Mark: Welcome to the Health Edge, translating the science of self-care. I am Mark Pettus and joined by my great friend and colleague, John Bagnulo. John, good morning.

John: Good morning, Mark. How are you doing today?

Mark: I am doing really well. For those that may be catching us on YouTube, I apologize for the hideous way that John and I look at this early morning hour. I don’t know if people know, John, we do these podcasts generally at 6:00 am Eastern Standard Time, and we’re up early. For those viewing this on YouTube, we’re not always presenting our midday best in terms of appearance but it’s always great. Always great to see you, John, and always great to hear you and to connect.

John: Likewise, buddy.

Mark: We spent our last podcast, John, reviewing heavy metals and some of the common sources of heavy metals, including aluminum, and mercury, cadmium, arsenic. We thought we would dedicate the part two of this series, John, around some detoxification strategy, some of which we touched on in a high level in the last podcast, but I thought we could just provide a little more granularity there for people who are really concerned about the potential that heavy metal is playing in their health and the importance of seeing this as a treatable and reconcilable health issue.

 Before we get into that protocol, John, we had a few questions that came up, and I thought maybe we could take advantage of this podcast to address some of those questions from the last podcast. I’ll tee up these questions for you, John. They focus in the category of you talked a little bit about some antiperspirants, and aluminum, and cacao, and cadmium, and the importance of sourcing and products. It can be a bit overwhelming for folks that are trying to find safe health products and food sources, John. Maybe, what are some of the go-to product lines that you like whether it’s antiperspirant, whether it’s cacao. Then, we’ll get into some aspects of detox.

John: Sure. No, that’s great. I think when it comes to personal care items or things along the lines of deodorants, you certainly want to read the labels and make sure you don’t see the words aluminum, titanium, even zinc. I would really question the long term of when it’s being applied in some of the nanoparticle forms that it’s used as now as an ingredient. These are tiny, tiny particles that really bypass the normal check and balance system with respect to cellular transport. Aluminum is the one that I really would be vigilant around when you’re talking about things that could be applied topically. Aluminum and titanium, for that matter, are in a lot of your antiperspirants, they’re in a lot of your sun blocks, sunscreens, and things like that. You just don’t want to apply that topically.

 As far as brand names go, there are a wide variety of deodorants. There really aren’t any safe antiperspirants. You don’t want to stop the body from perspiring or sweating. That’s a natural process. Anything that really attempts to stop them, Mark, is probably going to contain something that clogs pores or has that type of blocking effect. You really only want to use deodorants.

 I think there are some good choices. Lafe’s is one brand. It’s L-A-F-E-apostrophe-S. It’s sold at most of your natural food stores and places like that, and co-ops. There’s the Tom’s line. Most people know Tom’s for its toothpaste but they certainly also make aluminum-free deodorants. Janssen is a really good company. They have a wide variety of products that are all paraben-free and heavy metal-free. There’s Desert Essence which uses tea tree oil.

 I think there’s really a lot of choices that one could find, probably not at your CVS or typical big box store, grocery store type of outlet, but you’d find this in a co-op. When I say co-op, it’s a local cooperative that sells health foods and those types of products. You could certainly find this at a place like Whole Foods and other places that sell these types of items, but I think that’s a really important question. I’m glad someone asked that. Just make sure though, whatever brand it is someone chooses that they do not see the words aluminum dioxide, titanium dioxide, or any of those heavy metals.

 Even again zinc. I’d be concerned with respect to sunscreens. There’s some research that would question the long term safety of using a sunscreen or a sun block. We’ve talked about that a little bit, Mark, in a previous recording about the importance of sunlight. Now, sunscreens and sun blocks can actually cause far more damage than they’ll prevent.

Mark: Yeah, that’s great, John. What you’re saying, and this may challenge folks as I think about their self-care or their hygiene, is that antiperspirant should be avoided altogether.

John: Absolutely.

Mark: You really want to go with the deodorant. That may come as a surprise to some folks but that’s really good advice. We use the Tom’s products. I really like them. I find them more readily available in our local retailers. What about the cacao, John? Are there any products whether you’re baking or making smoothies, what do you like to use there?

John: I think that cacao contains cadmium. I think, as you know, that the dose with some of these things certainly makes something either a toxin or something that’s more benign. I think people still have the ability to eat chocolate or eat cacao, but if it’s going to be something that they’re having on a daily basis in significant quantities, I would encourage people to look at the cacao products which are not as finely ground. Cacao powder, again for a variety of reasons, but cacao powder has been found to have much higher levels of cadmium and other heavy metals than your cacao nibs and your larger chunks of cacao.

 The company Navitas, which is an excellent company overall, they produce a lot of organic products that are raw. Most people, who have seen this line of products, realize that they make everything from Maca to the various raw cacao and coconut products. They have a really good discussion around this on their website. It’s Proposition 65 in California. Because their products contain enough cadmium, they had to be labeled with that carcinogenic statement.

 They’ve gone into pretty good detail, Mark, explaining why it is that they have that Prop 65 statement on their packaging due to California’s laws, and how there’s a lot of cadmium in their soil where the cacao is growing because it’s sourced from Peru and their soils there tend to have a lot of this cadmium, and the cacao plant accumulates it. It goes on to say how much cadmium is typically in their products. You can make more of an educated decision in terms of which cacao product of theirs to choose, and how much of that you decide to eat.

 I think with people who really want to have cacao, I think you’d want to, again, choose larger chunks of cacao. Don’t get the finely ground powders. I would go with a company like Navitas who specializes in organic and sustainable agriculture because you would get the cadmium but fortunately, that’s what you’ll get, not all the other agrichemicals that are ending up in so much of the other competitors, I guess.

 Certainly you know this, Mark, I’m not affiliated with Navitas at all. It’s just it’s a brand that does produce raw cacao, and it’s organic, and it’s one of the better companies out there, but if you wanted to learn more about how much cadmium was in these different cacao products, that would be a place where you could certainly learn a little bit more directly from the producer who is telling is exactly how much is in there and how it may or may not be a problem for you.

 I think when it comes to whether it’s chocolate or cacao, I think we’ve talked about this in the past, there’s a lot of variables you want to consider. You want your chocolate obviously to be dark, first and foremost. You don’t want to eat the middle chocolate products and things like that. You’d want to make sure that the chocolate or the cacao was also mycotoxin-free. The mycotoxins maybe more of a public health concern on a big picture level than the cadmium that’s in chocolate but nevertheless, you want it to be organic, mycotoxin-free which means it doesn’t contain toxins produced by molds and fungus. Then, I think heavy metals also comes into discussion.

 Companies like Black and Green’s, that’s a really good company for dark chocolate, Dagoba. There’s another chocolate that’s produced in Vermont. It’s called Liberty Chocolate. It’s excellent. It’s a raw chocolate product. Then, when it comes to cacao, again, I would try to go with cacao nibs more than cacao powder.

Mark: Great. Great, John. Thank you for the questions that people emailed in. We appreciate that. It always helps to have feedback from others. John and I both appreciate the fact that sometimes we dive deep and there’s a lot of content, and it can be hard to come away with maybe one or two clear accessible bullet points. I think it’s really helpful to have that feedback. I think, John, you know this stuff so well. I’m always impressed with your insight around sourcing, and so with the lifecycle of foods. I think that’s just so important as people attempt to choose more wisely in their lives. It really does require a bit of homework because most of us out there ultimately is not well suited for optimal health.

 As we bring this, John, to some heavy metal detoxification chelation protocols, I thought I would start us with a bit of checklist that I often go through, and what I’ve done in serving others, and certainly what I think is how many integrative health providers, functional, integrative health providers approach this. I would fit now my comments by saying there really is no clear gold standard except for maybe lead and the use of EDTA. There are established randomized placebo controlled trials using intravenous EDTA, more commonly in children that have lead toxicity, but I would say outside that research area, the approach to heavy metals can vary considerably and I think the science is still somewhat weak and limited which is not to say that this can’t be profoundly efficacious.

 I’m always amazed at people who I see, John, that they may be eating much better and they’ve eliminated a lot of potential allergens in their diets, they’re moving more regularly, they’re introducing a bit of medication; and yet, they’re still hitting the wall. They have improvement, but then they plateau. I think often, that’s when I begin to think about they need to look at other remediable factors whether that’d be heavy metals, or biotoxins like mold, or maybe focusing a bit more on sleep patterns. I do think heavy metals is often one of the missing links in individuals who are improving dramatically in response to lifestyle change but reach a plateau beyond which it seems they can’t bring it further. I do think this is an important area.

 I’m always focusing on the gut, John, as I know you do as well, and so much of our detoxification happening through the liver, through bile is ultimately handled through the gut, and we know the microbiome, and we’re still learning a lot about, this plays a central role there. I’m always helping people focus on the status of their gut whether it’s heavy metal detox or just health in general, autoimmunity, inflammation. We’ve talked so much about the important role that the gut plays and modulating the immune system.

 I’ll have them do an elimination trial for at least 30 to 60 days eliminating some of those common food allergens from gluten, grains, casein, and dairy. Maybe I would include corn as part of that more global grain, and really focus on the gut, introduce more of the fermentable fiber that we always talk about, these microbiota accessible carbohydrates as Justin Sonnenburg would elude to. Really great concept there for people to be aware of. I might introduce some probiotics as part of that.

 Really, without getting into specifics around chelation, fine tune the gut, help an individual make sure they’re getting more nutrients to support the detoxification process which is biologically complicated in the liver and very resource-intense as it relates to nutrients whether it’s the B vitamins, sulfur-containing foods that are so important for detoxification, and the allium family, leaks, garlics, onions, bitters, the cruciferous vegetables, broccoli, collards, and really get an individual to be thinking about nutrient density as it relates to supporting hepatic detoxification.

 Fine tuning that first. I think it’s really important that that’d be done before you start getting into more specific chelating agents. That’s generally where I start that focus. I may spend a few months there before getting into specifics of chelation, John.

John: That’s great, Mark. You can’t beat starting with the gut. That’s the foundation for everything. I really like what you said about bile because that’s one of the primary outlets for hepatic detoxification. As we’ve talked about in so many occasions, Mark, if people are following a low fat diet and they’re not supplementing with taurine or they’re not eating the nutrients that really support bile production, you can have some … What they say in Chinese medicine is that a sluggish gallbladder is really a source for toxins to accumulate everywhere and to just promote overall a sick individual.

 I think it’s really important to eat high amounts of fermentable fiber and to make sure that it’ enough olive oil. Olive oil is, I think, one of the best fats people can eat to really challenge the gallbladder and to get those regular [inaudible 00:16:49] of bile. If you have those two things together, if you have olive oil, let’s say, and you have a high fiber diet, then the bile that is released by the gallbladder, it will bind to specific types of fiber. Then, it will be carried out when we eliminate. That’s important because bile is something that the body is pretty good at recycling. You don’t want to recycle bile for the sake of … You’re trying to get toxins out of the body. You don’t want to reabsorb them in the large intestine.

 That’s where, I think, the high fiber diet comes in with respect to detoxification, as you’re saying. It’s really the foundation for everything we need to do because if someone is eating a lower fiber diet and they’re just recycling all of their bile, then their toxins continue to accumulate. They’re not really having a net loss every time they go to the bathroom.

Mark: We touched a little bit, John, in the last podcast to bring this further around modified citrus pectin. I’ve used a seaweed, the derivative called alginate. This can be very effective gastrointestinal chelators. These are supplements that I think can be very helpful as well once one begins to fine tune their diet and their microbiome, getting more fiber. I see this as the next step in moving this process forward, John. What’s your take on modified citrus pectin?

John: I think that there are two papers which have looked at the effects of modified citrus pectin on lead levels in children. They were very favorable. It took about six months. It was a little longer than what some clinicians may want for results with something, as you mentioned, like EDTA. The good thing about modified citrus pectin, Mark, is that it doesn’t have the same level of affinity as a fiber for all metals or all minerals. One of the criticisms that I think some practitioners have around EDTA is that it’s going to take the good and the bad with it. Modified citrus pectin has a much higher affinity for lead, for mercury, even for aluminum than it would for calcium, magnesium, and the minerals, of course, we need for health.

 It seems to be a gentler approach to chelation. It can be mixed with water and consumed at every meal, three or four times a day. The one brand that I am familiar with is PectaSol. That’s the one that I know at least one of the two papers. They did fund the research on this but nevertheless, after reviewing the paper, I wouldn’t really question the results because I’ve seen several patients over the years use modified citrus pectin for high levels of mercury and have some pretty decent results.

 It’s usually 20 grams per day for an adult is what’s recommended. That’s 5 grams four times a day just mix it with water. It doesn’t really taste like anything. Again, pectin is one, for our listeners who might not be familiar with pectin, it is one of probably 40 different families of fiber that occur in plants and it’s really found from citrus peels. It’s pretty easy for people to achieve a less, let’s say, pharmacological effect by taking an entire lemon with the peel on it and putting that in the blender. You’re going to get anywhere from 8 to 9 grams of citrus pectin from consuming one whole lemon. One whole lemon, when you put it in a blender, it actually tastes pretty good if it’s been put in with the right ingredients like either raspberries, and actually whatever.

 There’s different ways to get pectin in your diet, but certainly you can get it in powder form. You can use citrus peels if you’re willing to, if you have a high enough powered blender to combine that with other ingredients, but I think whether its rice bran which I know, Mark, you’re aware of this. Rice bran has also been shown to have some very favorable effects on gut health and on the detox process there as well. I’d be more in favor of pectin than bran, but overall, rice bran is very affordable and it’s highly accessible for people.

 Then, the other thing you mentioned, Mark, I think you mentioned this earlier. Maybe last time was silica. Silica can be found in a lot of different forms. I think Quicksilver has a product. It’s IMD, they call it, but it’s basically silica. Silicates have a very, very high affinity for some of these heavy metals as well. There’s a lot of way you can really assist chelation with different types of fibers or in the case of silica, this mineral is also really good at grabbing on to toxins.

Mark: I think those are really great strategies, John. They do tend to be a bit more gentle. Anyone who’s ever gone through heavy metal detoxification, ideally it should be a long process. These things accumulate over many, many years. We know that when the body begins to release some of these tightly bound heavy metals that there can be an enterotoxicity as blood levels free, serum levels go up, and the body attempts to reconcile that intermediary state as you look to ultimately eliminate the burden of these heavy metals. I think a lot of patients and working with a provider who obviously understands this is so important. It can be a lot of work. It can take a lot of patience, but it really pays off big time. I just add that footnote.

 I have had some experience, John, and I know a lot of functional integrative practitioners that do more chelation will use products like DMSA which is an oral chelating agent. You need a physician to prescribe these agents. The protocols that I’m most familiar with and, again, I would not consider these gold standards as much as time tested more just so the experience in the clinical community treating this would be to use DMSA. Usually the dose is approximately 250 milligrams. It’s taken three times a day for three days. Then, every two weeks, you repeat that cycle. It’s a cyclical three-day exposure with an 11-day holiday as the body then tends to handle what has been removed from tissues.

 Depending on the burden of heavy metals, one might do that for four to six months. Then, repeat a urine challenge test which we talked about in our last podcast. I think it’s really important that you know what you’re doing here, and have an objective way of measuring progress. Some people are going to feel a lot better but having a baseline assessment of heavy metals. We talked about the urine provocation test. It’s probably one of the more comprehensive ways at looking at total body burden of heavy metals. Hair may have some value, blood may have some value. I know the Quicksilver folks and Chris Shade their medical director, their CEOs uses a tri-test blood for mercury looking at both inorganic and organic mercury, but I do think that the urine provocation test is a good way to look at the entire family of heavy metals.

 I would always be doing that four to six months into treatment. Then, seeing how those results go. Then, go from there. Some people may need a more protracted course but I think the modified citrus pectin, and the silica, and the alginate are relatively safe long term. It is important, as you point out John, that people be getting nutrient-dense foods because you will remove some things that some minerals like zinc and magnesium that we need. It’s important to be providing that along the way here and other supplements.

 I know we’ve talked about supplements, John. The wild west of things that are out there. Occasionally, I’ve considered, and this falls into the category of providing sufficient antioxidant capacity around these oxygen radical rich producing states. Chelation, I think, can provoke that. It would be glutathione. Whether a person may be taking a lipophilic form of glutathione to help support the antioxidant necessary as a part of the detoxification process or using whey protein, a good source of non-denatured way to provide the amino acid, building blocks of glutathione, whether it might be N-Acetyl cysteine, NAC, supporting and providing the sulfur, and providing some of that hepatic support, and glutathione support.

 Again, in my review of this John, proven precise but I think it’s just rational to be supporting those systems which we know can take quite a hit as you navigate this treatment.

John: As you just said, it’s logical with the challenge of DMSA. You’re going to have a number of different systems within the body. They’re going to have to compensate for that increase toxic burden. As you mentioned, reactive oxygen species are going to really be ramped up. Whether it would be something like glutathione, or liposome, or vitamin C, or whatever form of antioxidant that someone would choose, it’s logical to think that it’s going to help at least mediate some of those effects while you’re in that challenged state.

 One thing that I know other people have used, Mark, is chlorella. I would just say that I’m certainly really open to chlorella for a number of the attributes that it contains. There are people that feel very strong. It had helped them with their chelation process. I would just want to make sure that chlorella was sourced properly. Blue green algae, also known as cyanobacter, can really be an issue. It’s been linked to Parkinson’s disease. There’s actually a really interesting paper that came out of Dartmouth Medical Center which shown that there were major outbreaks of Parkinson’s in and around ponds and lakes in New England where people vacation, and spend a lot of time on the water, and were exposed to cyanobacter blooms that were taking place in this lake that have warmer than average temperatures.

 Not to go off on a tangent about cyanobacter, but you just want to make sure that your chlorella is sourced properly, and that it’s pure chlorella, and it doesn’t contain significant amounts of cyanobacter because I think that’s being shown to be an environmental risk for neurological disease. If you’re getting chlorella try to get it from a place that does give you a certificate of analysis, which it’s tested, and it’s not a chlorella that’s grown in a canal somewhere with God knows what the way of contaminants and cyanobacteria being one of those on the watch-out list. Chlorella, I think, could be really useful to people, again, if they wanted to go with that gentle approach using things like, as I mentioned, citrus pectin and other substances.

Mark: That’s great, John. Regular bowel movements are obviously really important. A lot of what we’re talking about will enhance that. On occasion, John, if I’m running into someone who’s not eliminating predictably at least once but ideally twice daily, in addition to just looking at their diet in terms of fermentable fiber, probiotics, I might consider a little of additional magnesium, some magnesium citrate, 150 milligrams a couple of times a day. Magnesium, as we’ve talked about, is such an important mineral and many people are deficient anyway. It’s hard to go wrong with magnesium assuming you don’t have a kidney issue, and you can filter, and excrete it okay. It can be a nice mild cathartic, and can enhance motility and elimination as well.

 The last thing that I think the listeners, John, would be intrigued by is the role of … We talked about sweat on top, antiperspirants. Sweating is an important way that we do eliminate toxins from our body. People often recommend saunas, infrared saunas, and of course not everyone has access to that, but that too, I think, can be a nice regular health maintenance intervention to be thinking about whether it’s detox or perhaps anything.

John: Yeah, absolutely. There’s some great research on saunas and cardiovascular health in particular but when it comes to detoxification, you have to really think about the different pathways with which molecules, toxins can leave our body, and certainly perspiration is a big one. I’m a big fan of saunas and we don’t have one now that we currently use, but it’s in my long term plans. I recommend it for anybody that I worked with who really has a need for detoxification whether it’s heavy metals or any other area of toxicology. I think that saunas are great. Infrared are good for, I think, certain aspects of our physiology.

 Certainly, there’s some great research on cardiovascular health, again in infrared saunas. Again, with an infrared sauna, someone would want to try to avoid a magnetic ballast. You want to get a safer ballast if you’re going to spend 20 to 30 minutes inside this chamber. You don’t want to be exposed at really high levels of VMF waves. I would go to the nonmagnetic ballast. I think our traditional sauna for the purpose of sweating is every bit as effective if not better. I think that’s a great point you bring up, Mark.

Mark: Great John.

John: Another thing I wanted to bring up that some of our listeners might not be aware of is in this effort to detox, and this is certainly going to be critical with an aluminum detoxification effort, you want to avoid any source of glyphosates. Again, glyphosates are a bit pervasive as the aluminum is now in our soil, in our crops that are being grown. Glyphosates are found in the highest levels in the members of the cereal family, grains i.e. In fact, they’ve recently tested organic grains growing in the Midwest, and they found that most of the organic grain, wheat, barley, oats contain glyphosates. Not at the same levels that were found in the conventional grains.

 Glyphosates are use in sprouting process now to make plants mature in a desired time pattern for the farmer. It’s a process called browning. Glyphosates are everywhere. Glyphosates, the reason of bringing this up is they have an incredibly high affinity for aluminum, and they will create a synergistic effect with respect to the toxicological effects on the liver that are much greater than some of their parts. You really want to avoid glyphosates. Unfortunately, it doesn’t mean you just avoid GMOs. You have to also be really careful about drinking water supplies and things like that.

 I think there’s only a handful of scientists right now, Mark, in the world who are looking at the synergistic effect of heavy metals and glyphosates, but what they are finding is very damning. Make sure and with aluminum, in particular. I would certainly argue this as well with mercury. Try to get the glyphosates to the absolute lowest level possible on your diet, and your water, and your overall exposure.

Mark: Many things to contemplate there, John, for sure. Those were the checklists of things that were running through my mind, John. I think we hit them all. Before we wrap up, John, any final thoughts? Anything else that comes to mind in terms of this topic?

John: The only other things that I can think of is some people use aluminum foil for a lot of their cooking and you probably don’t want to do that. You’d probably do much better with wax paper that has silicon in it. There’s a lot of different companies that make this now and you can bake with the stuff. There’s one company out of France who makes a product called Silpat. It’s just a silicon pad for cooking. It’s just really important for people to get away from aluminum pie plates, aluminum foil, and all those things which I know that my parents cooked with aluminum a lot. We actually had aluminum pans that we used in cooking things at home. You just want to try to get away from aluminum with cooking.

 Topically-applied products are also an area of concern. We talked about deodorants, but I think some women use a variety of skin colorings to produce a different tone. Those have been shown to be full of heavy metals as well. I’ve worked with people who are models, and they have very, very high levels of heavy metals because they’re wearing certain types of cosmetics that are just silvery or shiny. They have some of patina almost that is desirable for photoshoot. It can really end up with regular exposure to be a major source of heavy metal toxic loads. I think those are couple of things I want to add.

Mark: Great John. We’ve talked about the environmental working group, and some of their databases, and they’ve got a nice skin-deep database. It is hard to sometimes find good objective information that can allow you to look at a healthcare product that maybe you’ve been using for a long time. I think the ewg.org databases give an objective way to assess whether the product you’re using is as clean as you’d like it to be. If not, there are more and more alternatives out there.

 Personally, John, I find this whole area of toxic management a bit overwhelming because you realize just how pervasive this is. As we always talk about, not everyone will be as sensitive, for people who aren’t feeling well, for people who are dealing with autoimmunity, and depression, and chronic inflammatory pain syndromes, and fibromyalgia, I think this is a category of assessment, diagnosis, and treatment that almost always will go unrecognized. I would emphasize that the average person doesn’t need to become psychotic thinking about this, but there are simple strategies for reducing one’s burden, and load, and sourcing.

 Particularly, if you’re planning a family and looking to conceive, or if you have young children, I think there are critical times where we know these issues can wreak havoc with human biology. For any woman who’s pregnant or parents that are planning on conceiving, I think being more mindful of this is particularly important. This is one of these topics that we’ll revisit repeatedly overtime, John. Hopefully, we’ve given people some news to use.

 We are up on YouTube. We’ll get the show notes out. It takes about 24 hour turnaround time to get the show notes. John and I appreciate just those that are checking in. Please spread the word. We don’t accept any sponsorship. Spread the word. We appreciate people turning in to the Health Edge. John, as always, it’s just great being with you, buddy.

John: Same here, bro. Take care everyone.