THE SPECTRUM OF HEALTH
PODCAST

Podcast Session #28

Phase 2.5 Detox

with Dr. Kelly Halderman

Dr. Schaffner speaks with Dr. Kelly Halderman about Phase 2.5 Detoxification, which involves properly restoring biophysiology. She explains what it means and how you can get started.

To learn more about Dr. Halderman, please visit
www.drkellyhalderman.com

00:06 Dr. Christine Schaffner: Thank you for listening to the Spectrum of Health Podcast. I'm Dr. Christine Schaffner, and today I'm speaking with Dr. Kelly Halderman. I had a lot of fun with this conversation, I learned a lot, I took a lot of notes, and I think Dr. Kelly gives us a lot of great tips for how to improve our Phase 2.5 Detoxification. I hope this information is impactful to you.

00:29 DS: Dr. Kelly Halderman completed a Family Practice Medicine internship with the University of Minnesota, and has a Naturopathic Medical degree from Kingdom College of Natural Health, where she's the current Academic Dean of Students. She holds certification in Methyl-Genetic Nutrition from the Nutrigenetic Research Institute, and certification from the American Functional Neurology Institute in Functional Neurology and Neurofeedback. She coined "Phase 2.5 Detoxification," which involves properly restoring bile physiology, our body's built-in toxin transport system. She's currently working on completing her PhD in Clinical Nutrition, and has certification in Plant-Based Nutrition from Cornell University. Her interests include proper detoxification, and chronic Lyme, which she's personally experienced and beat. Dr. Halderman also does consultations for those interested in optimizing their health. Welcome, Dr. Halderman, I am so excited to have you on the podcast today.

01:28 Dr. Kelly Halderman: Hi, Christine, thanks for having me.

01:30 DS: Well, I am so excited to have our conversation. I first learned about your work through our mutual friend, Scott Forsgren. I also follow Dr.

Neil Nathan's work, and I know he refers to your work in his new book, Toxic. I know a lot of people are learning more about this Phase 2.5 Detoxification that you're really bringing to light in our community. Before we dive into a lot of this information, I know that you have a really touching personal story about what led you to this journey of treating Lyme, chronic illness and cancer, and if you don't mind sharing that, I know our audience would love to hear about your story and your path.

02:17 DH: When I was practicing medicine around 2010, I myself got really sick. I started to have really strange neurological symptoms out of the blue, these just debilitating migraines. And of course, my colleagues said, "Oh, Kelly, it's just stress. Just keep on keeping on." I knew it wasn't just stress. I knew that there was something physiologically going on, and I was eventually diagnosed with MS. At that point I was told to go home, spend time with my children, and take some medications that were covering up the symptoms that I was having--I was not okay with that. As doctors, we do amazing, heroic things for patients, and when it came to this diagnosis, I needed to venture out on my own. I knew I wasn't going to discover the root cause by taking medications.

03:18 DH: So I went and studied naturopathic medicine, and I learned about things such as nutrition, which I hadn't spent a whole lot of time learning in medical school. This helped me really honor my body's biochemistry, because I believe that our bodies are designed to heal. I was eventually diagnosed with Lyme disease also, through a brilliant

Lyme-literate medical doctor, and that really started me on my healing journey. When we know the root cause, we can really start to address it. I clawed my way out of that hole. I did a lot of different things to help optimize my own health. I still do a lot of things to optimize my own health, and I'm sure we'll talk about those things.

03:58 DH: Going through what I went through gives me a different appreciation for the people in my care, for the people sitting in front of me suffering, and that really drives my insatiable need to learn and to continue studying. That's really where Phase 2.5 evolved from. I had people in my care who were not getting better, specifically the SIBO patients--it was like the revolving door of SIBO. I'm sure, Christine, you have a lot of patients who just hit a road block and it's frustrating, but it's also humbling, because you go back and you start to study the biochemistry. That's what I did--I started to try and figure out what was not working. I asked myself, what am I missing? It was really through my educational background in genetics studied with Bob Miller and Ben Lynch where I started to see patterns in bile physiology, where the patients who I could not get better seemed to have issues in that area.

05:04 DH: So, that got me studying--I read a paper by Christopher Shade and Carrie Decker, which introduced me to the mechanism of how we get toxins out of our body. It really rang a bell because I remember when I was sick, I was put on detoxification protocols by really brilliant well-meaning practitioners, and I would get on these protocols and I would feel horrible. I

didn't get any better, I'd get acne and more brain fog. What was going on was that my Phase 2.5 was shut down, so I couldn't get the toxins out. That's where it all started.

05:43 DS: I think you bring up a lot of topics that we'll dive into over this conversation, but one I want to highlight right away is that when people are struggling with chronic illness, there's this idea in our community that people have to get worse before they get better. We, of course, as practitioners and physicians, find that it's part of the most painful part of our work when people crash or don't do well, and we ask ourselves how we can help them get out of that? I know, at Sophia Health Institute, we don't think people have to get worse to get better, and if they are getting worse, we need to be looking at why their body is having a hard time getting rid of these biotoxins and environmental toxins. I am so glad that you're bringing this information to light. In your words, what is Phase 2.5 Detoxification?

06:41 DH: I think a good place to start is reviewing normal detoxification. We have to get rid of "toxins," and they can fall into two categories: We have our exobiotics, which are usually referred to as xenobiotics, and those can be environmental pollutants, dietary substances, and chemicals in our environment. And then we have endobiotics. Our body does need to get rid of fat soluble vitamins at times, such as thyroid hormone, bile acid, and cholesterol. We get rid of those things by first putting them through our bodies' own detoxification protocol, and that is Phase Zero. For simplicity's sake, let's just talk about the workhorse of detoxification, the liver cell.

07:25 DH: These toxins have to get into our liver cells and that's Phase Zero, so it's like opening the door into the liver. Then some toxins need to go through Phase 1 detoxification, and that is oxidation, hydrolysis, hydration. A lot of different toxins have to go through different stages, but some don't have to go through Phase 1. But again, for simplicity, your body puts them through Phase 1 and they get a little bit more reactive. The goal is then for those toxins to go through Phase 2 detoxification, which is glucuronidation, sulfation, and methylation, which is conjugating the toxin so that it is water-soluble, in hopes that the toxin will go through the membrane transporter into the bile. Once it's in the bile, the bile can have the excretory mechanism where it transports toxins into the intestine where eventually, they are excreted as waste. That is the whole goal, that's the normal flow.

08:25 DH: So what 2.5 is, is that when the toxin is conjugated and it's gone through Phase 2, it's all packaged up and pretty, and it is ready to be escorted into the bile canaliculus--you might think of it as a doorway. The toxin has to go through a membrane transporter, and that membrane transporter is called the MRP2 transporter. And so that door has to open, and then the water-soluble toxin will go into the bile. That's one part of Phase 2.5. There's three things that have to happen in tandem. So that's number one, that the toxin goes through the MRP2 into the bile, that is coupled with bile salts going through the bile salt export protein or BSEP--just think of these as doorways. The bile salts are going into, again,

the bile canaliculus. And then lastly, you have phosphatidylcholine going through the MDR into the bile canaliculus. So Phase 2.5 Detox is really not "detox," it's just the normal doors opening to get the toxin, to get the bile salts, to get the phosphatidylcholine into the bile so that it'll flow, and so that it'll naturally just go into the intestine and be excreted. So that, in a nutshell, is Phase 2.5 Detoxification.

09:43 DS: That's an excellent, simplistic description of something very complex. I know you're making it a lot simpler than it is. What are some symptoms that our patients could be experiencing if these doors are not opening in their liver cells and bile?

10:00 DH: Imagine that you have the toxins, and they're ready to be pushed into the bile, but the doors are closed. (We're going to talk about why the Phase 2.5 gets shut down as well.) So imagine if those doors are shut, where are the toxins going to go? Well, they're going to go right back into your bloodstream, and you're not going to feel very well. This is what may be occurring on a detox protocol when people take something that up-regulates Phase 1 or Phase 2 and they feel worse--they have those toxins going right back into the blood, going to the brain, and you don't feel well overall. That's one of the things that I will always ask patients, "Okay, did you have any sort of reaction?"

10:52 DH: Now, I'll also ask them all the traditional bile questions. I ask, "Do you have a history of SIBO?" When I was taught in medical school, we

were so myopic about bile. I just thought, oh, bile is good for making sure you're absorbing your fats. Well, bile does a whole lot more than just making sure that you absorb your fats. But again, you're just looking at the questions of, after you eat, do you have pain, do you have itchy palms, do you have nausea? There's a plethora of symptoms and signs that go with Phase 2.5, simply because bile has so many far-reaching effects, from our thyroid metabolism, cholesterol metabolism, to again, gut motility. So bile salts will actually up-regulate and stimulate motilin, which stimulates the migrating motor complex. I've had patients who've had constipation for years and years and years, and we get their bile flowing, we get the Phase 2.5 doors open, and things get better really fast. Again, all you're doing is honoring the body's God-given detoxification mechanisms.

12:18 DS: These are common symptoms that we see in a lot of our patients. Why do these doors, if you will, get closed, and how should we think of why this system isn't working?

12:35 DH: The number one thing that will shut down your Phase 2.5 is inflammation. Now, I don't know about you, Christine, but pretty much everybody who walks in my door has some sort of inflammation from some sort of trigger. And I look at inflammation as it's not just when you look at your CRP, at whether your C-reactive protein is high or low, it goes much farther than that. I actually just published a document on my website for anyone to use, to learn how you know if you're inflamed. We look at all kinds of different markers other than just CRP to see if someone's inflamed.

Then, the question is why? I put that into four different categories: The physical, chemical, emotional, and microbial. We go over these over and over again. It's really up to the practitioner and their style I would say, regarding how you go about managing the inflammation. A huge ongoing issue is obviously the gut. LPS, or Lipopolysaccharide endotoxin, will also shut down your Detox 2.5. So, the root cause of a lot of disease, again, is not having gut optimization, the gut function. A bad gut causes inflammation, the inflammation will cause the Phase 2.5 to shut down, and then you'll have more toxins in your blood, and then you won't feel good, and then your gut is affected... It's a very vicious circle. But those are the two that really, really will shut that down.

14:03 DH: So the number one thing I would say, is that Phase 2.5 has to come first. You don't optimize Phase 1 first, you should really optimize Phase 2.5. You should look at a full inflammation panel, and you should look and see what's going on. Where are your foundational cracks? We live in such a toxic world that with the food sources, air and water, it's really hard to manage inflammation. It's not black or white, or as simple as saying I'm inflamed, or I'm not. To really get a handle on that, I would say, in the past year, I've used a lot of hydrogen water. I really like the Echo by Synergy Science hydrogen water, because molecular hydrogen is a selective antioxidant. So with that, I like the fact that we're using something that's not just driving and pushing really hard on anything. It's selective, so that means it'll turn on when you need it, and it won't interfere with biochemistry.

15:06 DH: Again, I'm very simplistic, I'm a minimalist when it comes to supplements. I believe in removing inhibitors first. So identifying those inhibitors is important, I know you and Dr. Klinghardt do that as well. If you have your foot on the gas and your foot on the brake, the brake's gonna win--we have to look at what's inhibiting our natural pathways, our natural anti-inflammatory pathways.

15:32 DS: With the hydrogen water, do you feel that this is something that works immediately, where people get symptom relief and start to disinflame, or do you feel like you start there and then you decide what other things you have to add?

15:50 DH: I'm starting with the hydrogen water. It's been studied in 150 human diseases. It's really well studied, and it also has a really positive effect on the gut. So I'm starting there, and then I'm looking at what inhibitors I have to remove. Do they need extra support in heavy metal clearance? I'm putting people on intestinal binders. I'm supporting bile flow. And I don't mean that I'm trying to push toxins out, beccause again, I think if you try and really radically push them out with some of the heavier hitters for detox, that you'll end up again having a Phase 2.5 problem where it'll kind of backfire on you, and it'll cause more inflammation. I like things like artichoke and dandelion and bitters to really help open up the bile flow. I also love TUDCA. There was a study published October 31st of this year about bile flow impairment and MS, and they were using TUDCA, a bile

acid. Again, you don't want to overdo anything; bile acids can interfere with and actually up-regulate TGR5 which causes more conversion of T4 to T3.

17:09 DH: So, I don't have people just taking a bunch of anything; we're very methodical. I like when people track their HRV, I like when they track their deep sleep. We do one variable at a time. If there's one thing that I could say to your listeners that would be really important is, again, be simplistic, do one thing at a time and track your HRV, track things that are objective. And of course, you can you track how you're feeling, that's been really powerful in my practice as of late.

17:45 DS: With HRV, do you do that in the office or do you have home tools where people can track their HRV? (That's heart rate variability, for people who might not know that term.)

17:58 DH: We do both. We do in the office and we also have the Oura Ring, (I have no affiliation with them), that will track your HRV overnight. Also there are a lot of apps out there on your phone that can track it. That's just a really good measure, to tell if your body is responding well to what you're doing or if you are overdoing it. That's been priceless for me, and it puts the patient in the driver's seat, because a lot of the times people feel so disempowered, they don't know what to do. I always tell people, "Start very low, do one thing at a time. This is a marathon."

18:40 DH: I know everyone cringes because I was so sick that I could not get out of bed, I could not read to my kids. They were watching me die. They would take pictures of me with their little iPad because they wanted to know what I looked like for when I died. It was horrific. And when people look at me, and I've had another baby since I was diagnosed with Lyme, and I feel 110% better. What I would say is slow and steady wins the race, and it's ongoing. I myself drink hydrogen Echo Water, I myself grow broccoli sprouts and take my sulforaphane. I will say this on a tangent, sulforaphane will stabilize your MRP2, one of the doorways for your Phase 2.5, so that's another reason why it's a wonderful nutrient.

19:31 DS: We're definitely in a broccoli sprout kick at Sophia Health Institute, so I'm excited that you are as well. So many great tidbits here. Oura Rings are something that I personally wanted to experience. I know that Dr. Mercola and Dave Asprey, and others like them have been promoting the Oura Ring--these are wearable devices that we can use to get more objective information to help guide our decisions. It's sometimes good to have that bio-feedback tool, especially when you've been feeling unwell for so long. For our listeners who are aware of EMF, I believe with the Oura Ring, you can turn off the Bluetooth feature, and my understanding is that it has the lowest EMF exposure for wearable devices, which I know is a concern for a lot of our listeners. I think we should figure out a way to use this technology to support our health, which you have. I'm really interested in that idea.

20:38 DS: Dr. Halderman, obviously inflammation is going to be blocking our Phase 2.5. But are there people who show up in our offices that are going to be more susceptible than others to impaired Phase 2.5 Detoxification, and how do we possibly identify if we're one of those people?

21:05 DH: That's a great question, and that's where my genetic training came in. I would say that the people I kept seeing coming back with SIBO made me realize that there is something going on. I just happened to be doing their genetics and looking to see if there was something that they had in common. Again, I don't treat genetics, so I don't treat when someone comes in and they have the MTHFR, I don't slam them with methylfolate. For me, it's a piece of the puzzle, it's a piece of who the person is and what their foundational cracks are. With the patients I had coming in, I noticed that they had a predisposition to having genetic polymorphism, or SNPs (single nucleotide polymorphisms) in their ACAT gene, and that is responsible for production of Acetyl-CoA, a building block of bile acids.

22:06 DH: So if you are impaired in how you are going to make bile acids--the beautiful mechanism of phase one, phase two, and then all through to 2.5 and then to three--you're lacking there. That was a big clue for me. I myself have ACAT SNPs in there, and I actually had my gallbladder removed as well when I was 20. I was told "Oh, you have some cholestasis. Let's just cut it out." That didn't really work very well for me. Also in this group are a lot of people that I've identified that have problems

with the PANK gene. Now again, you don't have to know this; this is not imperative information. This is just how I went down this pathway of discovering what was going on with biophysiology. PANK is responsible for making the CoA. So, for PANK, and the CoA, you can take Pantethine--I know we take Pantethine for other reasons too. Pantethine can fill in the gaps for someone who might have problems producing the CoA.

23:10 DH: Then we have PEMTs. PEMT is the enzyme that basically creates your phosphatidylcholine. Phosphatidylcholine makes our bile nice and fluid, so it's flowing. You can imagine if you're not producing, you're not having the methylation--even if your methylation is not working, you're not producing the phosphatidylcholine to make your bile flow, and you're going to have bile stagnation and low fat soluble vitamin counts. You have, again, all those things we talked about with the gut-related issues and biophysiology, and some liver insults. So, PEMT is something that I'll look at. I also love to do things with food. I'm a big foodie, so I'm like, "Well, let's see if you can eat any of these foods that contain phosphatidylcholine." So, I test with almonds and eggs and other things. Some people can't.

24:04 DH: If you want to try phosphatidylcholine, you can. I recommend always going slow and tracking everything and seeing how you feel. Phosphatidylcholine is one of the three components of all of your cell membranes, so it's pretty darn important. And in my practice, we use BIA. We'll use the phase angle as an indirect measure of what I think would be a clue to someone actually not producing the phosphatidylcholine. If it walks

like a duck and it quacks like a duck, it's probably a duck. And using some phosphatidylcholine is pretty low risk, or consuming foods that are high in phosphatidylcholine. I like to approach it like that. Lastly, not to get too heady, but the MRP2, (and again, that's the doorway that the conjugate toxins use to get out into the bile) that is coded by the gene called ABCC2. When I found this, I was preparing the seminar that Dr. Eric Balcavage and I put on this past fall on Phase 2.5 Detoxification (we have an online class, and I'll talk about that if we have time.)

25:14 DH: When I found the ABCC2, I went, "Oh, that's like the size of your door." So, do you have a big door where you can get all the toxins out, or might you have a little tiny door, where I would say these are the people who are considered "bad detoxers." I started to go back and look at all the people who I've seen who are "bad detoxers." Sure enough, there were three RS numbers, so SNPs, published in literature that correlate with a decreased transporting function of the MRP2. So, in really simple terms, their door for getting toxins out just right off the bat may be smaller. Again, with those people, I would suggest things that help stabilize, like sulforaphane and molecular hydrogen water, which is a nice safety net just to have because it's a selective antioxidant. I also will use TUDCA, again, because that will stabilize that transporter, and a little bit of vitamin D can be helpful as well. Also, caloric restriction of 35% is published as stabilizing the MRP2.

26:31 DH: So, I'm a huge fan of intermittent fasting. I think that by doing that you naturally decrease your caloric intake if you're narrowing your eating window. That has seemed to also help my "bad detoxers" or people who just can't turn the corner--they start to lift, they start to get that edge back like, "Oh, I feel better. My heart rate variability is getting better. Okay, I'm sleeping. My deep sleep is better."

26:56 DS: Well, let's just start with intermittent fasting. How long do you recommend that people fast for? What's the window that you've seen be most effective? And how many days per week?

27:05 DH: The practice of intermittent fasting is different for people based on their heart rate variability. I try to have people start by trying to get breakfast a little bit later in the day. Some would argue that it's easier and better for circadian rhythms because we have a greater insulin response in the morning. I just look at the person and say, "What's gonna stress you out the least? Is it not eating dinner or moving dinner to 4:00 PM?" Then you just really train and tighten it up and keep going until you can see when the body starts to get stressed, and then you go, "Oh, guess what? You cannot fast for 14 hours. I need you to go to 13." And it's really neat because of the person who's tracking is like, "Oh, okay." It's very much empowering for them.

27:57 DS: With intermittent fasting, there's so much great research now around autophagy and mTOR and all that, and a lot of our patients are

embracing that. Some are really weak, at first, of course, they have to build up to it, but it's interesting that this also helps with Phase 2.5. You mentioned how you assess people with BIA and phase angle. Can you just give a couple sentences about what that actually is, in case people are curious?

28:33 DH: Sure. A phase angle is basically an indirect measure of the integrity of your cell membranes. So, indirectly, if you're looking at phosphatidylcholine status, that's one of the three components of every single cell membrane in your body. When I'm looking at a low phase angle, I'd like to see it around seven and above, when I'm looking at a low phase angle, that gives me a hunch to say, "Okay, well, your PC status, your phosphatidylcholine status, may be low because you have these symptoms of cholestasis or I don't think your bile is flowing." I had practitioners, now that this Phase 2.5 has been out there, report that 80% of the people who walk into their offices have some sort of impairment in this bile flow process, in this Phase 2.5. I asked, "Well, why don't we do a trial? Why don't we try this and see how you do and try and get that phase angle, the measure of the integrity of the cell membranes to come up?" Because, Christine, you know it's membrane medicine--the membrane is extremely important in overall health. That's kind of my elevator pitch on the BIA. It's very simple, just a really quick electrode measurement that we do. It's cheap.

29:54 DS: That's great information. We have IV therapy in our office, so over the years we have used a lot of not only oral phospholipids, but also IV phosphatidylcholine. We will use Essentiale-N phosphatidylcholine. Do you have any feedback on how you feel that works for patients as far as supporting Phase 2.5 Detoxification?

30:24 DH: We're early on, but we definitely, in the office, we're starting to do the IV-PC. Again, I try to go low and slow, so I like to try and start with the oral form. But again, this is where I love to bounce things off of practitioners like yourself to determine what works. That's why conferences are nice--we have these conversations on the sidelines. I've been getting a really good response doing oral phosphatidylcholine in, I'd say, about 75% of the patients. Now, you can have people who don't react well and then you're looking at, "Okay, where do we go with that? Do we support more methylation? Do we give a little bit of creatine to help with the creation, of where the methylation is actually going? It's just a little bit different with each patient.

31:16 DS: Yes. I feel like before I heard about Phase 2.5 Detoxification, we'd been using Essentiale and IV therapy over the years and I tend to do lower dosing than a lot of what Patricia Kane protocols recommend. I find that it's really gentle when it's the right thing at the right time. Patients really feel better from that, so it's been a really awesome tool for us. I know a lot of patients are really educated around the genetic piece, but those four SNPs that you just shared, can everybody get that information from

23andMe? Can you just walk through, if somebody wanted to start learning about this part of their genetic profile, how can they get this information?

31:16 DS: I personally use functional genomic assessment from Bob Miller. I used to get the raw data from 23andMe so I know that 23andMe can be processed in a lot of different software programs, and that a lot of different software programs will give you the information on the ABCC2, the ACAT, the PANK and the PEMT. But again, if you don't have your genetics and you don't want to do your genetics, or you just feel like you want to empirically try some Pantethine, I think that's reasonable as well.

32:46 DS: Absolutely. I know lab testing can be helpful, but it isn't always necessary to get the right treatment either.

32:56 DH: Right.

32:57 DS: Kelly, I'm curious. You mentioned that when you look at inflammation, you consider the physical, chemical, emotional, and microbial. One of our focuses at Sophia is definitely looking at the pathogen piece, whether it's these chronic parasitic infections or fungal infections or viral infections or Lyme and co-infections and so forth. How do you feel about the microbial piece? I mean, you mentioned SIBO already, but how do you feel that piece plays into this whole process?

33:31 DH: Definitely, if there's a microbial infection that we're not addressing, you're just going to spur on the inflammation. We do GI-Map testing, we do kinesiology, and we do other testing too, to make sure that we're not missing anything. Definitely, we're taking mold a lot more seriously this year, after hearing Andy Heyman speak as well as others, like Jill Carnahan. I always look at strengthening the host; I think that is the way to go. Chasing pathogens really beats the body down. Phase 2.5 is simply nothing but honoring your body's biochemistry, and just removing the blocks, making sure that gut is functioning, making sure that the endotoxin isn't flying around. And again, it's not one and done. It's not like "Oh, I fix my gut and I'm done." We live in this toxic world, we have to really keep on top of that.

34:42 DH: That's why I'm definitely a fan of intestinal binders, because once you get that bile flowing, and the bile has made it to the colon, we don't want enterohepatic recirculation to happen. I think of intestinal binders as your insurance policy, to make sure the wastes meet the toilet, and to get them out. I'm a big fan of those. I actually formulated one that's a bit more comprehensive than other things on the market because I was sick of taking the bottle of charcoal, the bottle of Chlorella, a bottle of this, bottle of that. I'm also a really big fan of infrared saunas and sweating those toxins out, they're really important to use as well, and they take the burden off of your liver and your gallbladder. I didn't mention yet that something that will really shut down your 2.5 is bad estrogen. So, everybody gets a DUTCH test. Bad estrogen can shut down the BCEP and the MRP2, so it's

important to really manage that. Don't leave any stone unturned, to make sure that that's not happening--it's really important as well.

36:08 DS: I've found that a lot of our chronically ill female patients are estrogen dominant, and that can be part of this, it sounds like.

36:16 DH: Definitely, absolutely. That's where you end up getting your gallbladder removed, because that's the magic answer, to just take the organ out.

36:28 DS: I know, many of our patients do come to us and their gallbladder has been removed, or it's "cranky" if you will. Even if you remove your gallbladder, you still have this process going on in the body. And so that's something for us to remember, it's important for patients not to think, "Oh, now that I don't have a gallbladder, this isn't relevant." It's absolutely relevant still to their body.

36:56 DH: Absolutely. Even more so. Without a gallbladder, you have to really pay extra attention to making sure that your bile is flowing because you don't have a reservoir, you don't have that place where you maintain an excess stored-up amount. And hydration--we didn't even mention hydration. The bile consists of 95% water, and those aquaporins, those transporters with the water flowing through them, that's really important. A lack of hydration has been tied to gallstone formation and cholestasis, so be on top of that. Try and stay on top of your water status, which is so

simple, but so easy to miss, especially if you have a couple cups of coffee a day.

37:42 DH: Also, Christine, I didn't mention yet the importance of magnesium. The only way, in my opinion, to measure magnesium accurately is to look at the red blood cell magnesium levels. Even with people who really think that they're taking enough, I have seen it where it's just too low. So, looking at that level is really important. And you can't make ATP without magnesium. So many of the people in our care are in the cell danger response, where we're already shuttling out our ATP for signaling reasons, so we really need to pay attention to that. Last month, I think, I was starting to feel a little bit under the weather, and I thought, "What is going on?" So I ran my case by Dr. Eric Balcavage, and he said, "Well, why don't you check your RBC magnesium?" And I'm like, "Oh no, no. I take a lot of magnesium... I'm fine." Well, sure enough, my magnesium was down to like 3.

38:48 DH: I really can't stress enough that ATP, the energy currency of the body, is really driving a lot of these transporters, so if you don't have the ATP, Phase 2.5's not going to work as well. So again, go back to the cell danger response... You're not producing it and that's going to shut it down as well. You're going to be able to maybe make your bile if you don't have any issues, but then where is it gonna go if it can't get out? So again, bile acids in your blood, not going into the bile, that's not a good thing.

39:33 DS: What forms do you like? There are many types of magnesium. Do you have a preference, or just do you rotate through a lot of different types, such as magnesium glycinate, malate, threonate...

39:45 DH: Yes, threonate. I use topical magnesium, Epsom salt baths... Just keep rotating and find one. And the types that you mentioned--I like all of those. I don't like magnesium citrate, because of ceruloplasmin--that's kind of a whole different topic in animals. Ceruloplasmin, iron metabolism, copper metabolism--I feel I know that magnesium citrate can interfere with ceruloplasmin and your copper-carrying ability. You do not want to mess with that because that is its mitochondrial function and iron transport, and you want the iron to go in the right places. So I'd stay away from the magnesium citrate.

40:25 DS: That's a good point, the iron issue. I know you and Bob are big on looking at when people can't process their iron and how that creates more inflammation. I think that's a big issue in our patients.

40:38 DH: Absolutely.

40:40 DS: Kelly, you have so many great pearls here. Obviously, people walk around dehydrated all day, but I do find in our patient population, they're frequently thirsty, they pee a lot, they're up at night peeing. And I know that in Dr. Shoemaker's model we look at anti-diuretic hormone being low. Do you have any other insights when we see this chronic dehydration

and low anti-diuretic hormone, or any other things to look at? I find that as you just said, it's such a foundational piece to our health. I have some of my patients carrying water bottles around, electrolytes in their water, and they're still not absorbing their water. So I was just curious.

41:24 DH: I'm really particular about the water that I drink. I think a lot of people just don't have access to good water-- they're drinking dead water and it's really not hydrating them. If you can try and find an aquifer that is good. It's hard because I used to drink reverse osmosis but I just kept drinking so much and I still felt dehydrated. I personally think that the hydrogen water machines can actually help a little bit, and there's a million different things you can do to try and energize your water. But I know what you're saying about how there's something going on with anti-diuretic hormone and other things, and I really think that also plays into mitochondrial function and perhaps glucose metabolism and fatty acid metabolism--it's all intertwined. So again, I don't put everybody on a ketogenic diet, but I try at least to see what's going on, to see if they're even able to burn fats...and going down that road as well.

42:34 DH: Looking at the DUTCH test we can take a deeper look into the adrenal function. Adrenal function ties to the HPA axis and it actually ties to Phase 2.5--I won't go too much into that--we take a deep dive in our online class that Dr. Eric Balcavage and I taught. That's going to be online, and we're going to launch it pretty soon, for people who want to really know the ins and outs and the intricacies of bile acids and other things, such as how

when they're not in the proper ratios and they're going into the blood, they can affect adrenal function and cortisol. I think it all plays together. I'll go back to inflammation--I go back to the physical, chemical, emotional, microbial and I don't overlook any of those.

43:29 DH: I used to be the doctor who overlooked the emotional like, "Oh this has nothing to do with the trauma you went through... " Well, that's absolutely not a good way to be. Now, I always address the emotional, because the emotional component is so real and so important. I'm a big fan of DNRS. I'm also a big fan of HeartMath, of doing breath work--it's all very, very important in my practice and I make sure that I don't miss that component. I'm sure you and Dr. Klinghardt have that piece in your practice as well.

44:10 DS: It's a big piece. Dr. Klinghardt calls it the five levels of healing--there's the physical, energetic, mental, intuitive and spiritual bodies, and a physical symptom can have a causation on another level and we have to look at all of them. All the levels are needed to treat people. We have a lot of different tools. I agree, I think there's definitely past trauma that is one of the susceptibilities for being sick. Then there's the trauma of being ill too, of going through the medical system, and of what it does to your family system. There's just a lot of pieces to the emotional puzzle, so I'm glad you brought that up. In Chinese medicine there's a whole emotional piece to the liver and the gallbladder--when those aren't working

well, people can be more irritable, angry, and resentful--all these emotions can come up when you're not processing toxins very well.

45:13 DH: Absolutely. And then, of course, EMF, is a factor. We go through EMF safety, how to protect yourself, how to completely take it seriously because it's something that I think plays a big role. I do talk about that in a podcast I did with Scott Forsgren--we spoke about how the masters of inflammation, the mast cells, start over-reacting, which can be from EMF. It's just this vicious circle of microglial activation and you have the mast cell involvement in it. Shut off your WiFi at night--at least shut it off at night. Do things. Don't hold your laptop in your lap, those exposures are cumulative. You have a bucket and if you continue to fill that bucket all day long with just these little things, if you're not filtering your water, and then you have your laptop on your lap all day, it's cumulative, and you're not going to feel well. Just doing a product check with my patients is important. What are you putting on your body? What shampoos are you using? What soaps are you using? It seems very insignificant but at the end of the day, it can really make really significant difference when we inventory on all those levels, like you just said--inventory them all and address them all.

46:42 DS: I'm so glad that you make that a big issue. I know that there's so much more awareness now about EMF and I know Dr. Klinghardt's been talking about it for a while, but people looked at him like, really?

46:56 DS: Unfortunately, it's one of these things that's going to get worse before it gets better, due to 5G. We just have to be mindful and protect ourselves...I'm big on looking at sleeping location as well, because that's the time that your body is going to heal and repair and your brain's going to detoxify. Trying to create a really safe EMF-free zone for sleep is really important. Kelly, you mentioned you created a binder. I'm curious what's in your binder?

47:29 DH: It is Chlorella, activated charcoal, bentonite clay, and sodium alginate. I put in some aloe and some cassia gum as well just because binders can be constipating. We're going to formulate one without Chlorella as well. Then again, you start off slowly and you make sure that you're not wasting your money on binders if your 2.5 door is closed. So start with taking the inventory, looking at the inflammation and making sure you're optimizing your gut and you're optimizing that transporter--do a little broccoli sprouts, get a little hydrogen water, just manage the gut a little bit better and get those things going.

48:11 DH: I also formulated a Phase 2.5 product from Professional Health Products to help the liver gently--I would say, to not push the liver. Again, I'm not into this pushing these toxins out, but just helping bile move as it should. And so, it has Artichoke in it. Artichoke is a very well-studied nutrient that can help with liver issues. It also has some dandelion, some bitter herbs to help again, push the bile, and then glycine and taurine because when you're manufacturing the bile, the bile acids, those are what

you conjugate with. And then a little bit of Choline, not doing anything too hard, but then you can gently start to open the doors and then start to bind, and then just a little bit more. It's a patient by patient process, what you want to do with those nutrients.

49:11 DS: Is your binder with Professional Health Products as well?

49:16 DH: Yes.

49:16 DS: Awesome, I am going to go try those out for sure.

49:19 DH: Don't worry, I'll send you some.

49:19 DS: I like that combination binder thing. Binders are such a foundational part of our protocol and it's the hardest part for our patients to take the doses that they need and then away from food. It's one of those pain points in our protocols, so I'm always looking for easier tools. I guess one of my last questions is, where do coffee enemas fit in?

49:51 DH: I love coffee. I think that you have to get the clear from your healthcare practitioner. The coffee enemas can be very helpful with getting things out, and I think that's why people have such a great response from them--they can start to move the bile, which is exactly what we're doing. So if you've received the clear to do them, then that would be something that I would also add, as well as visceral manipulation. That's not in my

wheelhouse, but I will definitely refer out if I feel like it would be helpful in getting things moving.

50:25 DS: I'm so excited to take in this deeper insight into all of this. I didn't realize all of these pieces, but I knew getting patients' bile moving really helps them feel better. This is really important information. It's overwhelming when you have a chronic illness and everybody is telling you what to do, and you'll get different opinions from all these different doctors. I think this is such a foundational starting point, and it's safe--none of this is going to cause harm. Anything can harm you, if you take too much of it--but this is a safe starting point if people don't know where to start.

51:27 DH: Thank you. When I look back at what really got me over the hump, it was opening up 2.5 and moving my bile, absolutely. Those were the things where it was like, I got the edge. I started to lessen the toxic load, so I'm just so thankful. We become thankful for the things that we've been through because other people can benefit from them, and this is definitely one of those things.

51:52 DS: That is a great attitude to have when you're going through the suffering and it's hard to see the meaning in it. I know that you've helped so many people because of it. I'm grateful for you sharing your knowledge. And Kelly, where can people find out more about you, and about how to work with you? You also mentioned you put on seminars and courses--how can people learn more from you as well?

52:22 DH: My website is where all my content is, it's a one-stop shop, at www.drkellyhalderman.com. I post the events that I'm going to speak at, I post articles that you can download, and there's a lot of free content on there that I'm always updating when I'm learning. I also have the online course, the Phase 2.5 Detoxification, which is for both practitioners and for lay people. People who are studying this and who are lay people, they're smart. They teach us stuff. That's going to be available probably in the next week. I'll hopefully be able to shoot you an online discount code for that. We're really excited because we want people to learn to go in-depth into and expound on what I just said and learn about it--Dr. Eric and I are excited about that.

53:29 DS: Well, thank you so much for your time today, for all the great work that you're doing, and for all the knowledge that you're sharing. I hope to meet you in person, maybe at an upcoming conference. If you're ever in Seattle, please come and visit us. I really thank you for your time and for all of this wonderful information.

53:48 DH: Thank you so much, Christine.

53:52 DS: Thank you for listening to the Spectrum of Health podcast. I'm Dr. Christine Schaffner, and I really hope you enjoyed our conversation today with Dr. Kelly Halderman. I learned a ton, and if you want to learn more about her work, you can find it on her website, www.drkellyhalderman.com. And again, if you are enjoying these podcasts,

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