

**Breaking Up with Forever Chemicals: Dealing with a New Reality**  
**September BioBites Audio Transcript**  
**September 3, 2024 – Dr. Martin Hart, Keystone Total Health**

We are so proud to have back Dr. Martin Hart. This is actually his sixth BioBites episode presentation. And he started back in July of 2021 with his topic on histamine intolerance.

This time he's here to help us break up with forever chemicals. It's just a very timely subject as just this past Sunday. It was on the front page of the Sunday, New York Times. And each day I'm reading more and more stories about the prevalence of this issue.

We're really excited that he's here with us. Dr. Hart is a distinguished figure in the world of natural health care renowned for his expertise and unwavering commitment to patient well-being as a highly trained and board-certified chiropractor.

He possesses a comprehensive skill set that spans kinesiology, homeopathy, functional medicine, and American medical medicine. His clinical focus lies in addressing complex health challenges, particularly in the areas of Lyme disease, mold-related illnesses, and complex chronic conditions.

His approach is characterized by a dedication to root cause medicine, tirelessly seeking the underlying factors that contribute to his patient's health issues, all while providing his compassionate care. He's the owner of Keystone Total Health in Columbia, Tennessee. I strongly suggest you do go and check out his website. There are so many resources there, including videos and articles. All right. So, hey, let's get on with the show today. I'm going to pass it over to Dr. Hart, and then he's going to screen share for his presentation.

Thank you, Jessica. Thank you, Liz. Thank you, Marion Institute for having me back. I'm excited to see what the next steps look like.

Listen, if you haven't checked out their website, they have so many amazing initiatives going on between biomedical health programs and then the environment and farming and all their community work they do. Check all that out.

With that, which is what I'm really excited to talk about today with it too, because Marion Institute does so many initiatives in the community with the environment and with human health.

And really, forever chemicals are how we need to talk about that. So let's jump in, I'm going to share the screen, and we're going to get going talking about these Forever Chemicals. Okay, got the screen up and running.

So PFAS, Forever Chemicals, dealing with a new reality and how we're going to show you to break up with them. I'm Dr. Hart down here in Columbia, Tennessee.

Now, the first slide I put up here is our choices have consequences. And, you know, as if any of you have children, we know that, right? We know that our choices have consequences.

We try to teach that. But is that something we think about in daily life? So as we start to do things such as add conveniences to daily life, like non-stick cookware, for instance, that really makes cooking and cleaning easier. But choosing that convenience has a consequence. And that's what we're talking about today. So what's our agenda? I always like it's PFS stands for per and poly fluoral alkyl substances.

That's a mouthful, but you don't want to eat it, right? So PFAs or PFS, they're synthetic chemicals. They're things we made in the lab, which is fine. That doesn't inherently make them bad right away.

But there are things we made in the lab in order to create heat resistance or non-stick, right? We tried to make different industrial and daily use items, more user-friendly in a daily basis.

So what they do is they take a fluorine, which is what fluoride is made out of, and attach it to a carbon, so it's more stable. Unfortunately, that stability means it doesn't break down very well.

It lasts for a very, very long time. That's what we call it a forever chemical inside of our bodies and inside of nature. I'll give you an example. Glyphosate, the herbicide lasts about 32, 28 to 32 years in the soil. That is a long, long time already. Now, these

ones last much longer. We really can't hardly even calculate it. Now, Marion Institute does have some, especially Dr. Thom, has some other great articles and videos on fluoride and potential issues with that, which we'll get into a little bit today with the PFAS, with the forever chemicals, but it's something to keep in mind that that is one of the major constituents here, and that's partially what makes it so stable is that fluorine, that fluoride molecule.

Okay, so now you know what a PFS is. We know it's a heat -resistant synthetic chemical, it's carbon, it's fluorine, all attached. Where do we use it? Where do we see it? How is it being used?

So it's in cleaning products. Okay, it's a major stabilizer foaming agent and cleaning products. And most of this stuff, you're not going to see it on a label. You might find it on there listed as P -FOS or not really usually P -FAS or there's different types.

But usually, you're not going to find, or it's going to be buried into some alternative chemical name.

Water -resistant fabrics like rain jackets, tents or umbrellas. If you're coming and contact those, you're wearing them on your skin, you're sleeping in a tent, you got your umbrella going on, your rain jacket, that's all an exposure to the forever chemicals.

Grease -resistant paper, what does that mean? That means your McDonald's wrapper, okay? That means some of your parchment paper that you're cooking on. So any of those food wrappers that we think are paper and are great, they have to have something to make them better than regular paper.

So, modern butcher paper. All of that sort of stuff is grease -resistant paper. That's the forever chemicals there creating that resistance.

Non -stick cookware, right? So pots, pans, even some spatulas and things like that nowadays, different types of the air friars. Those are all non -stick cookware is covered in forever chemicals.

Personal care products, nail polish, shampoo, eye makeup, dental floss. These are all ways to make that the nonstick kind of smooth feel there.

Now, here's what really gets me is, and you'll see why this is a problem in a little bit, this is stuff we're putting in our kids, right? You maybe have a three - or four -year - old child who wants to paint their nails, and they're getting forever chemicals right on that topical skin, sucking it right in from the get -go.

Stain -resistant coatings on carpets, upholstery, other fabrics, right? So if you go to buy a new couch and it's a stain resistant material on the upholstery, if it's not leather, it's not vinyl, that stain resistance then is typically a forever chemical. It's a P -FAS.

So that's something we want to be cognizant of when we go buy things or even treat them, right? So a good old fashion Scotch Guard, that sort of stuff now has a lot of forever chemicals in it.

Papered and cardboard wrappers for bakery goods and fast food. We talked about this a little bit, but you need to look at different things like Styrofoam. You want to look at different parts, like food containers, to-go boxes. Now, the real kicker here is that when you put hot food in these things or cooking them, they're going to absorb all those forever chemicals from the materials, the food will.

So then we're consuming that. And again, I put on this page, everything comes at a cost. All these things make your life more convenient, right?

Stopping at a fast-food place when you're on the road, on a road trip. That's fun sometimes and convenient. Comes at a cost.

Non -stick cookware. Easier to cook, easy to clean. Comes at a cost, right?

Staying dry in the rain. Comes at a cost.

It's okay if we can sometimes judge these costs and deem them worthy risk - benefit ratio, but has anybody really done that with these products, with these chemicals? At this point, we're starting to realize that we didn't do that earlier on and we're having we can make good choices, but we also do need to think about advocating for environmental choices, right?

We want to make good personal choices for ourselves, but also as we're doing healthcare, are we advocating for environmental health, for not just us and our family, but for generations moving forward and recognizing that while we can't control it, we can't influence it.

We can vote with our dollars. We can vote with our ballots. We can advocate locally, okay, for that so that we reduce the amount of exposure we're taking in future generations.

Here's what's really scary is, you know, individually now our generation can start to make changes. These P -PAS, these forever chemicals, they're having generational problems. They're staying inside of our body. They're inside of our sperm. They're inside of eggs, right?

And so then our children are actually being born already with these inside their system and then affecting each generation down. It's we're paying that sin on top of the head of each generation as they're born.

And so it's not just up to us to take care of our body and our families. We do need to start advocating for environmental health with that front as well.

Okay, I put gross, right? Environment's getting a little gross, but how does that affect us?

So I talked a little about where do we get it from? We're trying to create convenience factors and make different things work in commercial industrial complexes.

Well, now we're coming to see how does it affect us? S

So, for instance, liver damage, our liver is trying to process these things out and clear the mountain filter our system, but it's creating liver damage. So in the labs, we see elevated liver enzymes, sometimes sky high elevated liver enzymes. That's having other secondary issues, like impacting the way the body can detoxify mold or heavy metals.

It increased the chance of viruses at that front. Now it's increased the chance of pneumonia and then Alzheimer's and dementia from that because the way those affect the brain. So liver damage is one.

Cancer.

Okay, we see that cancer is stuck with cancer is really when the cells live too long. Cancer is a way to think of cancer is zombie cells. Okay. And so when we have cancer aspects, you can think of what's allowing this to mutate and live too long, okay? And a forever chemical obviously is going to preserve that system, unfortunately, in a way that's toxic so it can create cancer.

Increased risk of infections. Now, this is where we get into, I work with a lot of Lyme disease in our clinic here at Keystone. And if somebody's got chronic Lyme, the first thing I look for is, what's the toxicity that's driving down the immune system.

What's allowing this infection to hang around? And forever chemicals are one of those things that allow infections staying around.

So that could be Lyme disease. That could be chronic fatigue, Epstein bar virus. That could be localized infections. That could be COVID. That could be colds and flus. That could be skin infections. Right. So we see that these forever chemicals impair our immune system and allow these infections to either return or never quite go away.

Some birth defects, things like low birth weight, okay, that's a big factor that can affect us, similar to the way that smoking causes low birth weight. That toxicity suppresses that pathway and allowing the fetus and baby to grow. Okay, developmental delays in children. This could be things like toxic relation to things like behavioral developments like ADHD. This could be milestones like walking, speaking, autism, appropriate, like emotional maturity. So all these development of delays because the way it affects the endocrine pathway, which is our hormonal system, the way it affects our brain, right? So all of these things are impacted by these forever chemicals.

Accelerated puberty. We see that females begin puberty before males do, right? So girls start to enter puberty more like 11.

Well, now we're seeing it more like seven and eight years old. They're starting to get the signs of puberty happens. And so we're getting gynecomastia. It's a little politically incorrect, but it's the phrase is man boobs, okay?

You'll see young boys who aren't even overweight starting to develop breast tissue because this accelerated puberty and excess estrogen that's impacting by things like plastics and forever chemicals that are prompting that too soon.

And so their body can't keep up with that development. And then they're starting to get this excess breast tissue development in young men. You can see it. You know, I take my kids to the water park during the summers and you see it in young men eight, nine, 10 years old who aren't overweight and they're developing breast tissue. It's sad to see because when you actually know what's causing it, you know that that poor kid is so toxic.

Hypothyroidism. It can lead to low thyroid function. It can also lead to Hashimoto's thyroiditis, which is an autoimmune thyroid condition. Part of that is the forever chemical itself replacing things like minerals and enzymes. can replace the iodine molecule on the hormone, rendering it useless, and then there's basically a forever chemical attached to this hormone, making it not useful. And then that causes inflammation to thyroid, causes inflammation in your cells, but you sell that cascade downstream.

Increased total cholesterol. This is what I see with somebody's like, hey, I diet, you know, I eat a great diet, whole foods diet, I exercise, we'll review their diet. I'm like, you get a great diet, but their cholesterol is still high. If somebody has high total cholesterol and relatively at least. But we know when that one's high, it tends to create more plaquing, more heart disease. And so this one actually, PFAS actually increases the amount of LDL cholesterol, which increases the amount of PFS and LDL that actually gets into the cells and arteries creating inflammation.

Infertility, here's what's scary, y'all. They're finding PFS chemicals and microplastics inside of ovaries, inside of the uterus, inside of male testicles, even inside of the penile tissue itself. They're finding these chemicals in there, and they're not moving very well. They're not leaving, creating infertility, right?

They're creating deformed eggs, decreased sperm counts, low sperm motility, meaning it doesn't work as well. The eggs have malformations in them where they don't implant as well, or it's more difficult for them to be penetrated by the sperm, right? So you're creating mass and infertility, and infertility is a real problem across the board that's happening consistently, right? This is a major problem.

Fertility rates are going down each year, and couples are having harder and harder times having children. Hormone disruption. Pfas are massive chemical chemicals are massive hormone disruptors.

So they can mess up any hormone you can think of. of the biggies, you know, testosterone, estrogen, progesterone, for sure, but we just talked about thyroid hormones. They can mess with insulin as a hormone for blood sugar regulation.

They can mess for the hormones that affect our brain. Things like MSH, they can impact the way your skin tans because of the way they disrupt your hormones. These are massive hormone disruptors.

And again, it's happening worse than children. You think you're doing something great by homemade dinners in your non -stick cookware and then your kid is suddenly having hormone issues or anger problems at eight years old or all massive acne why hormone disruption from that non -state cookware from these forever chemicals okay erectile dysfunction in men so I talked about these microplastics and forever chemicals in the penile tissue that's creating difficulties with erectile dysfunction, Okay, that then also leads to infertility, marriage difficulties, depression, right? All these issues that it downstream affects.

Pre- eclampsia in pregnant women. This is a big issue because it can affect the baby and the health potentially lead to death that it's not accounted for, okay? Now, oh, it runs in families, genetics, maybe, but it's happening more and more often. Why? Because we're doing more and more things with forever chemicals, with toxins in our environment that we're putting out there.

And they can directly relate preeclampsia to these forever chemical, to this P -FAS. Inflammatory bowel disease. So one of the inflammatory bowel diseases is ulcerative colitis. That's an autoimmune disease where we get little ulcers in our colon. Again, that's another autoimmune setup that PFAS because it replaces the



tissues, right? So it replaces the minerals or vitamins on an enzyme inside the organ on that colon and then the body tries to attack that PFAS, that chemical to clear it, creating an autoimmune setup where it starts attacking the colon. So when we have problems with autoimmunity, it's not really a, it's not really like the body's making a mistake.

It's that these tissues are getting mimicked or stuck. It's collateral damage from the body trying to clear this toxin or infection from the tissue, right? These toxins, these forever chemicals are in the tissue. The body's trying to clear them. It's over-ramped up and ends up having to attack some of the cluelan tissue to do that. So it can create ulcerative colitis.

It can create Crohn's disease, irritable bowel syndrome. It can create kidney damage. As the kidneys are trying to filter it out, it can damage the kidneys, called nephrons, right?

So it damages kidney tissue as it's trying to filter out and then it gets damaged. And now we're having kidney problems. So that can lead then to frequent urination, kidney infections, a higher propensity of kidney stones.

You need your kidneys in order to filter everything. So if you've got, for instance, edema, which is swelling in your ankles, that's usually a kidney problem. High blood pressure, a lot of times is a kidney problem.

You can take high blood your meds and water pills all you want. But if your kidneys aren't filtering well, you're going to continue to have problems. And that's what also goes with preeclampsia as well. So we want to look at these things like forever chemicals that might be damaging the kidneys.

And then what can we do about it? Okay. So gross, but how does it affect us? That's a long list. But unfortunately, that's the reality we're in. And if we're not thinking about these consequences and we just keep shrugging along and not want to take the extra five or ten minutes to wash the pot because we're using a non-stick cookware, we've got to say, hey, are these worth it? Right?

That's a question we have to ask ourselves. All these worth it. And here's what I really want to get around because, you know, growing up, I'm a pretty goal-driven

guy. I'm a pretty, you know, discipline guy. So, you know, when somebody's like, hey, I've got diabetes and I'm really, I'm exercising, I'm eating a pretty good diet. maybe it's not perfect, but it's pretty good. That person should not be ending up with diabetes, right? All things considered, that person should not be ending up with diabetes.

Do we have too much sugar? Sure. Do we have too many seed oils? Yes. But there's other aspects that are preventing our body from adapting. That's toxins like PFS, like forever chemicals that are preventing our normal adaptive qualities from actually being able to allow the body to heal and deal with these small fluctuations, right? A little bit of extra sugar is a small fluctuation compared to this forever chemical that our body's like, what do I do with this? Okay, that's damaging the kidneys, that's damaging the hormone system like the pancreas and we can't get enough insulin to go. Okay, we need to look at that.

If somebody's dealing with obesity, one of the things you need to look at is toxicity and their thyroid keep up, can their pituitary keep up, or is there a toxin that's driving that? you know, driving that. As I got older and understood more of how the body works in incredible ways and what we're doing to our environment externally, it's affecting us. I have a lot more grace for people who are struggling with those sorts of things because it's not always a discipline issue, right? Is that a factor? Sure.

But the reality is, they sometimes have a lot stacked against them and they don't know what to do. The doctor says, eat better, exercise more, they're like I'm trying, but nothing changes, so then they lose motivation, right? And so when we can look at it differently and say,

hey, what's skewing the system that's not allowing their body to adapt? Can we deal with that? Then suddenly it's easier to lose weight. It's easier to detoxify. It's easier to deal with the heart disease or high blood pressure now that we're actually dealing with a thing that's not allowing the body to adapt.

That's a key in biological medicine is can we look at the biology, see what it needs, help it take away what it doesn't need, or what's impairing it, and allow it to do what it's designed to do, right? That's the beauty of biological medicine. It's a different way to think. Okay. So you think you might have some PFAs. You think you might

have some forever chemicals hanging around and you want to break up with them, but you don't know for sure.

What can we do? How can we test to see, do we have these forever chemicals in our system? If you're alive, you have some. That's just a reality of situation.

If you're alive, we have some. We find them in remote places, like way deep in Alaskan areas where there's hardly any modern people and the Inuits up there, the native Eskimos, they have microplastics and forever chemicals and these PFS in their breast milk. They're use a nonstick cookware. They're not getting McDonald's, but it's in there. Why is that?

Because it's in the environment. If you're alive, you're getting some. But how do you know if it's a big problem?

Urine testing is a great way. We talked about the kidneys. The kidneys have to help detoxify this. So we can check your urine to see, do we have high amounts of forever chemicals.

We can do blood testing. A lot of the research uses blood testing, finding the PFS. So a lot of different labs, big national name labs do the blood testing.

You can have that RAM. Will your primary care physician know how to order that or what to look for? Probably not, but that's okay. We know it's out there and you can find a great biomed practitioner help you.

Frequency medicine. This might be like a really great biofeedback device that can do it. That's measuring, is PFAS negatively affecting your body? That's a great way. It's one of the things we use in the office along with thermography and blood and functional testing.

Environmental testing. I have patients test their water a lot, their house water, their sink water, shower water. If they've got a well, test the well, right? Test your soil samples locally.

See if it's in the environment around you, how much exposure are you taking. That way you know how to address it better. Look, if it's in your well water, you need more

than just a little bit of filtration at that point, right? You know you're going to need a bigger filter.

And so the more information we have, the better we can address these issues. Those are really easy ways, research -backed ways to see our forever chemicals is a problem you need to deal with. But the reality is at least some of the steps going to give you, everybody needs to do a little bit because everybody has at least a little bit of PFAS. Okay, I put this on here.

The first step is to reduce exposure. We have to try to stop some of it coming in, okay? Find ways to limit the amount of PFAS you are ingesting or coming in contact with in a day -to -day life.

So what's that look like? You know, filtering your home water. We want to make sure you're filtering the water you're drinking or even using in the showers. If you can't get a whole house filter on your system, that's okay. Get a point of use in the kitchen, like an RO or a carbon filter in the kitchen. And then you can use in the showers and the bathtubs, you can get showerheads that have charcoal filters on them.

Is it perfect? No, but you're going to limit and reduce exposure. That's the key. Because we can't control all of it, but we can control something, right? So you want to reduce exposure. So let's look at some more ways to do that.

Okay, big list here. And you guys can look on the Mary Institute blogs. I wrote a blog up there a couple of weeks ago that has some of this listed out. So you can go to Ameri Institute website and check out the blog.

So you want to switch to all natural and limited ingredient cleaning products. You don't need a lot to clean your home, okay? Some basic castile soap, a little vinegar, a little bit of boric acid.

You don't need a lot, and that's going to limit the amount of other junk that's in there. Okay. You want to use natural fibers whenever possible in clothing and furniture, okay? If you get all the extra water resistant, wrinkle resistant, stain-proof couches, iron -free stuff, all that's got to have extra chemicals in it to make it like that. Cotton, linen, all that sort of stuff, that's going to have fewer chemicals.

If your clothes are extra stretchy, if they get extra stuff going on, those are usually forever chemicals. That's not natural. We don't naturally have all these form fitting really stretching materials happening.

So you want to limit that. One of the big brands that make a lot of the leggings, they're associated with lemons. They have been found to have forever chemicals in their fabric and microplastics.

And then a lot of folks will wear those without underwear. So then it's right next to their genitalia. And so they're finding actually higher levels in those regions because that materials are then rubbing onto the skin and then we're absorbing it.

We sweat. We go to yoga. We go to work out in. And now we're sucking all that in. So that's something to be cognizant of that when, you know, choosing your clothing brand and then how close is it to your more sensitive parts?

Those are mucus membranes down there on men and women, and those mucous membranes are more sensitive to materials and absorption. You can use PFAS -free for free parchment paper to cook on, okay? So if you need to wrap things in paper, you can get basically plain brown paper to wrap food up in. Instead of using tinfoil or wax paper, we'll use that to cook on. Just don't let it hang over the edge in the oven because then it'll burn up a little bit. But if it's just in the bottom of the glass pan, then that's no problem. So make sure you're looking for forever chemical -free, parchment paper, and cooking products. Use cookware that is glass, stainless steel, or ceramic that is known to be forever chemical -free. You can get heavy metal and P -FAS tested and microplastic tested cookware.

Typically, it's going to be glass, stainless steel, or ceramic in order to do that, okay? so but those are those options are available personal hygiene products to be limited ingredients.

Soap, you don't need 30 different fragrances and chemicals in your soap. Just a little bit of some natural stuff. And I'll be, I'll be really honest. You don't need to use a ton of soap and shampoo. Okay, a little bit of natural baking soda goes a long way on the scalp. Really just a good scrub with some clean water and a washcloth goes a long way. I usually maybe soap up once a week. And I'll tell you, I'm working out four

or five times a week. We've got property I'm working on. I sauna. I don't stink. My skin doesn't get rashes. I don't break out, right? You don't need a ton of it.

You need a lot less than you think. Avoid stain -resistant coatings on carpets, upholstery, and other fabrics, right? Things stain. That's a reality of fabric and situations.

Typically, anything that's stain -resistant is going to be treated with the Forever Chemical. That's just how they're going to work. Avoid containers when eating out or using PFAS or Forever Chemical Free options.

Most restaurants are not going to have them. If you want to take them back home, standard doggy bag, Pyrax dish, glass dish, those are going to be your go -toes, bring it with you if you know you're going to take some food home there, but know that those are big problems.

Utilize glass storage containers, again, you don't want to be putting things in plastic containers, Tupperware, all that sort of stuff. It's so funny growing up in the Tupperware age.

I use that as a broad spectrum, but I recognize it's a brand. And so avoid using those. They do tend to leach. Please, please, please never microwave them.

Don't microwave in your to -go boxes. Don't microwave in plastic. All that stuff has microplastics and forever chemicals in there. We already mentioned this, and I'll say it again, filter all your water. Okay, filter that water as best you can, get it as clean as you can because that's such a big source on there. Reducing exposure. That's a big laundry list.

Again, you can check it out the Marion Institute's blog. Got the list on there. Once you start to do this, so it's not so bad. That feels like a lot to do, but the reality is it just becomes part to life. It just becomes the next thing you're doing. So just add those in as you can, you know, slowly switch over, do it one step at a time.

Almost every major grocery store has great options now. A lot of the ones out here, even a little small town, has really good options. Okay. So just move over as best you can one step at a time.

Okay, we're going to reduce exposure.

Part two, we're going to apply Biological Medicine principles to get this stuff out of your body. We got to get it out. So first, and this is really where biological medicine signed is drainage.

Are we allowing the systems to drain? Okay. So drainage is how we get toxins out of the body. It's through things like sweating through our liver, a big filter, right? Our kidney where we urinate it out, our bowels, where we bowel movement and out. We defecate it out, right? So all those factors are really a big drainage pathways.

So we want to support our lymphatics.

How do you do that? Rebounding, walking, sweating are all great ways. Is there herbal ways to do that? Sure. But let's start with these easier ways. Dry skin brushing. Okay. Lymphatic massage.

These are all great ways to help the drainage pathways. We want to get in a sauna and sweat it out. That supports the kidneys and skin. Make sure your bowels are moving really for every meal you have each day, you should have at least one bowel movement. If you're eating three salad meals a day, you should be having three bowel movements a day. If you're going less than once a day, you're constipated and it's a problem.

Your body will reabsorb 92 % of the bile from the gallbladder, maybe up to 97 % some research shows. What's that mean? Well, your liver dumps all its toxins in the bile, which then goes in your bowels. If you reabsorbed 92 to 97 % of it and you're not getting it out on a daily basis, you're reabsorbing 92 to 97 % of those toxins. That's something to think about.

So we want to make sure having a daily bowel movement, staying hydrated so you can sweat and urinate appropriately. Really easy way to open up drainage.

Okay. And then from there, there's different, some herbal options. The easiest one in American herbalism, they say if you don't know what to do, you have a client bitters. Bitters are really, really good for drainage. They help to move the bowels.

They help to stimulate the liver, gallbladder, lungs. Because one way we drain out is through breathing, so deep breathing, but bitters also stimulate our lungs. Okay. So bitters are a great way to do that. A little bonus fact for you.

Bitters stimulate the ovaries, uterus, and testes. Okay. So if we're trying to detoxify those is because somebody has forever chemicals, they have infertility. Bitters are a great way to do that.

All right. So we're going to get drainage up and moving. These are tons of other ways to do it. There are, but those are really good start. Okay. Second is detoxification. So drainage, we're getting it out. Detoxification is really about transforming it. It's really about neutralizing it. So on that front, we have phase one, phase two, and phase three of detoxification.

Phase three is drainage. We have phase one and phase two. That's about transforming it, neutralizing it to get it out. So this could be things like, and again, do these in the right steps because you don't want to make things worse, okay? These can be things like antioxidants, vitamin C, zinc, selenium, glutathione, okay, B vitamins are really important here. Direct liver support like milk thistle, kidney support, like dandelion, okay, ginger. All these things are ways to directly support detoxification.

Now, the other thing you can do here, Not just supplements. Eating a really good diet. Really, really important. Full of fruits and veggies. Especially those cruciferous ones if you tolerate it. Broccoli, cauliflower, Brussels sprouts, asparagus, parsley.

All these things are really great ways to support the body's natural detoxification methods. The really, really big one. That's phase two, detoxification. Phase three is replace. Okay.

So what we see is that these forever chemicals, we talked about, they fit in there and they block the receptors, they block the enzymes, they replace vitamins and minerals. So we may need to start replacing some of these vitamins and minerals to get the forever chemicals to move out.



So for instance, the fluorine molecule will sometimes replace an iodine molecule. Well, by taking extra iodine, you can, number one, help to heal that tissue, but number two, you help to move that forever chemical off the spot and then your detox and drainage can carry it out, right?

So you want to maybe replace things like iodine. Research shows taking folate helps to move the forever chemicals out, helps to protect our bodies from the effect of forever chemicals, and of course helps with fertility and appropriate fetus and baby development while you're pregnant.

So we see that forever chemicals that negatively affect birth, development, fertility, folate helps all those things, right? Vitamin D. So forever chemicals will block vitamin D receptors, dysregulate it. That affects hormones. That affects immunity. Taking extra vitamin D can help repair that and detoxify the forever chemicals.

So we can start to see where this is happening. This also happens with the mineral copper. Copper gets displaced by this, then we need to help start supporting that. So we want to replace the vitamins and minerals that are getting lost because, one, it helps repair the tissues and the function that PFS created. And then number two, it helps us actually move those out for the detox and drainage can drain it out. Fourth is repair.

There was damage done by the PFAS chemicals. We need to help the repair that. So if there was autoimmunity, we need to help the body repair those autoimmune profiles. That might mean an autoimmune based diet.

It might mean replacing the vitamins and minerals. It might mean taking herbs, glandulars, doing support therapies, homeopathy helps repair those tissues. Right. So I might give somebody both a glandular of the thyroid and I might give them a homeopathic thyroid support like thyroidia, or we might give them something like a homeopathic iodine to help repair that thyroid tissue or maybe even homeopathic and high dilutions fluoride to help that out.

So we will repair those tissues. We might do laser therapy. We might do frequency medicine to do that acupuncture, energy medicine to help repair those tissues that were done.

That might mean after we started detox and brain, we might need to do a specific hormone protocol to help with fertility, okay, to help people when they're dealing with that or help balance out the hormones afterwards.

So it just depends on what happened or what they caused, but then we can do a repair process. So first, drainage, open the gate so we can get this stuff out. Two, neutralize it with detoxification.

Three, replace the vitamins and minerals, the nutrients that were lost to help repair and to help detox. And then four, help repair the organs, body systems, pathways, and processes that were damaged in the mix. Okay, that's what we're going to do with that. All right, you guys, so that's how we're going to handle it. You know what it's causing. You know how to deal with it.

We're going to reduce the exposure. You're going to advocate for a cleaner environment. And then we just talked about how to use biological medicine to get it out of our bodies. How are you going to break up with it? you're going to kick it out. You're going to go no contact asking not to come back in. You're going to kick it out so it can't come home and you're going to repair the body so you don't get that trouble again.

Questions?

I want to pause the screen share.

Awesome. Again, thank you so much, Dr. Hart. That was wonderful. So here we are into our Q &A portion.

What I'm going to do first is go to the questions that were previously submitted. And then we'll go back into the chat because I saw a bunch come in. Awesome. So the first one from someone who wrote in says, I have been formally diagnosed with a multiple chemical sensitivity. And I'm working really hard on improving my health to avoid toxins. And much better than I was.

However, exposure to fragrance and chemicals still affects my brain.

So the nervous system gets stuck on fight or flight. It gets very sensitive. It's very effective at learning what causes problems so that it takes less and less of that thing to cause an immediate reaction. Symptoms are always the body trying.

This is really important for anything. And it's a really important principle to learn both for practitioners and for folks dealing with issues. Symptoms are your body trying to deal with it. They're not a bad thing per se.

They're what your body's trying to do to get rid of it. So if somebody is now having, like, for instance, faster reactions to fragrances, then we might need to tell the immune system and the nervous system say, hey, this person's cologne is not doing us massive damage. But that nervous system learns, right, cologne, fragrance, neurological symptoms. And so it just goes from zero to 60 in a heartbeat because I know what to do with this.

I got this. I'm effective. I'm efficient, and it goes right to big symptoms because it's trying to do it efficiently. We need to say, hey, we're okay. We're going to tone this down. So limbic system retraining is really big on that. And sometimes I do low - dose immunotherapy with those folks as well to help desensitize them. They don't have as big of an inflammatory response.

Okay, great. Thank you so much. And I will just say now, if there are any questions that we don't get a chance to address in this first hour, then I will submit them to you via email.

Okay, another one is, what books or resources do you recommend for learning about PFS and detoxification? So just to self -educate there. Yeah, it's, you know, the books on PFS are coming slow, but they're out there. But more so on detoxification, there's a lot of great biological medicine texts that I really like in general on detoxification.

I love the book Toxic by Neil Nathan. I do love the American Biological Medicine textbook is a really, really great resource there. So those are probably some good options.

Toxic biological medicine textbooks on there, which I think you guys maybe have some on the site, if I recall. So that would be my big resources. Yeah, I'll put that in the notes as well.

Oh, that's a good point, Liz. Yeah, thank you. Oh, the other one that goes across that is called detoxify or die. If you're known to be a little anxious, don't read it. But if you're trying to get a good understanding of just how toxic our world is and some things to do about it, detoxifier dies another one. That's a good one. Failing convenes is a really good one too. Okay. All right. I'll get a couple of those going in here. Okay, let me go out to the ones that we have in the chat.

O

h, wait, there was one about water. You mentioned water filtration being whole house filters or reverse osmosis at an entry point. I have seen them go, I mean, they can be \$25 or they could be \$2,500. They can be, you know, they run the expense gamut. So I'm guessing your answer would be something like, go with what fits in your budget, do what you can. And then maybe if you can scale up, scale up. What do you think about that?

Yeah, that's, that's pretty much it is do the best you can. You know, a whole house filter, I recommend something really basic. Don't spend a ton of money on a whole house filter, like a carbon-based filter, lower the things, and then point of use, right? Charcoal filters in the shower, maybe an RO. So, like, you can get be an economical water distiller for the countertop or drinking and cooking water. That's typically what I have is people do something like that.

I don't usually recommend people go spend \$10,000 or \$20,000 on a home filter.

Okay. All right. Next question. Going back through the chat, everybody, can charcoal help detox P-FAS or what else can help detox P-FAS charcoal?

Yes. So thank you because I missed. I didn't put that in my PowerPoint, but that's a nice part. helps to absorb bile.

So we don't reabsorb it. We just move it out in the bowel movement. So binders are a really good key step. Most of my patients do end up on a binder when they're dealing with this.

Okay. And castor oil packs placed on the liver. Is that a good way as well?

Yeah, castor oil on the liver, on the kidneys, over the bowels. If you're constipated, even if you get a good organic version, you can drink a little bit to move the bowels.

Yeah. Okay, great. Do you have any tips on getting adult children to take things like this seriously?

Okay.

So here's, I actually spend a lot of time training doctors on this next concept because, you know, we learn something and we want to go share all that factual information with somebody and just think if they have the facts, they're going to change their mind. And it's not about facts. It's about value. Use and mostly the analytical types are going to be ones who value pure facts.

Somebody else might value how they feel and that's perfectly appropriate. They run on emotions. Somebody else might value connections, family, children. And you have to connect with those values. So if you have an adult child who has and you have grandchildren with them, what you might say is not all these understandings, but you might say, you know, what I just read about was how this affects our kids and their fertility and it just keeps being passed on a generation. I'm really scared about the kids.

If you make it all about the chemicals, answer.

All right.

Moving on to your next question. Just diagnosed with Candida, taking supplements and a specific diet. Is xylitol a safe sugar to use sparingly?

And does diatomaceous earth kill candida?

Xylitol is typically safe in small amounts. And then diatomaceous earth does, you have to make sure you have food grade because that holds its own stuff. And diatomaceous Earth is a decent toxin binder. But Diatomaceous Earth is a silica-based concept made from broken down, kind of like crustaceans almost.

And so it creates little shards. And so then if it's in the digestive tract only, Diatomaceous Earth will kill parasites and candida by shredding it. It cuts it up, roughs it all up.

That can be good or dangerous. And here's the key, guys, with yeast, yeast is usually overgrown for a reason. So if you have candida, you don't just want to go killing it willy-nilly. You want to know why you have it. It's usually secondary. Do you not have enough good bacteria? Were you on too many antibiotics? Are your hormones out of balance? Do you have so many toxins?

If you're loaded with forever chemicals and heavy metals, your body will overgrow yeast to protect you. If you just go trying to kill it, you might cause huge detox reactions if you never get to the root. So if you're dealing with yeast, that's fine. Address it. Do the antifungal diet for sure. You don't want to feed it.

And guys, by the way, antifungals are useless if you're eating sugar. It inhibits the antifungals and it makes the yeast stronger.

But you want to deal with the underlying toxin or cause. If you have PFAS, if you have heavy metals or whatever it is, deal with that first before you really start trying to kill all this yeast and fungus.

Okay, great. Thank you. Okay, so the trend of re-ingesting or rather ingesting once placenta after birth, is that a healthy trend or does that contain too many PFS? So in general, I love the idea. My key go-to on that is how much detox have you done before you got pregnant? Were you eating whole natural foods as clean as you could during pregnancy? If you were doing a standard American diet, you know, kind of toxic lifestyle, no detoxication beforehand, I probably wouldn't ingest it. It's probably going to be loaded with toxins. But if you were generally pretty crunchy going into pregnancy, you're a detoxing, you know, low toxin. And I say crunchy as an endearing term, but as a catch-off for kind of us natural folk, but, you know, there you're probably okay. But if you weren't, I would avoid it.

Got it. Awesome. Thank you. All right. Keep going now. It's great. What is the healthy PFAS level, is there? I know there might be some healthy threshold, Right. I mean, I know the EPA has come out with this healthy level or quote unquote safe level. Do you know what that safe level is? And is there a way for us to like sort of say, oh yeah, that's a, I'm at my safe level.

Yeah. I mean, in lab testing, you know, what we do with lab testing is we try to take, especially functional lab testing, we take as many values we can get and then see

who's symptomatic and kind of create an average, right and so there's the research isn't great on that yet of what creates health versus dis-health I would just say you know we're all going to have a little and so if you know if we're running probably less than 5 % of the population the same amount of in your urine or blood you're probably okay we're all going to have some we should have zero but we can't get to zero perfectly and so but if you're starting to get above that kind of five percent more than 5 % the population mark, then you're too much.

But as far as a part per million, you know, in general, my kind of, my joking go -to rule is whatever the EPA says, I would say go half. Yeah. Yeah, I figured that too. Okay, great. Let me see. I think there's one more that has to do with colloidal silver.

Any application there that you might feel would be a go to and in what sort of compound and dose? Yeah, do like colloidal silver, really, really great for the immune system, right? So it's great for infections, viruses, bacteria. We do use it a lot for our mold and fungus patients. You can ingest it. You can use it inter-nasally. I would say if you're going to ingest it, you want it to be a lower part per million. And so we usually do less than 30 parts per million as a nano silver hydrosol, it won't turn you in blue that way. You know, silver, you can get a condition where you accumulate too much of that colloidal silver and you turn blue or gray. And so that's because you've overdone it.

Nanoparticle doesn't usually accumulate like that with those lower parts per million. It's got a better profile for killing things like viruses, bacteria, and fungus. So we'll use it intranasally. We'll nebulize it with patients, will take it orally for that sort of stuff. You can use straight colloidal silver. You make it home if you've got a good way to do it. I would say be careful ingesting that.

That is a higher part per million bigger silver molecule that will. It's still antimicrobial, but it will tend to turn you blue. So just be careful ingesting it. But it's great to clean with. You can do laundry with it. You can clean the environment with it. Most of time, I'd say 90 % time, what I'm using it for in the office is chronic fungal and bacterial infections in the sinuses. Will custom compound it with essential oils or iodine or sometimes EDTA to support that for the patient and helping the body clear those infections.

Okay, so I don't know if anybody else sees this, but do you know that your tongue is actually blue?

I do. I actually, I put methylene blue into my coffee. Oh. And so methylene blue is a really great mitochondrial stimulant. It helps the body to better utilize oxygen, very good brain booster. So it's great for energy potent antidepressant.

So it's a really potent antidepressant. And then it's great for things like viruses. It's antifungal as well, and it's an anti-parasitic. So it's been known to kill one of the first anti-malarial agents and anti-babesial.

If you're a Lyme case, it's great for babesia and malaria. And so I take it for energy and cognitive function, put a little bit in coffee. If you, you can take it straight, but it'll burn. You go shoot it down with water in the morning on empty stomach or put in your coffee or tea and it'll bypass your teeth. Your tongue will be blue. Pediatric patients love it. I'm going to go away by the end of the day.

That is fantastic. Thank you. All right. Methylene blue, everybody.  
Methylene blue. Yeah.

I have a question here. Last one, I think that we have time for. How's to do with, you mentioned very briefly EBV or Epstein-Barr virus. So if an Epstein-Barr virus, if that's presenting and maybe you're looking at that through the P-FAS lens. What is your go-to protocol? Yeah, so Epstein-Barr virus and really any virus for the most part that's chronic is a cellular stress response.

It's the cell saying, hey, I'm stressed. Something else is going on. So if we monitor Epstein bar and people, it'll go up and down, up and down, up and down. So I don't spend a lot of time directly chasing Epstein bar with antivirals and things like that.

So I've seen it if somebody's neck goes out, their Epstein-Barr virus titers, if they're exposed to mold, they've got a P-FAS exposure, a lot of P-FAS going on their Epstein-Barr, and I'll chase Epstein-Barr forever if I try to actually do antiviral protocols. Instead, I'll try to identify what's the trigger, and then we'll deal with that. So if it's P-FAS, which P-FAS can trigger Epstein-Barr virus because of the toxic overload presenting a cellular stress pattern,



then first we'll deal with the detoxification pathways. I would say 85 to 90 % of the time that will take care of the Epstein -Barr virus. If PFAS is what's triggering it, the forever chemicals or mold toxins or whatever, what's triggering it, if we get those loads down, their immune system will come back on board and their body can deal with it in the cellular stress pattern will go down.

The Epstein -Barr virus or start testing negative, et cetera. If they still test positive or the frequency testing is still showing EBV at that point, then when we kind of get to the repair phase, or even the replace phase, we're replacing nutrients or we need to repair the tissues, then we might do a little bit more of a viral, like an immune supportive protocol to help clear the body of the virus. High dose vitamin C is a great one, right?

We could do monolaurin or lauric acid, coconut oil, all really great options. We do a lot of, so obviously biological medicine used a lot of homeopathy and herbalism.

So I'll do a lot of custom compounding of different herbals that are antiviral, Andrographis, skull cap, elderberry, all great options. Sweet Annie or Artemisia, right? Those are all really great antiviral options, ginger, licorice, all really good herbal options that we may need to put together for a patient dealing with EBV. Okay, that's fantastic. All right, everyone.

We are now out of time. So I just want to say thank you very much to Dr. Hart for being here today and being on a sixth BioBite in our 53rd and final episode. We will be back with more in -depth programming, I guess, for lack of a better term, in the coming months. So please feel free to stay tuned and keep in touch with us. And anything, final words from you, Dr. Hart?

That's what I say. I really feel blessed and humbled that you guys asked me to do this last episode. I love working with y'all. And everybody attending, thank you so much. Great.

Thank you, Dr. Hart. That was awesome. Really informative and fantastic. Thank you. Good to see you, Liz. You too.

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