Episode 210: Why Most Detox Methods Are Dangerous and What to Do Instead With Dr. Shayne Morris

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Katie: Hello and welcome to The Wellness Mama Podcast. I'm Katie from wellnessmama.com. And today's episode is going to be a fascinating one. I am here with Dr. Shayne Morris who is a biochemist and molecular biologist who specializes in beneficial interactions between our cellular biological systems and the microbiota, and using therapeutic herbal ingredients to achieve better health. His research in biochemistry and microbiology has yielded a number of peer-reviewed publications and he holds multiple patents in the area of detoxification, nutrition, and microbiome research. As part of his ongoing research, he studies how using specific phytochemicals and nutraceuticals can exert their influence on our cellular process, and his research also focuses mainly on detoxification at the cellular level. Today, he's gonna be explaining to us how true detoxification occurs, involving something called the endoplasmic reticulum, and we're gonna be going through those specific biochemical processes. I'll mention it again at the end, we are gonna be talking about a compound, specifically zeolite, and how it's unique to the body. And while we're talking, you can learn more about that at getcytohere.com, so just so you guys have some background for the conversation. Dr. Shayne, welcome and thanks for being here.

Dr. Shayne: Yeah, thanks a lot, and that's quite a mouthful.

Katie: Your bio, you're very…you have many achievements. I'm excited to really delve into this with you. And from what I understand in researching your field and your expertise, is that this is somewhat of a generational story for you I think. Right? Your family's been involved in areas of research for a long time. I'd love to hear how you got into this field.

Dr. Shayne: Yeah, it is a fun story. And, you know, when you're in it, you forget the forest for the trees, we're so focused on our own research that sometimes we forget that it's fun and exciting, you know, sometimes it's just work. But it starts back with my grandfather who, probably in his mid-life, decided, "Hey, there's got to be a better way of health." And keep in mind, this is in the '60s and '70s. But he was looking at the world and, of course, I believe, in his story, and I wasn't there at the time but, in his story, he was coming across more Native American and more native healing, you know, medicinal healing as opposed to the model that, you know, the model that we had in the United States at the time. He was realizing that, even then, most of our modern allopathic model was, from a pharmaceutical standpoint, was based on natural products. Almost everything, at least 75% to 80% of our drugs were actually taken somewhere from nature. And he's quickly at it and saying, "Hold on. There's gotta be a better way to do this because they take it, they ruin it, and they turn it into some chemical that gives us all sorts of side effects."

And that was early...I mean if you think about him, in the '60s and '70s, thinking like we think now, you know, in retrospect, he was way ahead of it. And then, add to that he was also interested in diet and health using meals or eating plants as a way of delivering health to the body. Now, we can look back on the microbiome and other areas that, again, he was ahead of his time. Well, he starts a company, he really gets involved in the research and also into creating products for people in the United States, back then. Of course, I come into the picture not until the '80s. I start working with him in 1984, '85, '86, he passes in '90. In that time span though, his kids get involved, my mother, and uncles, and they carry on the legacy, from that standpoint. And now, here I am, after going through, one, I began the business as just on the ground level, I was harvesting plants, I was creating tablets and capsules and powders. I was the laborer, right? I was grinding and making capsules, I was that kid growing up, just running equipment. Of course, that evolved into running the operations and understanding quality control, getting involved with the FDA, you know, both at the state level and the federal, to make our companies legitimate.

And ultimately, I went and I got my undergraduate in chemistry and microbiology, because they didn't offer biochemistry at the time. And then, I moved into graduate school and my business school and all to kind of continue the legacy. So here we are now where I do have a research arm, I love the business side and, honestly, we love to be able to get the most amazing materials around the planet and put them into a form that people can take them. And that's the end of the story.

Katie: That's impressive. So this has literally been a life's work for you and, even before that, for your family. And so, one of the topics I'm super excited to really dive into with you today is detoxification. Because I think there's a ton of misinformation, and, potentially, dangerous misinformation, out there on this topic. And I also think it's a growing problem. So based on my background and my research, both in nutrition, and then, now, almost 12 years of research in the health space, it's no secret that we are facing a much wider variety of negative inputs that our body has to deal with than previous generations have, with the thousands and thousands of chemicals that are approved for both food and also for personal care products and cleaners and household substances. So I know I've seen a lot of this data from the outside of what we're facing, but I'd love to get your take on that of what are these compounds that our body has to deal with on a daily basis that basically give us a need to have to detox them.

Dr. Shayne: Yeah, it's a great question. And it's an important aspect because I agree with you that detoxification has become sensationalized. One of my talks, I gave a few years ago, actually it was with Warren and Dr. Pompa that the sensationalism has turned...we've taken detoxification from a serious process of our body, I mean we're dedicating genes and cellular organelles that detox us at the cellular level, and we'll get into that in a minute, it's not something that I think we should take lightly because we have been exposed to toxins on this planet forever. Now, for the most part, up until this Modern Industrial Revolution, these toxins, they were of a biological nature. They were either from the soil, as in the form of a metal, or they were from a, you know, a living organism that we became exposed to. And we have many, many traits, genetically, and otherwise, our microbiome, etc., that can help us detox and there's mechanisms that are designed to do this. But now what we have is humans have created hundreds of thousands of chemicals. And, you know, the last statistic I read is we, in the United States, are exposed to somewhere in the neighborhood of 80,000 man-made chemicals, any given year. You know, that's 80,000 compounds that your body has not had a chance to learn to deal with, to be exposed. You know, that's like saying that, you know, you move us from where we live and drop us, in the middle of the Antarctic, naked. We don't have the tools to deal with the shock of all these chemicals. Furthermore, the environment doesn't have the tools to deal with them.

And so, the detoxification that's been sensationalized are things like the 24-hour detox, or the, you know, "take this drink for 7 days and you're gonna be better." And I'm here to tell you that, to do true detoxification, you have to really work your way out of it like any other truly beneficial process, whether it be getting yourself to a healthy glycemic position, getting your cognitive function back to normal, getting your, you know, let's say, liver back in check, and so on. These are very, very difficult yet accomplishable tasks and we have to take them seriously because we now know there are ways to do this and it certainly shouldn't be this get-fixed-quick scheme. It's like the get-rich-quick scheme, we all know that that isn't real, you can't do that. You have to put in the effort, put in the time, and put in the understanding. And that's where, you know, we're like today, we're going to talk a little bit about the understanding of it and, although it is heady and it can be a little bit overwhelming, we can also break it down and make it simple.

And, as you said, first thing I wanna say is there are two kinds of chemicals that we're exposed to ongoing. There's organic chemicals. Organic chemicals are things made of hydrogen, carbon, nitrogen, and oxygen. Organic chemicals are things produced by molds, there's things produced by organic chemists, like our pesticides. These are considered organic-type chemicals. We then have heavy metals. Heavy metals, as the name says, it's a metal, it's on the periodic table and you know it as lead, cadmium, mercury, arsenic, and so on. There are two very different ways to detoxify these two classes of chemicals and, within each of those, there are also some subtleties that have to be considered, whether it is a pesticide or an aflatoxin from mold, they're both organic, we have to be able to deal with them, of course, effectively and slightly differently. But just for this conversation today, remember, there's inorganic and organic. Inorganic are the metals, so to speak.

Katie: Got it, that's helpful. And I feel like, unfortunately, I often think of how our grandparents, for the most part, or certainly our great-grandparents, they could very much live a moderate lifestyle, get movement, get sunshine, eat a regular status quo type diet, and be relatively okay. And unfortunately, I feel like, at least from what I'm seeing, both in the research and from the people I hear from on a daily basis, we seem to have passed the threshold where it's no longer okay just to do the status quo or just to maintain or to do what everyone else is doing and do everything in moderation. We actually seem to be at a time of history when there is a need to be proactive and to consciously remove these things from our bodies, just because of the

amount of things that we face. And I think it'd be helpful to understand, because you mentioned there are some dangerous cleanses and that…like a seven-day...this supplement, fast cleanse, or whatever, is not gonna do the same thing as actually understanding the physiology of the body and detoxing correctly. But what does it mean then to detox, are there different levels of this? I know that, often, there's criticism of different types of cleanses and detoxes because, you know, doctors will say, "The body naturally knows how to detox, we don't have to do these crazy things." But I feel like, also, we do need to support the body in the process. So can you kind of talk through what's actually happening in the body when someone's detoxing?

Dr. Shayne: Yeah, and that really is a great lead in and because we need… When we think about detox, is there a benefit to these quick situations? There actually can be, it can be thought of as, like in other religious, you know, cultures where you do a fast, right, or an intermittent fast. There are some benefits there, there are some benefits to cleaning out the bowels and, you know, having a single, let's say, a single green drink going through you for a few days, it limits the complexity of what you're taking in to allow the body to do a little bit of a simplification. You know, it's like taking a nap or something. There are benefits but it's not a true detox, from my opinion, in the sense of really getting it down to the cellular level. And when I say that, we're getting down to the...here's where we come to the compounds. When we're exposed, from our drinks, and our food...and, like you said, your grandparents didn't have the exposure, especially if they were rural, they were not getting the exposure to the 20,000 compounds that existed back then, and now, it's 80,000 plus. This exposure, we get it from everyday plastics, we get it from the air, we get it from our food, it's in the soil. We're no longer able to avoid it. As you know, as we all know, we should know if we're a conscientious person on this planet, there isn't a single place, on the planet, that you can't go and find plastic. We're finding it at the deepest areas of the ocean, we're finding it in Antarctica, we're finding it in all animals. If you harvest a fish, most fishermen, whether you go to LA, Japan, or the East Coast, when you harvest a fish and cut it open, you're going to find plastic in every fish that's being used as food. Because they can't avoid it, it's everywhere. We know this, we know how much exposure is happening, we can't ignore the long-term consequences that we didn't have before. And I blame plastics for a lot of this because they contain both organic and heavy metal toxins.

Now, that being said, in my little bit of soapbox, when the body gets exposed to these things, whether they be at a minimal level or high levels, they can accumulate. And when they accumulate in our body, they can impact things like our enzymes, they can impact cells, the cell receptors. Right? We know BPA can actually act on the cell receptor and change the way your body manages hormones. We see that happening in the Southern United States where a lot of the frogs are all coming out female because the plasticizers are switching on genes that stop the male, from the male embryos, turning into male, they're all becoming females. We're seeing this around the planet. And now, we can't think that we're, all of a sudden, absolved of this, it's happening to us, it just takes longer because we're more complex. So it gets into your tissue, it gets into your organs. Ultimately, what happens is it finds its way inside the cell.

And you're right, in the old days, you had ways to detox that. One, you didn't have nearly as much exposure or the different kinds. And two, these mechanisms can sometimes be challenged by the fact that these toxins are dangerous. What do I mean by that? For example, BPA. If I get exposed to...if I live on an island, you know, let's say, it's Greenland and I have been exposed to volcanic metals, so I have some genetics, I have some of the ability to detox the arsenic that happens in volcanic soils. But now, I add to that 20,000 plasticizers that are in my diet now, I'm no longer going to be able to handle the arsenic that my grandparents could handle because now I have all these plasticizers in my body, you know, it's this whole cup situation. Furthermore,

some of these things act like hormones, so now I've got hormonal issues that have been tagged on to my detoxification issues, which is now allowing arsenic to stick around in my system and create neurological problems. And the same thing can be said for mercury and lead, for example, because, in the past, lead and mercury, we were exposed to them but we never had the problems we have now regarding those two heavy metals because we weren't shutting down the systems that took care of them. And that's all happening, we're shutting down systems through other mechanisms like our plasticizers can get involved in.

So what do we do about it? Well, when I say that we do a research on the detoxification system, I want people to envision going in the tissue...so first, you go into the body, into the tissue, and into the cell. And most of us can remember, inside of a cell, cell is a, you know, it's a ball, it's a sphere and, on the outside of that cell, is a membrane. And the membrane has little openings or receptors and things that communicate with its world. Not unlike your skin, and your eyes, and your fingers, it can sense the world around it. Inside the cell, we have the nucleus, which is where all of our DNA is housed, and then, we have something called the endoplasmic reticulum. That is where all of the magic happens, that's where all of these enzymes and all of the genetics, as you mentioned, that we have to take care of toxins, that happens in the endoplasmic reticulum. For those people that really love to get into their cells, if you go and look that up, it's the smooth endoplasmic reticulum and, inside that are all these amazing tools that allow you to detox. It is, essentially, the waste-treatment plant of the cell. It requires a lot of energy, just like a regular waste-treatment plant could, and it requires a lot of these genetic tools, or enzymes, that help you get rid of toxins. That little organelle needs a healthy mitochondria, for ATP, it needs a healthy nucleus to get the enzymes made, and it needs a lot of cofactors. Cofactors are things that we eat, we call them vitamins, we call them trace minerals, we call them phytochemicals, things we get from our diet. They're really required for the endoplasmic reticulum to do its job. And that's where I focus our research.

Katie: That's super fascinating. So basically, to make sure I'm understanding, the body already has a natural process and built-in pathways, basically, for this process of detoxification. So it's not something that we have to accomplish purely through external things, the body knows what to do but, just because of the sheer volume of things that the body has to deal with, it has an impaired ability to do what it's always, throughout history, been able to do? Am I getting the gist of it?

Dr. Shayne: Yeah. And I would add to that, it's not just the volume but it's the complexity of toxins 200 years ago, you didn't have all these chemicals in every aspect of your life that you breathe and eat and touch and feel. They're making their way into your body. And we can make a chemical a thousand times faster than our body can adapt a way to get rid of it. And so, what's happening is it's not just the volume but it's also the complexity of these toxins. And yes, and when you think about... Again, going back to the endoplasmic reticulum, those are the tools but some of our chemicals, not only accumulate, but they destroy your ability to get rid of them, meaning that they act on your cell that prevents the cell from actually... For example, it would be like lighting a bomb in the waste-treatment plant. If someone were to go blow up the waste-treatment plant, in a city, you're going to back up all of the…all of the waste materials are going start backing up, in the city, because the facility isn't getting rid of it, if that makes sense.

Katie: It does. And I would guess there's also then...so if these things are accumulating, if these harmful substances are accumulating, in the body, in order to detoxify them, you have to move them around to get them out. And I would guess that there's potential danger if it's done incorrectly because you are mobilizing

things. And I'm curious if I'm right about that, and also, if there are other mistakes that you see in people who detox the wrong way. Is there actual danger there?

Dr. Shayne: You know, that's great, and that's an amazing observation because most people don't think of the...they are mobile and they accumulate in certain tissues, depending on the nature of the chemical. So, for example, you get mercury, it can accumulate in the brain, you can get other pesticides that accumulate in the brain because of the high level of fattiness to it. There's a lot of membrane in the brain, which means that fatty-type compounds or things that are lipophilic, they love fat, they will go there. You can actually accumulate some toxins in the bone. Some toxins can accumulate in the liver, clearly, of course, we know that, and other tissues. Sometimes they can accumulate in our urogenital tract or in areas, for like women, in their reproductive tissue. And that's scary because that affects the current level of reproductive issues that I think we're facing more and more with the younger generations.

So you're right, depending on your exposure, depending on the, not only the type, but how long and what you're doing to get rid of it, it does certainly impact the different tissues. And then, when you start to detox and you do want to mobilize it, you can create problems. Because, a lot of times, when, let's say, a toxin accumulates in the bone, it's not really doing damage at the moment but, when you mobilize it, now you start to feel what's happening or you start to notice a symptom. And those are things that all of the practitioners that, you know, you and I are familiar with, all report different phenomenon, as they're going through a really good detoxification program, they're getting that immobilization but they need to get secretion. And that brings us to, when I talk about a cell and when I talk about the cell being part of a tissue, as we all know, part of the body, we also can talk about something called phase one, phase two, and phase three detoxification.

And it's best to talk about that at the cellular level for me, I feel like I can give better clarity, but phase one detoxification is the cell's ability to sort the garbage. So if we think about your garbage can, you've got really dangerous things in there, like razor blades, and cans, and, you know, really dangerous things, and then, you've got paper. Well, phase one will sort those toxins into categories. And it targets them, ultimately, for waste removal, you know, out whether it be through the skin, through the urine, or through the feces, either way, it's targeting them. Phase two takes a step further and it takes some of the more dangerous ones and now tags them with a molecule, or it would be a sugar, or glutathione, or a methyl group, or an acetyl group...and again, those are a lot of chemical words I just used and, hopefully...the idea is this, it further sorts the toxins into categories, saying, "We have to get rid of these chemicals, they're extremely dangerous." So your endoplasmic reticulum does phase one and it does phase two. And phase three is actually secretion, that is it moves it from somewhere in your body and puts it into the urine, so it either moves it through the kidney and the bladder or it moves it through the gallbladder into the feces, or into the tissue to be sweated out, or breathed out sometimes by the lungs. It targets it for getting rid of it, that's one of the issues is phase three.

So you're absolutely right, you want to mobilize, as you're detoxing, and you want to turn on all of those facilities within the endoplasmic reticulum. That actually brings us to, I imagine, the solution to the problem where it's what do we do to make our endoplasmic reticulum as healthy as possible, to capture it and get it secreted. Part two is, once your body starts mobilizing it, how do we trap it? And that's a word called chelation. We wanna trap things, bind them up so they can't be reabsorbed. For example, if you're moving something out of the waste-treatment plant, you don't want it to re-enter the water stream, you want it to be destroyed, you know, you wanna burn it, you don't wanna just have it re-enter and make you sick again. That's

the chelation phenomenon. So you have the nutrients and the things we need to drive a good endoplasmic reticulum, phase one, phase two, phase three, then, we wanna trap everything through a process called chelation so that your body can't recapture it and get you sick again. Is that clear?

Katie: That is. And it makes sense, even just the body accumulating things, in the beginning, you said it's not necessarily always harmful when it's being stored in the body. Which makes sense to me that the body's probably doing that to protect us, to protect itself. Right? So it's isolating these things so they're not active in the body, so that then it makes perfect sense that, when you start removing them, they're, once again, moving around, you have to be careful that you do that the right way. So I guess the next logical question that I really wanna hear your answer to is then how can we support the body and support the endoplasmic reticulum and doing this process safely?

Dr. Shayne: Yeah, great question. There's gonna be ongoing research here, so I'm gonna be able to give you a new answer, next year, and the new answer, the year after that, because we continually improve our understanding of the ER and the associated organelles that go with it. You know, there's some other really cool things, inside your cell that help but let's just focus on the ER for now. One, its highly energetic requirement. So, for example, it requires a lot of electricity to run it, which means our mitochondria need to be healthy because the endoplasmic reticulum uses a ton of ATP. ATP is the fuel of the cell. Everything we eat, as a caloric intake, whether it be fat or sugar or a combination thereof, those go to make ATP and ATP drives this machine, you know, this waste-treatment plant. So to have a healthy endoplasmic reticulum, we need a healthy mitochondria. Therefore, there are nutrients that we know, there are things like CoQ10, there are things like all of your B vitamins, some of your unique minerals, some of your unique phytocomponents that we use, in our world, that help keep the ER happy. They help drive more energy production. There's a compound that we use in detoxification called PQQ that helps us make ATP. That's part one. So we look at the cell and we start looking at the upstream organelles that help us do this. And they require surprisingly a lot of nutrients, just like it's a lot of electricity for a waste-treatment plant, you'd require a lot of that. So that's one of the things you do is you support that.

Downstream, you've got the removal. So once they create this waste and they're going to get rid of it, we wanna create a situation where you're capturing all that, so you have a very unique way of using things like zeolite, clinoptilolite specifically, other binders that we use like humates, and fulvates, and lignite, and others that we wanna bind up…baobab, these are things that we use, on the other side, as chelators to trap these waste products, either inside the body, so it'd be in the kidney, in the bladder, or in the waste of your colon, you know, from the release of bile, waste. We wanna trap it in the GI tract. In those two areas, we focus on capturing it so that you can actually eliminate it and to not have it get reabsorbed. Because that's critical, one of the biggest challenges with this mobility, once you start moving these toxins, they can be reabsorbed very readily. Once they're in any one of your other tissues, they can be reabsorbed into the bloodstream or into the...not just the bloodstream, but even in your lymph system very readily. So one of the things that we do and a term that we talk about, Cyto, is develop a way to trap it. And the Cyto you heard about is a unique complex of ingredients that we use to trap those compounds so they can't be re-entered into the bloodstream or the lymphatic system, for that matter.

Katie: Interesting. I've definitely come across zeolite a little bit, in my research, and I'd love to understand a little bit more basically what's going on in the body with the input of like that and how then that's different. I

know we hear lots of recommendations and detoxing using things like chlorella, for instance, or glutathione and different substances. I'm curious if there's any interaction amongst those or how zeolite is different?

Dr. Shayne: That's great. So again, I want to mention that, you know, we believe truly in the true detoxification process. Right? The truly cellular detoxification. I don't want to take away from these other... We use all these things in the process. We use glutathione, we use chlorella in many instances. And among other things, it's all part of the program, but to get to the core of it, you have to think about the compounds you're using and when and where they work. So, for example, glutathione is amazing and we use glutathione in the project or in the process of detoxification. We use as high amounts as we possibly can and, when we use the glutathione, what we're trying to drive there is...there's a certain amount of glutathione that can be utilized by the microbiome. So if you take it orally or if you take it liposomally, you'll get some into the bloodstream and the lymph tissue, and some will certainly get consumed by the microbiome that lives along the GI tract, whether it be the mouth or all the way down through the colon, because they too use glutathione and they use chlorella because it's full of compounds that bacteria love, or the mold, or whatever's along the whole GI, they will use it as well. So it has a dual purpose really. It helps your microbiome, to some degree, and it can help you. We use it at a level where we know, we've measured the blood, so we know it's coming into the blood and not all being consumed by the microbiome for example.

And it's certainly not being destroyed by the acid, which was someone's earlier postulation from a publication years ago. So we've overcome that, in a capsule, and we've studied the blood to demonstrate that. Those are some of the things that we know get into the blood and they can help. And glutathione is an amazing antioxidant, it's a moderate chelator...some people call it a chelator, but really where it does its work is it's used by your endoplasmic reticulum in phase two. It actually targets toxins and, when it targets those toxins, it gets attached to those toxins to tell the body to get rid of it. And that's one of the amazing things it does that people don't really talk about much, so you want enough around to do that. And if you're highly toxic, you're consuming a bunch of ATP, you're consuming a bunch of glutathione which is robbing the rest of your body. I mean you've heard of priority principles. And when you rob your body of all these nutrients because you're so toxic, other body parts are sacrificing their health to keep you safe. It's a priority principle. So that's the other reason why, during a detoxification, you'll notice sometimes the dosing goes up, over time. And it's gotta be there for a long time, seven days is not enough, three months is not enough, for most people, to be honest with you. So you drive these processes up and up and up so that the body can keep getting rid of things but also take care of the other areas of the body that need glutathione, that need vitamin C, that need resveratrol and things of that nature, and vitamin B2, 3, 6, and so on. The other part of our philosophy is drive those mechanisms up but also take care of the rest of the body simultaneously.

But when you compare those... So glutathione and chlorophyll, or blue-green algae, or all these other organic compounds, they're gonna suffer a certain fate. They're organic, which means they can bind organic things better. They don't bind metals as well, they can bind a metal but sometimes there's a metal already attached, like sodium, copper chlorophyllin. Sodium copper chlorophyll is great for the microbiome but it doesn't likely make it into the bloodstream. If it does, that really speaks to a leaky gut issue, not so much that the body transported it. It does most of its work in the GI. Glutathione does its work all through the body in a number of ways because your enzymes use it. It doesn't likely bind up too much in the way of the heavy metals that are circulating around. It may, but there's really no evidence that it binds too much. When you take something like clinoptilolite, which is a zeolite, you can get it both into the GI and into the blood. It isn't metabolized by the

body, it's not changed, it's not used by enzymes, and its backbone is silicate, it's a silicate backbone so it doesn't get destroyed by acids or by the microbiome or by your body. So it stays intact.

And we know, in its intact form, it looks like a little... You've seen those little balls that kind of like a buckminsterfullerene? That's probably not a good example. Imagine a wiffle ball or a ball that has a cavity in the center of it. That's how it works. The heavy metals can be trapped inside the ball, and then, that's how the body carries them out through...whether it goes through the colon or through the bladder, it traps. And it's not subjected to all of the destructive forces that most organic chelators are subject to. And that's one of the great benefits of the zeolite products, or the clinoptilolite products. And you can get them in different sizes. We've found a way to change the size of these compounds so you can have tiny balls, which sounds funny, to large, large spheres that can trap different kinds of compounds in them to the different degrees. And that's really the brilliancy of it is it allows you, one, to trap different things, two, get them into different tissues. The smaller you are, the more tissues you get into. The larger you are, you stay within the GI tract, if that makes sense.

Katie: That does make sense. And you mentioned that this is not a seven-day process or even a three-month process, for most people. I'm curious how long are you seeing, in the research, is it actually taking to get people back to kind of just the homeostasis. And then, at that point, is this something that can be maintained more easily or is this an ongoing active process?

Dr. Shayne: Yeah, it can be...I mean of course I can't speak for everyone and every clinician, just, in our data, three months is probably the minimal for... When people come to a clinician and say, "Hey, you know, here's my symptoms, here's the things I'm exposed to..." And, of course, these guys can run functional tests and look for heavy metals, look for other toxins, you know, whether it be mold exposure and so on. When there's enough that it's gonna show up on tests, that's significant. And when that's significant, you know, you're looking at three months to get some breakthroughs, and then, you're probably looking at... If you've been exposed for years, you're looking at unexposing yourself and the first thing you have to do, of course, is stop getting the exposure. But to get back to some homeostasis... And you're right, there is always gonna be a homeostasis, we can't avoid the exposure to these things. And that's a good point, I'm really glad you pointed that out that you would have to move, and even if you moved into the middle of the Amazon, you're still gonna get some exposure from the sky. Right?

So there's really no way to get away completely. But when you do our living in a very exposed place, it is a homeostasis, that's a good way to put it. So to get yourself back to a healthier homeostasis, you're looking at minimum three months to start getting breakthroughs, and then, we're seeing people doing a maintenance type situation for the next six months or more. Depending on who they are and how well their systems are working. You might have the ability to up regulate your endoplasmic reticulum and your mitochondria and your DNA and say, "You know what? Mine's kicking butt right now. I'm experiencing a ton of improvement." Whereas your sister who may have been given, you know, some, I don't wanna call it the short stick, but she might have more, what are called genetic predispositions and other epigenetic predispositions that makes her journey much more difficult. And you can also see that as evidenced in how you respond to an infection for example. Some people get, you know, get Epstein-Barr or mono and they don't even notice it. Other people, it takes them down. And that is a predisposition for a number of very complex reasons that might make them have a much tougher time, if that makes sense.

Katie: It does. And I'm also curious, so you probably, in the research, are seeing people with a wide variety of different issues, coming in with probably a variety of different levels of both metals or organic compounds or other inorganic compounds. Is the approach different or are there some things that can be kind of universally used safely? Or do you need to take a more varied approach based on what someone's coming in with a problem?

Dr. Shayne: You know, from a detox standpoint, I think we've gotten enough information that there is a safe semi-universal way to approach it. Right? If you think of my pathway I've described, hopefully it's not too convoluted or complex, but when you wanna fix the cellular-level detoxification, you focus on a lot of these compounds we've discussed, on the endoplasmic reticulum, and so on. That is universal as long as you apply them correctly. And then, in terms of getting rid of them, like we talked about the clinoptilolite, you know, and the Cyto and the zeolites, and the other binders, you can apply those carefully, mind you. We always recommend, you know, going through a clinician or, at least, through someone that has some experience. These are tools that you can apply effectively for many cases across the spectrum. Right? You would apply for PCBs, or pesticides, the same thing, or similar things you would to aflatoxins for example. And then, you could also apply some other things to heavy metals because of the cross... You know, when you're looking at phase one, and phase two, and phase three detoxification, they take care of most of these toxins, so you wanna support all of the detoxification universally in a similar way. You would cater some of this, in terms of dosing, and follow up with certain things if you knew you were going strictly after a heavy metal poisoning versus a mold poisoning, you would do some specialization, but that would be up to the clinician at that time.

Katie: Got it. What about fasting? I know it's a little bit of a deviation but I know that there are a lot of practitioners that recommend fasting as a way to support the body in that natural process of detoxification and if nothing else, to stop putting negative inputs into the body, for a short amount of time. Are you seeing that in the research? Is there data on that as well?

Dr. Shayne: You know, I'm seeing more and more, we're finally starting to notice. I've always loved the idea of this intermittent fasting or certain fasting because it's been such an important part of cultures and even religious texts, if you look back in time. I think everybody is recognizing that that almost every culture has had some form of that. And the cool thing about that, for me, is not only for detox, which it certainly can do, and the more often you do it I think...and if you look back through literature, both scientific and otherwise, a frequency allowed you to, essentially, not only reset your body's processes, biochemistry, but also the psychology or the cognitive processes. And those things have to be in balance, we know that, where you can't have one without the other. They're also very difficult but you wanna coordinate them. So I've always been a fan of it and I think the data is starting to show that a little bit of fasting, or intermittent, and diet variation and these things absolutely contribute positively. And I would argue, it's not only positive to the detoxification system that's within your body, but it's also modulating your microbiome which, by the way, is a huge contributor to your success and/or your failure regarding detoxification. It's probably a different conversation because it would take me a whole another time, but it is a critical aspect to the process, no doubt.

Katie: Got it. Then, I guess to take it to a very practical level, for people listening, my listeners are really educated and understand, I think a lot of them, what we're facing, as far as all the things we've talked about, the day-to-day exposures, or all of these different harmful substances in our food supply, and just all of the

issues we're facing. So for anyone who is recognizing that, and then, seeing the results of some of these problems in their own body, what do you feel like is a good protocol to get started with that whole phase one, phase two, phase three, and supporting the body through that?

Dr. Shayne: Yeah. That, right there, is where we have spent a lot of our time. And we worked really closely with Dr. Pompa and Warren Phillips on this project. We have a process, we call it the phase one, phase two, phase three, or we call it prep phase, body phase, and brain phase. And along with that, you have another liquid product that we call Cyto that's included in the latter phases and these phases are designed around accomplishing a more thorough and cellular-based detoxification. And so, as you know, you know, as you and I both know Warren very well, this procedure, which we collaboratively created or this protocol, otherwise known as, it covers... I've talked about all these supporting materials that go into helping the cell do its job, from the macro level, right down inside to the endoplasmic reticulum and enzymes. When you look at these phases, they're very complex, you wouldn't be able to do them without some simplicity, so, in order to get this process down to... And it's a 90-day-program on the outset, it's 30 days with each phase, but you have to repeat certain phases over time. That's become clear to us. And like I said, there's the prep phase, which preps your body for detoxification, there's the body phase, which focuses on the body tissues, and then, the brain phase because of some of the really deeply-rooted fat soluble toxins that can go to the brain, as well as just supporting the brain because it can be impacted throughout the process.

Those three phases are critical. And then, you add the Cyto, which is an elimination step. Cyto is the patent-pending compound that is based on the clinoptilolite in a liposomal form. I don't know if everybody's heard about liposomes, but it almost looks like a cell. It's a baby cell that traps the clinoptilolite molecules, the water-soluble ones, among other binders, and delivers them to the tissue. And if you can deliver them to the tissue, you bypass a lot of the destructive events that can happen with other compounds. So that's pretty cool, we're excited about that. But these phases allow you to really... And if you look at them and look at the ingredients and look at all of the makeup, there's...I think when I did math, at one point in time, there are...gosh, I think there's well over 200 natural products in the entire program. And that's because we are trying to hit every step of the detoxification pathway and support it. And of course it goes over time. And that is what we consider, you know, the minimum that you need to do in order to get detoxification. Can you do a lot less if you need to or, you know, if you're in a hurry? Yeah, you can, but you always need to revisit the idea that, to get real results, you've got to be committed to the story. You really have to be committed to the story.

And that also includes things like you mentioned, the fasting and the diet, the diet changes and the variations and so on, to help support the process. That's really what we've, as a supplement group and detoxification specialists, that's where we've focused our attention. And we put it in packages to make it simple for the people. It's not 30 bottles of different things, it's 1 satchel twice a day up to other satchels, but it's very clearly defined for people, so it's not very confusing. And it's one of our other side notes, we just try to make it simple.

Katie: Gotcha.

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Katie: And so, back to zeolite for a second. So I know that you mentioned there's different types and I think different sizes as well. I'm curious, first of all, what are the criteria in finding a high-quality one? I know that people can go to getcytohere.com to find out more, and there's a whole article on this, but what are the criteria you're looking for in something like a zeolite product? And is it something that can be taken just kind of as a preventive or maintenance thing by pretty much anyone, like realizing we're facing all of these negative inputs constantly?

Dr. Shayne: Yeah, yeah, you can. And there's a really amazing caveat here. When you think about in nature, all of these things that do a great job of binding...and you listed some, right? We've looked at glutathione who's kind of a weak binder, but you've mentioned chlorophyll, there's things like humates and fulvates which are these organic binders. I'm trying to think if there's others, and you can chime in if you remember, but clinoptilolite or zeolite is one...oh, diatomaceous, there's one, clays, these are all compounds, natural compounds that we know bind metals and other things in nature because that's how we discover them and many industries use them to bind things up. Fantastic, we've known that for a very long time, we'd love to take advantage of it. But guess what? When you bring these things from nature and you wanna put them into a product that's going to be consumed, guess what? They're already full of heavy metals.

I have tested now probably three dozen different sources of these zeolites, clinoptilolites, humates, fulvates across the globe, and universally, they are full of heavy metals and/or other toxins from the get-go because, see, they just live in nature, that's what they do in nature, they bind things up. So when you harvest them out of nature, they're full of it. So the first thing you have to do, the first thing we do is we do what's called, a cleansing process, and this is the patent-pending. There's a process we do that strips these natural products of

their heavy metals. Otherwise, you're just consuming heavy metals within these compounds or within these natural products.

How do people get around it? People dilute them. So you take, if you have a gram of it...and you certainly can't distribute that to someone because that's full of heavy metals, you just take a tiny fraction of it, you take a little grain of it, put that in a product, because the dilution effect dilutes not only clinoptilolite but also dilutes the heavy metals, so now you're safe to consume it. We think that's ludicrous, we wanted to be able to give higher concentrations, so we cleaned the clinoptilolite. That's step one. The step two was about the sizing. The different sizes bind different heavy metals preferentially, meaning that they bind more or less. That's one step. The other part of it is with the size is that the smaller the clinoptilolite, the more it can invade small spaces, like intracellular spaces. So we have a range of sizes, from...and when I say sizes, we can imagine, you know, for your listeners, we have to kind of define that. What does that mean? Again, let's use the ball analogy because clinoptilolite is a spherical shape. So a golf ball would be the small version. And so, the golf ball can be used to get inside of things. Right? The large version would be something the size of... Oh goodness, maybe I'd better change that analogy. A beach ball is a big one, a marble, a small marble is a small one. Well, the small marble is gonna get into a lot of tissues, a lot of tiny spaces. The beach ball isn't but the beach ball does its job by collecting all of the heavy metals that are being secreted into the large spaces like the colon. The little, tiny marbles are getting into all the little, tiny spaces. So we provide marbles, we provide soccer balls, we provide baseballs, we provide beach balls, the entire gamut of sizes, in order to get into all the different spaces that we wanna get into to trap these toxins, these heavy metals.

And that's really the key there. So you've got, one, the cleanliness of it. So when you eat it, it's free of heavy metals, really low tested heavy metals. And, for example, most zeolites, when you test them, they're between 20 and 30 parts per million lead. Just keep your eye on the 20-30 part. When we clean it, we're down to below 1, we're less than 1, that's the scale that we've changed it. So when you eat it, you can eat more of it, and there's no lead there. You're not actually consuming lead when you take it. And then, of course, the sizes are what allow us to get into the different niches in the body. You can also, on an ongoing basis, use it in your food. You can drop a drop of it in your coffee, you can drop a drop of it in your tea, or in another drink, and it will bind things up. And then, when you drink it, it will carry it through you. So there are a lot of applications, both from ingesting and just using it as an ongoing basis in your food, your water, and so on.

Katie: Interesting. And I know that we're gonna get the questions that I always get, which are, "When is it appropriate or not appropriate to use these things? Are there times when it's contraindicated?" I'm gonna go out on a limb, just based on my own research, and say do not actively detox when you're pregnant, always talk to a practitioner who knows what they're doing, at any point. And, in fact, I would really encourage women to try to focus on this pre-pregnancy, if you're considering getting pregnant, because it makes a big difference to the lifelong health of your children. But I know a lot of moms listening may be wondering, "Can I use this with my children in a small dose or as a preventative? Is it safe for children?"

Dr. Shayne: Yeah, that's fantastic. You're reading my mind because it is a therapeutic approach to, you know, detoxification. And so, on an ongoing basis, you certainly want a cycle, you don't always wanna be in the process of detoxing because there are consequences. There's the nutrient side of it that we've talked about, and then, there's the chelation or the stripping side. Well, the stripping side can also deplete you of other nutrients. So if you're in a detoxification, like with the metal binding, it also has the potential to bind up good

metals, like zinc, magnesium, manganese, and so on. So you wanna replenish, during the detox, you always wanna replenish your minerals. And we do that in the packages. But if someone is an ongoing basis and they're done with, you know, going through these steps, the phases, and they're just in an ongoing, always be aware of replenishing micronutrients because they can be stripped by detoxing. You can strip your body of the small things, you know, the micronutrients, the cobalts, and the zincs, and so on. Replenish the minerals, replenish some of the micronutrients, whether they be vitamins or other, you know, fat solubles. Always replenish those during and after a detox phase.

And then, as for the long haul, it's always a cycling, like you would fasting, like you would, you know, the dietary variations. You know, go through periods where you do and then you don't so that your body can have and not always be stripping itself of the good stuff while you're trying to take out the bad stuff. And yes, always speak with your practitioner. And when it comes to children and pregnancy, you're right, absolutely don't touch it unless there's some overly whelming reason to do it. You know, if there's a critical reason to do it, that's the decision that the doctor has to make or the clinician has to make. Otherwise no, wait until you're done. Secondly, with younger people, if you're gonna do these very nutritive detoxifications, then run it way down. The rule of thumb, for a lot of people, and this isn't always the case but an adult-size dose is based on weight oftentimes. So when you're taking a capsule, that's a dose, it says, "Take one capsule a day," that's based on about a 150-pound person. If you're a fourth of that, you have to cut the dose into, at least, a fourth. And so on. And once you get below two, again, that's very, very, very tricky, so you'd need...the clinician has to be the guiding reason for that. For anybody under two, that's the clinician's choice only.

Katie: Got it. I think those two great pieces of advice that you just said, one is that pretty much anything should be cycled and rotated, and that is advice that I have had recurring in a lot of my continuing education and research in the health world. Especially when I have studied overseas, like in Switzerland, that was the first time I heard it, last year, and they said, you know, "Don't do anything every single day. Give your body a break, once in a while," both from, obviously, a detoxing side, your body needs time to recover and replenish, but also, even when you're just talking about supplements or food, anything, it's good to not give your body the same inputs every single day, day after day. And we now know the importance of variation across the board, so I think that's really good advice. And then, of course, also working with a practitioner who knows what they're doing, and that can't be overstated. Like you've mentioned, you made a wonderful case for why we do need to support our bodies in this, and how there are safe ways like zeolite that you can use safely at home in maintenance. But if you're talking severe issues and problems and, especially involving things like heavy metals, I know you would probably advise this as well, work with someone who knows what they're doing. Don't just try to throw things at it and hope something works because, like to circle back to the beginning, we know that when we mobilize these things, it can have a negative impact if it's done incorrectly.

Dr. Shayne: Absolutely. And I wanna… Back to the beginning, as you mentioned, we can't take it lightly. Right? These really get-fixed-quick schemes, there might be some good materials in there or good compounds in there but there's no such thing as get healthy quick when you've gotten yourself so sick, it's just not something I want people to think that they can do. Right? I can't wake up one day and decide, "Okay, after one week of climbing my backyard rock wall, I can go hike Mount Everest." It's silly. I need to take it seriously, and you're right, having the guidance of someone that does it and is experienced in it, that's so amazing. We look for guidance when we talk about money, we look for guidance when we talk about, you know, we go to accountants, we go to business classes. We always look for guidance. We also need guidance when it comes to our own health. There's nothing wrong with it, it's amazing, and it gets you down that path faster.

Katie: Absolutely. And I think complementary to that is also this wonderful trend I'm seeing, especially in people like the people listening to this podcast, also taking ownership for your health. And that doesn't mean you're the only decision maker, you obviously definitely wanna work with consultants and practitioners and people who know what they're doing. But I love this trend I'm seeing, and you probably are as well, of people really taking ownership of the outcome of their health and they're being willing to put in the work or to research these things and to understand things like the endoplasmic reticulum and how the body works so beautifully when you support it the correct way. So I'm really excited for the future as we have that complementarity between practitioners, like you, and like researchers who are on the cutting edge of this, and also patients who are willing to really put in the work and the research and address these problems. I feel like it's a very exciting time for the health world.

Dr. Shayne: Oh, it is. And the more we do it, as this generation, guess who's wanting us? The younger generation. And what we're leaving to them, we need to leave them a legacy of, "Take your own future of health into your hands." We tell them that with their careers, you know, "Take your career into your hands, do what you love, do what your passion is, be passionate about your body," because when they watch us doing it, they're going to start to take that onto themselves. And no matter what we think, our next generations, our children, our children's children is why we're doing this. We want the best for our subsequent generations, that's what we do best, we give them the knowledge. And what better doing it than just becoming the example? And it's also gonna fix the planet simultaneously by the way.

Katie: Yeah, exactly. We need to address both of those. And it's definitely a pressing thing and I'm excited for all the advances in research and technology, like what we've talked about today, and the ability to actually do that and to start to make changes. And just to reiterate for anyone listening, the links, of course, will be in the show notes so you don't have to worry about writing them down while you're driving, the show notes will be at wellnessmama.fm. But also, we've mentioned zeolite several times and, also, just detoxification, and that URL that I've mentioned, getcytohere.com, that has a really well-referenced and in-depth article that explains the pathways and it has the references. So those of you guys I know who are interested in the research can go there and learn more. But Dr. Shayne, do you have any parting words or ways that you would encourage people to kind of get started with this? Because I think it is a compelling and important thing and something what a lot of us need to address. How would you recommend getting started?

Dr. Shayne: I would recommend going exactly to the links you just said because those links get you going on not only the process or the products, even, that are involved, but it gives you an additional information. And then, you can follow up with people like myself, you know, with Warren, and our group of companies that are working on this project. And you can learn but, at the same time, we've made it simple. So as you start to move forward in your program and you get into this program, with the boxes and the Cyto, it's actually quite simple. And the simplicity allows people to stay compliant, even while you're learning. So certainly follow up on these links, for sure, because, once you get into it, it's simple and you can stay congruent to it, and you'd be surprised that, once you're in it and working with everybody in these circles, you become part of the dynamic that's working towards the end game. You become part of the, what we call, the culture of trying to fix ourselves and take responsibility for things. And that culture is really a nice place to be.

Katie: Absolutely. And our numbers are growing, thankfully. And I know there are many people listening who are part of that movement as well. But Dr. Shayne, thank you so much for your research. I find this whole area fascinating and I love that we now have the ability to look at the body in such a deep way and to understand what's happening, even on such a small cellular level. And I appreciate you breaking it down for us today and explaining it all so clearly.

Dr. Shayne: Yeah, thanks. I know sometimes it's a lot. And if you have any desire to revisit some of these, I'd love to join you again because we can continue, you know, investigating the excitement of the cellular-level stuff. But otherwise, it's a pleasure to be here.

Katie: Thank you so much, and I think we might have to do a round two based on the follow-up questions, I think a lot of people are gonna be interested to keep learning more. And of course, as always, I appreciate all of you who are here today, who joined us, and listened, and learned. And I hope that you will join me again on the next episode of The Wellness Mama Podcast.

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