's probably because you're drinking too much or, you know, we don't know why we're going to have to rule out all these liver diseases.

They will never consider mercury as a possible rule. And that's because they're not taught that in medical school. But we have to consider that it's really, really important.

So we have all these metal reservoirs in our body. One of the ways that we can bring them out is to use a chelating agent, like DMPs or EDTA, to get some of that body burden into the kidneys and then into the year.

And so we do use that. It's called a challenge test. You referred to it a couple times where we will give a patient either an oral medication like DMs A or DMPs or an intravenous meaning go in and get an IV of EDTA or DMPs, and then you catch your urine for six hours.

And very often that will reveal the hidden body burden of those metals. Now, with the exception of what I just mentioned, like you just go pee in a cup.

I can look at your arsenic levels and your cadmium levels, and I know if they're too high, if you just test a whole blood lead or a whole blood mercury and you see elevations there, then you know that there's too much in the body.

But let's just say that none of that comes out right. You do that testing and you don't see anything, but you're suspicious because you've got a patient that's got hair loss, insomnia, brain fog, memory problems, myalgia.

Those are the classic signs of mercury toxicity. And so in that patient, you may absolutely have to do a challenge with a prescription drug called DMPs or an, prescription drug called DMCA to to identify and see that mercury burden of mercury is really hard to diagnose unless it's like right there in your face, you know, so. Question and question about that.

GMSA generally, I mean, it's the one I've used. And DMPs is a little more specific for Mercury. When you when you're doing these, do you have a chart up, for example, in a panel a patient comes to see you.

You're we know we have we all have toxic metals. You're finding these very small amounts below the lab ranges, like what I'm getting, by the way. And over 50% of my patients, I'm seeing them all the time.

So, for example, your next challenge that you want to do, do you want to look at hair? Do you want to keep repeating blood? Do you like the urine challenge?

What what are you doing in your patient population to prove how much is the body burden of what you're saying? A standard panel would be whole blood lead in everyone, whole blood mercury in everyone who eats fish.

Because that's where you're going to catch the mercury in a fish, eaters in the blood, not in the urine. And then a non challenged here, go pee in a cup.

This is just a first morning urine. For all of those metals, there's a whole panel, as you know, I think there are about 13 metals in that panel. And then that comes back.

And if I can't find anything, then I'll do a challenge with, EDTA or DMC. And it's specific to what I'm looking for, and that's just really trying to match the patients coming in with symptoms.

I understand what the symptoms of metal poisoning are. They're different for each metal. And so I'll try to integrate those into, differential diagnosis.

And, you know, part of that will be different. So if you're suspecting more Mercury you may go with DMPs more than TMZ, even though DMC is. We just do a standard EDTA challenge.

So EDTA, if that is you know, there's really no contraindication for EDTA unless you're not urinating. You know, if you have kidney disease to the point that you have to be on dialysis.

And then DMPs asked to catch the Mercury EDTA has very high binding constants for arsenic, actually, cadmium, lead, aluminum, interestingly enough, and many other metals, including thallium, gadolinium, you know, many of them.

And so that will come out in the challenge testing and post challenge testing. And I know. A lot of my patients, by the way, Lynn, they live so far away they don't get IVs.

So when I spoke to Doctor Quigg from doctors data, this was 25 years ago, he suggested, you know, 30mg per kilo, one time for DMC as an average. Do you're finding that useful?

Pretty much the only time I would not use DMC in a in a patient who either tells me that they have what's called a sulfite sensitivity, or they complain of being intolerant to red wine, onions, garlic, the brassicas, etc.

that tells me that their body has a difficult time dealing with sulfur and DMC is a sulfur containing oral medication, you know, as a pill that might give them gas and bloating.

Now, there are ways to deal with that. You know, they're really wonderful enteric coated peppermint oil capsules that we found decrease the gas and bloating from DMC significantly.

Right. So and giving a patient the trace metal molybdenum, which is actually a nutrient, you know, it's a trace mineral, sometimes helps the body make the enzyme that breaks down sulfate into sulfate.

That's also a potential intervention. So, the reason you're probably asking, you know, why do I use EDTA is because it does go intravenously. 100% of the drug is absorbed into the bloodstream.

Doesn't have any side effects. There are no side effects, really, too. That's been well established since the 1940s. And it is a good binder for the metals that I mentioned, you know, everything really, except for mercury.

But because that problem that you just mentioned, not everybody lives near a physician who can, you know, who uses is trained to use I. V. EDTA. You have to have an alternative.

And, you know, DMC Rich was fast tracked in the 90s for use in children who were left sick because prior to that, all we had was an intravenous drug. And, you know, you can't hook a two year old up to an IV for three hours.

That's really a no go, you know, unless you sedate them. Right. So highly impractical medication for children. So DMC was approved as safe and effective, for the treatment of lead and later arsenic and mercury in children and is used off label in adults and it's a very good chelating agent.

What about its ability to get up into the brain? I've seen some studies, though, that the the mercury in the brain, I've seen a lot of, you know, it doesn't get up there as well.

You need to use other agents. What do you feel about that? So DNA and DMPs, how they work as drugs pharmacologically is that they work in the kidneys.

And so what they're doing is literally they're they're not really systemic drugs. They're pulling those metals out of the kidneys where they're stored.

And you are getting a really good snapshot of what's being stored in the body. But the only way that I can theorize and I talked to David Quigg much about this, is that if the body has sufficient levels of glutathione and we can talk about what glutathione is, it's an antioxidant.

We are all mammals. Make it right. That's how we evolved to live on this planet with volcanoes, you know, that spewed thousands of tons of mercury into the atmosphere.

If you have sufficient glutathione, that glutathione can pull those heavy metals from the tissues of the brain through the blood brain barrier and into the systemic circulation.

So now I have almost all of my I've been on NAC now flight for gas in and glutathione for probably 20 years. And interesting when Covid came around, we published the first article in the world literature on glutathione for treating Covid 19.

Testing for Metal Burden

And the way I came up with it was because my BBC, a patient, used to come in with shortness of breath. I give them a shot of glutathione IV two grams and they go, oh, my shortness of breath went away and it blocks.

And if Kappa B right. So it's stopping a lot of these inflammatory cytokines. And I looked at the cytokine storm from Covid and I went oh my God. It's the same cytokine storm we see in Lyme I know how to block those babies.

It's like a block NF kappa B nk alpha lipoic acid glute stimulate Nrf2 curcumin resveratrol, broccoli seed extract, sulforaphane. So it turns out it works.

You're saying for the people who take it regularly, we're naturally chelating a bit. Yes. I remember when your study came out, it was the first piece of evidence that actually verified what we all knew intuitively, or just from experience, was that glutathione would suppress that cytokine storm, because that's what our immune system is designed to do, is prevent that all over ramping up of our immune system.

So I think that glutathione sufficiency is critical in treating all kinds of environmental illness, including that caused by things other than metals, you know, plastics, solvents, pesticides.

I could go on and on, but glutathione sufficiency is critical. So quick, quick. I'm just going to just one because this is one I have. I really want to ask you the microplastics that are now getting to everybody's arteries, including men's genitals.

I mean, I'm reading there's no place in the body now that does not have microplastics. And now linking it up to strokes and heart attacks. Do you have any evidence, you know, about how well glutathione is removing the microplastics?

No, we do not. Nobody's done research on that. But I just talked to Paul Savage, who is a functional medicine physician who is, finishing up some in office research looking at the efficacy of plasma for resus, which, you know, you and I know that that's a blood cleansing protocol for getting rid of microplastics.

Theoretically. And I really mean that word theoretically as it's defined. Maybe glutathione can assist in the elimination of microplastics. But here's a question for you.

When they did that study finding microplastics in the at the Romas. Right. They were doing stents, I think, and they

were pulling out tissue. They were looking at a small population of people.

What I thought was interesting is there was about half the population that had visible and I'm talking about looking under a microscope and going, oh, that one's pink, that one's blue, that one's yellow.

Visible microplastics in there at the Romas and the other half of the population did not. There were some patients that actually had zero microplastics in their mouth.

Aromas. When I read that study, I thought they didn't ask the right question. The right question is what were the people who had no microplastics in their their, vasculature and their blood vessels doing differently from the ones who did because they were doing something differently?

So when we lecture on this, we're about to lecture, on microplastics at R. E. M, which is an environmental medicine organization, you know, doctor membership organization.

When you look at the sources of microplastics, the actual exposure that we get to microplastics is mostly from bottled water or any other beverage from a plastic bottle.

So I would include tea or, you know, anything else, any other beverage that comes in a plastic bottle soda? God forbid. You know, people drink soda. That's where the majority of our microplastic exposure comes, number one and number two, tap water.

So we have to be extremely proactive in teaching our patients about these sources of microplastics, because, yes, we know 0.5% of our brains are now microplastics.

Right. And there's nothing good about that. You know, we think about plastic. It's an inert little polymer, right? No. But it's pulling in all of these hundreds that thousands of toxins with it.

Right. Because it's a carrier molecule. And bringing up the other toxins in. Solvents, pesticides, bisphenol phenols, which are obese agents, endocrine disruptors, cause diabetes, cause cancer, decrease, life expectancy, you know, so they are toxin bombs for sure.

So the the getting back to original question, does glutathione help? I don't know I don't think we have any data on that. I would like to think yes. But I, I can't tell you we're not. Yeah.

No I haven't seen it either. But I thought if anybody was going to answer that question, it would be you. Because you're always involved in the literature here.

Yeah, yeah, yeah. So getting back to the metals, we've talked about arsenic. We but we haven't talked about where arsenic comes from. Arsenic is a cardiovascular toxin, which means it causes cardiovascular disease.

It causes something called peripheral arterial disease, which is just a condition. When things have gone so far, your blood vessels break down. Right?

And you're you know, prognosis is not very good once you get diagnosed with Pad. So you don't want that. Arsenic is a carcinogen. It causes bladder and lung and kidney cancer, as well as some other blood borne, cancers.

So you don't want that either. And and peripheral neuropathy also. And we see a lot of peripheral neuropathy in our Lyme and Bartonella patients. Absolutely.

I had a patient one of my first cases that woke me up. This was a patient who had helped her husband build an outdoor deck in the rain over one summer.

And the only reason she knew that that was involved was she was a nurse who worked for a legal firm and her job at the legal firm was to do the environmental exposure cases.

Right. So she came and she goes, my neurologist told me I don't have arsenic exposure, but I swear to God, that's the only thing it could be. And I said, well, how did your doctor test you?

We got her labs. He ran a blood arsenic level, which is absolutely not even recommended by the CDC. I don't really get what was going on that neurologist had, but we did a urine level.

And sure enough, even though our sinks not supposed to hang around in the body very long, and it had been months that she'd had a foot hand ascending, meaning going up to her shoulders and her hips and peripheral neuropathy.

Sure enough, there it was. Then we came to find out that her drinking water was also contaminated with arsenic and in the United States of America, that is the number one possible source of arsenic toxicity is drinking water.

We don't think that there's, you know, really reason to worry about our drinking water. But if you look in the EPA database, which is very well spelled out by the Environmental Working Group, yes, arsenic is there in the majority of drinking water supply.

So it's not it's not even show up because I know it says shellfish and seafood. It's more in the drinking water than the shell. Fish and seafood. One cause of arsenic exposure in the United States population is drinking water pretty well established.

So how well did the water filters when you and I when we're talking about detoxification and, you know, infrared sauna is the detox through the skin and, fibers to pull stuff through the bowel.

How what do you recommend to your patients as far as, like filters, air filters, water filters. What are you recommending to protect? We just finished a, a class on, a consumer class.

We usually only educate docs, but we just finished a consumer class. For people that we have various titles. The one I like is How Not to Die Early, but it's basically how to protect yourself environmentally.

And so this is a very critical but difficult to navigate, situation. You know, Rich, I just got a warning that my, computer's about to die. Can you pause for a second?

I'll be right back. I can. Cut that. We're back on. So, Remind me where I left off. I was gonna I was asking about water filters and, like, different ways of protecting yourself.

Air filters, water filters. So the best water filter, of course, is reverse osmosis. Reverse osmosis units can either be under over the counter. They're also the most expensive.

If you can't afford a reverse osmosis unit. There are actually some very good horseshoe pictures. They're called where you literally pour the water into a pitcher, and then you pour it back through a filtration, a membrane that will take out significant amounts of toxicants.

And specifically for arsenic, a pour through pitcher has been shown to eliminate 99.9% of the arsenic in tap water. As long as you don't live in southeast Nevada, which is one of the highest arsenic repositories in the ground in, globally.

Unplanned. Although isn't it true now in Utah, also because of what happened with the drying up of Salt Lake City when the wind blows.

Chelation and Detox Support

Now, what I saw is all of the mercury and metals and arsenic is blowing now into the cities. They're getting it actually, even in the air. Correct? Yes.

So that that is an unfortunate, I guess, sequela of, you know, climate change or global warming. Right. But just to talk about arsenic, because we have to be very specific, very economical, 40 or $50 and they make them in glass so you can get them in glass.

You don't have to buy them in plastic. We'll do that. But it's brand specific. So we teach our, folks exactly what brand to buy. I can talk about that if you want. We're not.

Yeah. No, please let let people know what you're suggesting. Zero water has been documented by the NSF, which is a nonprofit that actually documents how well filtration media work, filtration technologies to remove arsenic from drinking water as well.

Lead clearly filtered is another technology. Of course, through pitcher. They don't make them in glass. So I don't like that about that. That company, they need to make a glass version that will also do that for everything else.

Reverse osmosis is always the best technology that you can obtain to get rid of pesticides and solvents and plastics. Now, what I learned from a scientist that manufactures the system reverse osmosis ionization system, system is that to get rid of 100% of the microplastics, you have to add a fourth membrane.

So these Aro systems come with cartridges. Right. And the water goes from one cartridge to the other to the third cartridge. And his research used to work in the nuclear industry.

So he really knows about water filtration. You have to add a fourth cartridge. No, nobody's going to tell you that. Right? The companies that make these technologies don't design them to get rid of microplastics.

So this has to be an upgrade to the system. Now, with the scientists that I talk about, you just let them know that you want to get rid of the microplastics.

And he says, okay, you've got to buy an extra cartridge. It's going to cost you an extra 50 or $75 or something, and you have to retrofit your system.

But that is a that's a concern. We need to be concerned about this. There are microplastics in our drinking water that's been validated by the EPA. You know, it's not just conspiracy theory.

So we have to acknowledge that this is part of our lives now, and we need to get rid of them. And I think the biggest, most beneficial bang for the buck intervention is don't drink out a plastic period, ever.

Never. You know, I work with a scientist at the University of New Mexico who has actually published some of this data that you just explained about microplastics.

And she said much of the microplastic exposure comes from twisting off the lid. Right. You're getting particles into the water. And she has a scientist.

You know, she's not she's very scientifically minded. She said no one should ever drink out of plastic, ever. Just not something that we want to do for our health.

And microplastics are immuno toxic. Getting back to your chronic Lyme patients, right. You don't want immuno toxins in your body. So this is something we can all do.

We can all start drinking out of glass. You know, you can do it for free. Pretty much so and so again, we've talked today. And for those again who've been listening, this is Lynn Patrick, who is one of the world's experts on environmental toxicity and, and metals.

And, Lynn and I met years ago, actually at the ACM conference and a few others. So, so question we're all being exposed. Are you suggesting at this point for most people and you explained which in the blood, which in the urine?

The problem with the medical board years ago, and I learned this from you is that you don't they didn't want you chelating based on a urine challenge alone.

So how are we supposed to navigate the field this day, knowing that my chronically ill patients, by the way, 90% are showing up with muscle toxins, at this point.

So and I'm, and I'm giving them NAC glutathione, alpha phosphate, little coaling, clay and charcoal products. We're using up the fiber lean with glucose in for the tricot.

Thickens. So question when I'm detoxing the mole, which I'm doing, by the way, in between these daptone pulses these days, how much is clay and charcoal?

And, some of these binders and things. Are we getting some of this out at the same time? What we use is the. Thank you for bringing up that really astute observation.

I want to talk I want to tell us quick story. Back in the 70s, there was a terrible mass poisoning in Taiwan. This also happened in Japan, where the rice bran oil was contaminated with that chemical.

I mentioned right at the beginning of our interview. Poorly fluorinated by phenols, PCBs for sure. Now, these are lubricants that were put into commerce, long ago in the 40s, but were taken out in the 70s when it was learned that they were severe carcinogens.

So this mass poisoning happened, in Japan and Taiwan. And the doctors were like, you know, we don't know what to do. We don't know how to get this out of people.

The two interventions that they actually used, which were ingenious, were Chlorella. So that's a plant based. Well, it's a it's an organism, I think. But it's a, it's a chlorophyl based, little organism and rice brand, which is, a form of fiber, literally.

And they actually published human trials using these interventions. And what they found was when they gave, you know, because they were most concerned about the pregnant women, because PCBs are also low, mutagens interactions.

They caused birth defects when they gave the women Chlorella. What they found out was that the levels of PCBs in their breast milk went way down, significantly eliminated, meaning that that Chlorella was leaving their body some other way, probably in their stool through their bile.

Right. Same thing with the rice bran fiber. So these tragedies, you know, sadly happened. But we learned a lot from them. And so now we know that when you're using, chlorella specifically, as a binding agent, you're getting out much more than just a small toxin, because it's binding to those fat soluble toxins that we all have.

By the way, according to the Environmental Protection Agency and the CDC, about 99% of us have DDT in our bodies, right? That you and I and even young children now, because they're passed down from generation to generation.

And the majority of Americans, you know, around 95% have PCBs in our bodies as well. And that's by looking in the blood. So we keep inheriting them not only from our moms, but from we keep accumulating them from the diet that we eat.

So high butter, high dairy fat. I meet those unfortunately, those mammals, they're, you know, they're picking up the PCBs from the environment and accumulating them in their bodies.

It's it's a reason why we need to be supporting our detox pathways, just living on the planet on a regular basis. Absolutely. So when you give somebody clay and charcoal, you are supporting them to bind the bile in their intestinal tract.

And that bile naturally not only contains bile acids, which we need, but it contains some of the toxicants in our body that our body's trying to get rid of.

The problem is that we will reabsorb most of them, unless we've got something in our intestinal tract to bind those toxicants and carry them out of the body.

Do you like humic and phobic acid? Also for the metals, since we're talking about binders at this point. I don't I have looked everywhere. I even did a podcast on this subject.

I don't see any evidence that you make an folic acid, just like, zeolite. I don't think there's any evidence that at least what's published in the medical literature that those those can bind to metals in the intestinal tract or in the bloodstream and pull them out of the body.

I know they're popular, so to speak, but, you know, I even though I'm a naturopathic physician, I got a science based education, and I was trained by doctors who believed in science, and I actually believe in science.

And so I like to have some documentation for what I do, because a, these things cost money and be we don't, you know, I'm sure there's some evidence for human folic acid in some areas.

And there is I did a whole podcast on this, but but not in the area of getting heavy metals out of the body. Same thing for zeolite. Like I really cannot find one shred of evidence for.

So if the average person living on the planet were to take, we didn't go into selenium with mercury and some of the effects, and also that zinc can displace cadmium from the prostate because I'm showing up in prostate cancer, in men, in breast cancer, in women, where zinc kind of mixes out and pushes it out.

Yeah. Is there a general regimen? And again, I'm talking general for the population because I, I'm basically taking good a theory and I'm, you know, I'm taking some extra zinc and minerals from my magnesium for those 300 detox enzymes.

I'm doing that to try and stay alive on the planet because my whole family died of cancer. I don't have one person left in my family. Yes. So I think to get real specific, like magnesium, 50% of the population is clinically deficient in magnesium, right?

Microplastics, Water Filters, and Prevention

We don't get enough. Our daily toxin exposure depletes magnesium. We urinate it away. Right. Especially pesticides really good for magnesium diuresis.

So we need magnesium sufficiency not just 400mg a day. I have patients who have to take thousand 200mg a day. I take about 850 to 900 every day. And I think that should be how can I say this?

A population wide recommendation, right? Not that's not a dosage for children. That's a dosage for adults. But we need to look at what is sufficiency.

And so many of my patients have to start at 400 and work up to 800 or 1200. Right. A good bioavailable glycine eight or the equivalent magnesium right now magnesium oxide.

Non-Magnetic right situated oxide or more for constipation you like. Do you like malate? I know malate binds aluminum. Malate is good for mitochondrial.

Do you like malate? In glycine eight is two forms. For my patients. Best bang for the buck. I think. Glycine bisque. Senator. Glycine eight they're the same thing are the most affordable economic ways to to get sufficient levels of magnesium.

We're supposed to store it in our heart muscle. We're supposed to store it in our liver. We're supposed to have extra. Right? And, right now, I think most people are just barely getting by sub sufficient magnesium.

Second thing is ascorbate. I learned from a gentleman named Jeff Bland. He was my undergraduate professor. He was a student and worked with a man named Linus Pauling, who did most of the research on ascorbate and, we know now that it takes a minimum of 3000mg of ascorbate.

This is Doctor Russell Jaffe's research for to deal with a average daily toxin exposure of anyone on the planet. And that's including pesticides, which also responds to it.

Correct? Correct. So this is a adult dosage, not a child dosage, but 3000mg minimum. And there's a way to, you know, calculate your need for ascorbate.

But that's a minimum. And then the antioxidant, additions that you recommended for sure. Glutathione I think you know, we are all glutathione. Insufficient.

That's the research that, you know, doctor Tom Gilford has published. We just don't get enough glutathione. And we're using it up for all the toxins, right? We use it up.

But that's why I believe that people got sick on the first Covid wave because they were gluten found deficient, and there's 140 times more glutathione in the lung tissue than any place in the body.

So all that free radical oxidative stress basically, right, destroyed the lungs with Ards. That's why they got so sick. You and many, many, many researchers agree that that is, the one risk factor for acute Covid and Covid 19 mortality is glutathione insufficiency.

So NAC is a beautiful way to upregulate glutathione in most people. Not everyone, but most people. There's some people genetically who, will not be able to make sufficient glutathione with an Acetylcysteine.

But for the, I would say probably about 90 or more percent of the population, it's inexpensive, it's effective, and it's safe. The only people who can't take an acetylcysteine are people with active peptic ulcers.

It thins the mucous lining of the stomach. Right. So, there used to be a safe form, even for those folks. I don't know if they still make it. It's called rez bid.

Where some molecular, used to make that rapid. But for the, you know, for everybody else, vast majority. NAC is a very critical. No. How do you like alpha lipoic acid since it also regenerates glutathione on water soluble, fat soluble, some chelating abilities.

How do you I've heard people say, oh, it doesn't bind enough. It drops it into the bread. Can you explain a little bit about if you like alpha lipoic acid with it?

Yeah, I, I published a couple articles on this. I think alpha, alpha lipoic acid is a miracle molecule, especially for those who have liver disease. And you have to get the right form. Dr..

Nova Laboratories makes the best alpha lipoic acid. They preserve it with a salt. So either sodium or potassium. Alpha stays in the bloodstream longer.

I have not seen any evidence that it actually can bind tight enough to metals to get them into the urine. If there's the binding constants are pretty weak.

So that magnetic attraction between the alpha and the metal may not be strong enough to get it all the way out of the body. But all we have is, you know, that's rat data.

We don't have anything else. We just have rat data. So I think that those, just to start with are really critical. Like

everybody I've, I've had put people always ask me like, if you could put one thing in the water supply, what would it be?

And I unequivocally say, and acetylcysteine there are I think we're up to now about 6000 articles on and acetylcysteine decreases, severity and duration of influenza, you know, decrease the severity and duration of many respiratory.

You know, what's beautiful about NK, which I know at the time, it blocks von Willebrand factor. None of my patients with Covid ever died because they didn't get the micro clots.

Realized at the time that NK, apart from regenerating glutathione, also has an effect on von Willebrand's and stopping clotting factors. Good heavens, I had no idea because I haven't read all those 6000 articles in the medical literature yet. Wow.

So I think what we've just touched on is really critical. And then we cannot forget to talk about zinc. Zinc is probably one of the most, under appreciated necessary nutritional trace minerals on the planet.

Especially for people who, were second hand smokers as children because they absorbed and I'm speaking as one, significant amount of cadmium, which is retained in the body for a very long time.

Cadmium displaces zinc. Zinc can also help prevent some of the side effects of cadmium toxicity. And it may actually replace cadmium in the right environment, in the right circumstances.

But as we know, zinc deficiency was also one of the players in setting up acute Covid, right? Zinc is. Inflammation. The less zinc you have, the more inflammation you have.

Correct. And zinc is probably number one or number two mineral in terms of immune competence. Right. How healthy your immune system is is a direct reflection of your tissue stores of zinc.

So it's critical. I don't know how you feel about dosing, but, I used to work with a lot of Aids patients. And so in those, severely immunocompromised individuals, we would give them 60mg of zinc a day and two divided doses.

I have patients that also have needed that much. That is not a good dosage for somebody who is not immune compromised. But the dosage ranges anywhere from 15mg up to 60 or even 100.

And I'm averaging 30 for most, but up to 50 for some. It's as you know, the copper zinc ratio is is just what we have to watch because of copper with superoxide dismutase is not throwing off the balance.

But yeah, no, I'm using those same pretty much ratios for most people. Right, right. And I think speaking of the copper zinc ratios, we, we might have overdone it a little bit during Covid because everybody was taking lots of zinc and no copper.

I haven't seen any real problems in that area with my patients who were taking, you know, 50, 60mg of zinc a day. But I think I've been lucky because I am looking at copper levels.

Absolutely. In everybody. It is a nutritional mineral. You can't make good, healthy red blood cells without copper, as well. It has a whole variety of, roles to play in the body as well.

So we have to consider that. But otherwise I think that zinc is critical. Yeah. So so then we I would love to speak to you for hours at this point. Believe it or not, we've got an hour.

I honestly feel like I should be doing another hour. This could go on and on because it's so fascinating. Listen to you because I think people are just learning a tremendous amount.

But we we are. So is there anything, by the way, how can people get in touch with you? For people that have

questions, they want to learn from you, what's the best way for them to get into.

Our website is e e I o small letters. Doesn't matter really global mi global.com. That's our platform for training our doctors. And that's where we house our consumer course.

And you know how to stay healthy and to really, really look at the critical importance. We don't even get to talk about air filtration, water filtration, what to do about, you know, Rich, you you might not have seen this, but the cloud from East Palestine, you know, it covered 16 states and a third of the population of the United States.

So we we have to deal with that. You know, nobody's even looking at the fallout from East Palestine. But that's why we created that course, is to help everybody understand we are all East Palestine, Ohio, all of us. Yes.

For sure. Well, it's been a pleasure and an honor. And I hope that you do invite me back. I will certainly come. Oh, absolutely. Lynn, this has been so great connecting with you.

It's been it's been way too long. So for those of you who just turned in, I've been speaking to Doctor Lynn Patrick, one of the. Honestly, I believe the world's experts in environmental medicine metal toxicity.

Lynn, thank you so much for joining us. For those again who've been listening, I am the co-host of the Doctor Talk Healing Life Summit 2.0, Doctor Richard Horowitz.

This was a great talk. I know people are going to get a huge about out of this talk, and I'm sure many more people will be taking more vitamin C, more zinc, more magnesium, more glutathione by the time they finish listening to this.

So Lynn, thank you so much. This was really a great pleasure. Everyone, please tune in again soon for our next episode.