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Dave Asprey: Here's why you want to listen through to the end of today's show. We're going to start out talking about things like biodiversity in your gut, what you can do with plants and how plants affect things, what parasites actually do for you and against you. Then we're actually going to cut over to some spiritual practice stuff. You're going to learn a new breathing exercise for the vagus nerve, how giving flowers to someone is actually a form of plant medicine. You're also going to hear some things about ayahuasca and some of the other uses in indigenous cultures of these types of medicines including some of my own experiences. It's a very broad ranging interview. We change directions several times and all of them are fascinating and interesting for you. Stick around to the end. You're going to love the entire episode.

You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact for the day is that researchers just published a study showing a particular gut microbe can stop severe flu infections, at least if you're a mouse. They believe though ... This is kind of cool ... That it's because the bacteria is breaking down flavonoids, which are the naturally occurring compounds in foods like black tea, red wine, blueberries or, dare I say, coffee. This is one of the reasons in Head Strong, I write about how it's important you have a diet that's rich in flavonoids, which are a type of polyphenol, but that you also have to have the right bacteria in your gut in order to use those flavonoids, which is interesting.

If you're eating antibiotic, tainted, industrial meat, then you would be killing those things that live in your gut that eat the flavonoids. Who would have thought that polyphenols and flavonoids are actually prebiotics that feed your bacteria? Turns out they are signaling molecules, not just antioxidants and they signal to the bacteria, which then signal to your bacteria, which are called your mitochondria. That's right, a quadrillion bacteria are running the show inside your body. Isn't that scary? Those little bastards are not looking out for your best interests.

Anyway, I digress. As we get into today's show, since we're talking about polyphenols and cool stuff like that, there's something you probably don't know about. It is Bulletproof Cacao Butter. If you're watching the YouTube channel, I'm holding in front of my face blatantly plugging it. If you want to, you go to [Bulletproof.com/YouTube](https://bulletproof.com/YouTube) and watch this show because all of the video channel stuff is there. That's [Bulletproof.com/YouTube](https://bulletproof.com/YouTube). Bulletproof Cacao Butter is something that I've had on the site for a long time. Cacao butter is different than chocolate.

What it is, it's just the fat from chocolate. The problem is that the way we make all chocolate is we ferment the chocolate. 80% of South American chocolate that was recently sampled had contamination with mold. That's because it's a

jungle product. It's fermented in an area where they aren't controlling the microbes specifically. 64% of the microbes that ferment chocolate create these microtoxins that are directly toxic to your neurons and specifically to your mitochondria. It's the same species of toxin-forming stuff that grows in coffee and wine and beer and things like that.

That's why Bulletproof Coffee is lab tested, why we change the process for coffee. The so-called safe levels approved in some countries ... In the US, there often times aren't even standards at all for these things, they can make you feel tired and sick and lethargic long before they become life threatening. That's when you get the Bulletproof Cacao Butter, you get an optimized process that lets us create the chocolate without the toxins. We're actually testing the stuff to make sure it's clean. If I eat a lot of chocolate, I don't feel good. I eat other chocolate, I feel great. I don't like the hit and miss and the cacao butter doesn't look like chocolate, but it adds a mild chocolate flavor.

What I do with it is I use it in recipes. I use it specifically ... I'll put just maybe a teaspoon of it in my Bulletproof Coffee and then you drink the coffee. You get all the coffee flavor and then about two seconds later, you get this strong chocolate note at the end without tasting like you just had a mocha or something like that. It's just a hint of chocolate. It tastes fantastic. It's an interesting fatty acid profile. It's called Upgraded Cacao Butter. You can find it at Bulletproof.com. It's totally good. If you enjoyed this already, just check this out. We haven't even started the show yet, but if you enjoyed it, you could go onto the channel on YouTube or iTunes and just leave a review, which is super cool. I'm always grateful if you're willing to do that.

In the meantime though, let's get into today's show. Today's guest is Dr. Maya Shetreat-Klein, a very interesting woman. She's the author of *The Dirt Cure: Healthy Food, Healthy Gut, Happy Child*. She's interesting because not only is she a neurologist, she's an herbalist, an urban farmer with eight chickens, each of whom has names ... By the way, only urban farmers name their chickens because real farmers like me, we know that someone's going to eat a chicken every other day so why would you name the chicken, but that's just me.

She's done a lot of work with indigenous communities and healers like in Ecuador and in South America and looked at plant-based medicine, the connection to nature, what it does to kids' brains, what it does to adults' brains and really how do we bring nature back into medical practice? She ties this integrative, spiritual approach to movement, to nature and to being a hardcore neurologist, which is kind of awesome and something that you'll hear about pretty much nowhere else. Dr. Maya, welcome to the show.

Dr. Maya S-K.: Thank you.

Dave Asprey: How was that for an intro?

Dr. Maya S-K.: It was a pretty great intro, thanks.

Dave Asprey: I forgot to mention that you've also been on Dr. Oz, Sky News, NPR, the Telegraph. You're a famous ... The who's who because of The Dirt Cure. How could you not be? One of the things I like about you is that you talk real openly about kids' stuff as well as adult stuff. The things you're working with like dirt and microbes and plant compounds, they really run the gamut, but what lets you run the line between kids' stuff and adults' stuff when so many feel they're just one or the other?

Dr. Maya S-K.: I think it's because in pediatric neurology, you actually are trained in both pediatrics and adult neurology. Then you specialize in pediatric neurology. I did basically the equivalent of two residencies. That got me started, but for me, you can probably tell I don't like to be pigeon holed. I like to keep things interesting. Kind of makes me think, though, that when you ask this question of my first day of my adult neurology residency after doing my years of pediatrics, some person had a blood pressure of 240 over 110. I was like, "If this were a kid, they'd be dead." I had no idea what to do because it is interesting to walk in two worlds, but a lot of the things that apply to adults also apply to kids and vice versa.

Dave Asprey: It's totally true. You just have these different stages of development and anyone who's a parent sees what's going on with, "Oh, things are different now that they're this age versus that age." In indigenous cultures, it seems like they really recognize that stuff. Also, the microbial exposure as a kid can shape who you are as an adult, but you can also do things as an adult. Let's actually talk about dirt because your book was about dirt and did very well. You're an urban farmer though, what's the deal with dirt and kids especially compare and contrast cities and country kids like mine?

Dr. Maya S-K.: The first thing I'll say is when I use the word dirt in the title of the book, I really meant three things. I meant being exposed to germs and microbes, eating fresh food from healthy soil and that has a lot to do with obviously the phytonutrients and things like that and then finally being exposed to nature. Those three things that I put under the category of dirt is really the foundation of health. That's true for kids and for adults, but as you said, kids have this ... They're in this window period essentially where it's very formative for their entire lives and their entire health.

The first thing is just getting exposed to bacteria actually is transformative for the whole body, everything from the development of the gut to the development of the immune system to downstream from that, healthy brain function and mood. One of the things I think that people have forgotten is that ... We think being hygienic or we thought being hygienic was really the healthy way to be. If you're dirty, that was a bad thing, but now we've sanitized our lives in this way where we've sanitized our bodies using a lot of antibiotics, whether it's what our doctors give us or food that we're eating from factory-farmed animals or even what's grown in fields is treated in that way.

Dave Asprey:

I was wondering, what's your favorite flavor of glyphosate? Is it the banana flavor or the mint flavor when we spray it on the soil? For people listening, if you don't know what glyphosate is, you've been under a rock. That's that nasty chemical that Monsanto makes that's sterilizing our soil and killing the microbes in the soil. Yet, Monsanto still claims that it has no effect on human health despite the fact that our health is integrally tied to soil microbes. I don't know how you do that unless you're just evil, but that's just me. That's right. We shouldn't be eating that stuff. The reason I'm asking a question like that, Dr. Maya, is how the heck does the average person who lives in a city get any access to microbes that have any semblance to what the indigenous people you've studied get access to? You go out in Central Park, there's no microbes in Central Park that you want. They're all recycled dog poop microbes. They're gross.

Dr. Maya S-K.:

Actually, I don't totally agree with you. I think we certainly can't compare what our explosion of microbes are to indigenous communities. We've actually done studies ... Not personally me, but we have published studies on the diversity of microbes in the stool of people in indigenous communities let's say in Ecuador. They're more diverse exponentially than anything that we have in the Western world at this point. It's true that we are not going to approximate that in our life and for sure in our Western world paradigm and for sure being on a farm, as you're saying, how does that affect children? We know that living on a farm, the microbes are far more biodiverse. That's basically the holy grail. You want the microbial biodiversity.

When you're in an urban environment, though, there are ways even if they're not perfect. To go out, to be in parks is a big one. Composting is another one. You want to just be in an environment, in a dirty microbial environment. Even being with other people is actually ... We've seen some really great studies looking at young people who are out and more social and connecting with other people have more biodiverse gut and skin microbes than people who tend to be more at home or being a hermit. There are a lot of ways, I think, in cities that we can increase our microbial biodiversity, but it's certainly not simple.

Dave Asprey:

How do we know we're getting the right microbe biodiversity? This has been an area of interest for me for years? I got diversity, but now I've got E. coli, the bad E. coli, not the good E. coli. Now I've got Clostridia. That's the bad Clostridia, not the good Clostridia because there's good and bad. You can get all sorts of bacteria that you don't want. You don't have much control. There's a service called Viome, V-I-O-M-E. I joined their advisory board. That lets you get a test either two or four times a year to see what's going on in your gut, but we know, you change what you eat and go shake hands with some different person and two days later, you might have a new passenger that's good or bad. How the heck is someone going to manage that? Give me some hints here. What do I do?

Dr. Maya S-K.:

I think the first reframe is to think of most bacteria as good or bad. I think for the most part, it's not necessarily good or bad. It has to do with the health of your own body, your own gut that determines whether the passengers are good or bad, but not so much ... There are definitely a few bad, bad, bad players, but

really the key is when you have a lot, a lot, a lot of different communities of organisms, then it prevents any one organism from growing out of control. It's not like we want to be ... We're never really free of "bad organisms." We have them all the time and we are filled with viruses. Even many of us have parasites.

Actually, what we're finding is these can benefit us. We have very synergistic relationships with them, but it has to do with having that biodiversity that protects us. Basically, if you have only a few organisms, it makes it a lot easier. There's no checks and balances and one of them can grow out of control like Clostridia or E. coli and cause horrible problems. When you have numerous communities, that biodiversity is what's actually protective.

Dave Asprey: I took rat tapeworm larvae every couple of weeks for a year. Was that a good idea?

Dr. Maya S-K.: It depends on why you were doing it.

Dave Asprey: It just seemed like a sexy thing to do at the time. I was doing it so that ... It's part of Helming therapy. I was doing it to allow the rat tapeworm larvae ... By the way, they can't actually turn into tapeworms inside of you. That's why you use that species. I was doing it so that they could signal to my immune system to chill the heck out so I could have fewer allergies and things like that. I'm working on reversing some food allergies I got from being in ketosis for too long without enough carbs to make a lining for my gut.

That's an example of something like that, but ... You're a neurologist and you have access to all this stuff. I have access to the stuff that normal people either wouldn't do or just don't have access to. What I'm looking for is, all right, maybe if you have a kid with autism or a severe problem, you might do something like that. Are you just basically saying our kids should go to the park and not wash their hands when they come home? How do I translate this into something that I can actually do?

Dr. Maya S-K.: To answer your question about the deactivated parasites, obviously, you're aware that there's tremendous ... Let's say growing and growing, and soon to be very robust, literature that supports the idea that actually not only do these organisms chill out the immune system like taking parasites, but actually they just by virtue of taking something like deactivated parasite eggs or in some cases giving live hookworms, which is happening in academic centers-

Dave Asprey: I took those too about 10 years ago. These were pig whipworm eggs. They were delicious.

Dr. Maya S-K.: When we take those, actually what's been measured is that the biodiversity of our gut flora skyrockets. Without adding in any bacteria, it's this beautiful model of biodiversity begets biodiversity. It's actually very interesting. What we've seen is that, again, we have this idea what parasitism is. One person is giving

everything and the other one's taking everything. What we're learning about parasitism is that actually it's probably a mutualism, that we're each getting something out of it, which is pretty amazing and turns the whole idea of parasitism on its head from a medical standpoint.

Dave Asprey: There was also a recent book. I think it was called Your Brain on Parasites or something. It made a really convincing case by looking at animal biology, for instance, the fish that swim up to the surface and show their bellies for the birds to eat them, 90% of those fish are basically infected with a parasite that causes that behavior because their parasite has to get the fish eaten so it can reproduce and fish [inaudible 00:16:51] on land. They cite dozens of examples throughout the animal kingdom of where parasites are driving behavior of large mammals with the obvious theory being that you and I are probably being driven by parasites right now and we don't know it. Do you believe that?

Dr. Maya S-K.: I actually will say when I observe kids in my office. I see it in particular with kids with autism, but not limited to that group, where they're sticking their hands in their pants a lot. That is very, very commonly going to be a kid who has parasite issues.

Dave Asprey: Is that called Al Bundy parasite?

Dr. Maya S-K.: It should be. I wish doctors actually had more creative names for things. I think we should put you in charge of that, Dave.

Dave Asprey: You think that that's a behavior that's actually there to spread the parasite?

Dr. Maya S-K.: Driven by parasites because the way we transmit parasites to one another is fecal oral. You put your hand in your pants, then you touch a doorknob. Someone else touches that doorknob, puts their hand in their mouth for whatever reason and that's the way parasites are spread. That behavior is definitely I think driven by parasites, but certainly I can say that from an anecdotal standpoint. I don't know if it's been studied well.

Dave Asprey: Now we're proposing that we go out and we do things that give us a broad, but ill defined, group of bacteria with the idea of saying more is better, but not necessarily looking at ratios or percentages or specific genetics. How we've got bacteria and you're going to get some parasites in these practices as well, but they're probably good except, wait a minute, last year, in one lovely salad at a nice hotel, I picked up Giardia plus a brain-eating amoeba that took up residence in my gut. Yes, I'm going to talk about this on Bulletproof Radio in front of hundreds of thousands of people. I didn't have a solid poop for about six months. It was pretty hellish. This was really unpleasant. Apparently the amoeba can drill through your gut lining, move into your brain and kill you.

Fortunately, I guess, I take a lot of collagen or whatever else so my gut lining held its integrity. Eventually, after four experts later, we figured out what it was.

If I don't wash my hands, I go to Central Park or wherever the heck else I go, farms and things like that, walk barefoot around chickens and God knows what else ... Man, that was not a positive experience for me. How are we to know that what we're doing is at that beneficial versus in this case eating a salad from somebody that didn't wash their hands? What do I do?

Dr. Maya S-K.: I think that the first thing is I actually wouldn't argue that we shouldn't wash our hands. That's just stink, number one. I don't think I said that. What I think [crosstalk].

Dave Asprey: No, you didn't, but I'm like, "How do I get this? What do I do?"

Dr. Maya S-K.: I do think just to get back to your saying ill-defined bacteria, we as humans want to control everything that we can. We actually do best with what nature ... Nature just does better than we do, let's put it that way. Actually, of interest is this whole idea of fecal transplants. It's not to say that stool is always bad. It's just in that case, it's better done in a controlled way than just popping it in your mouth in a fancy salad.

Dave Asprey: Yuck.

Dr. Maya S-K.: I do think washing hands is important. I just think we should be washing hands with soap and not using things like hand sanitizer, cutting back on things like bleach. Actually sponges, they make a big thing about how they're filled with bacteria, but we know now that people who have dishwashers tend to have more allergies than people who wash dishes with sponges probably because the sponges tend to be more bacterially diverse. Actually, we're having some exposure in that way. Using bleach actually seems to cause more infections, more respiratory infections in certain studies than not using bleach.

Really it has to do with keeping things clean, but in a pretty moderate way and doing the basics of hygiene without taking it as far as we've taken it. We always want to swing the pendulum in this crazy direction, but I don't think being too far in either direction is the answer. On the other hand, think about it, as a kid, I was rolling down hills. I was running around outside for hours. I didn't have a cell phone. My parents didn't know where I was. I was making mud pies. I was standing. There was a creek near my house. I used to play there for hours by myself in whatever dirty water was there. It used to have rainbows on top, so it probably had gasoline too.

Not necessarily recommending that, but we were dirty as kids. I didn't wash my hands in between every activity. Someone brought a snack, I probably popped that in my mouth. I think that there's definitely a balance. We do want to get dirty. There is a reason, for instance, that babies have so much hand to mouth behavior while they're crawling on the floor. The idea is that they're getting their hands dirty and they're actually seeding their microbe again and again and

again during this really critical period. They're getting these biodiverse organisms.

Kids were put outside and the floors used to be dirt floors. The idea is you don't want to have to have a lot of fecal matter around. That's actually really problematic. If it's in your water, if it's in your soil, that's a problem. That's to be avoided. Beyond that, having some exposure ... At the end of the day, great, wash yourself off. Use soap. Don't use all those chemicals. I use a bar of soap. People think that's so old fashioned apparently, but all those washes and body washes and things actually kill off a lot of the beneficial organisms that are on our skin and in our bodies.

Dave Asprey: You don't want to sterilize everything, but you want to wash off some of it. Is that an accurate way to put it?

Dr. Maya S-K.: Yeah, I think that's what it comes down to. We want to have organisms living on our skin. Right?

Dave Asprey: Absolutely. There's that company, Mother Dirt, that actually makes bacteria that you spray on your skin, which is kind of a cool thing. I'm not sure that if I'm a mom listening right now, I'm like, "Okay, I'm going to the airport tomorrow and I have an 18 month old. Do I let them crawl around at the airport and then touch their face?" For my kids, I was like, "No, airports are bad places to pick up microbial diversity probably. If you're in a park that doesn't seem like it's got too many Tootsie Rolls left by dogs, that might be a good place to crawl around. If you're in an urban environment, where do you go? What's the best place for this?"

Dr. Maya S-K.: I do think going to parks. You'll have to know where you're going. You have to know where you are there, but I do think going to parks is probably a great place. If you're in an urban environment, getting out of that urban environment periodically is also incredibly, incredibly important.

Dave Asprey: Go camping and get dirty. I like that idea.

Dr. Maya S-K.: Yeah.

Dave Asprey: There's a reason to join the Boy Scouts or the Girl Scouts maybe, just to get your kids free probiotics other than the \$1,000 cost of the camping trip, but you know how that is.

Dr. Maya S-K.: There are studies done on soil probiotics that are pretty incredible. *Mycobacterium vaccae*, for instance, boosts serotonin levels in the brain similar to the levels that are found if you're taking SSRI antidepressants. You can actually have a massive serotonin boost that makes you feel good and improves your mood and improves even your cognition for the price of going and digging in your garden or making a mud pie with your kid. Other studies have shown

actually it reduces anxiety and it boosts cognition like in animal studies. It's pretty impressive. These little mice were completing different mazes twice as quickly and with half the anxiety of the other mice when they were fed this bacteria.

Dave Asprey: That's pretty cool. If I was to eat that bacteria, is it going to stick? What do you have to do? One of the problems is that, at least for people who are relatively healthy, taking probiotics often times is shown to not do very much. They don't take up residence. If I wanted more of this stuff, what do I have to do?

Dr. Maya S-K.: What they called it was a super hero effect. They said the super hero effect lasted about three weeks. Then they needed another exposure, but this is remember an exposure to soil. What they recommend is gardening, you get a little bit in your ... Being outdoors, you breathe a little in through your nose. You get a little bit on your hands and little cuts on your hands. You might eat some of it by accident. Those are the little ways. You don't actually need a lot to have the benefits. Every three weeks is what they found in that particular study that they did. What it comes down to is we need to have ongoing, repeated exposure to nature, exposure to soil to maintain the benefits that we derive from it.

Dave Asprey: You're going to get mad at me, but I'm considering that a very substantial percentage of the world population doesn't have access to clean soil. I live on an organic farm. My kids pick up sheep poop. I am not in that, but I know that the majority of people listening to this are going, "What the heck?" Can you just get a nasal spray with this cool stuff and just give yourself a pump every three months and just be done with it? Some muddy water in the nasal spray? Seriously. How are we going to do this for billions of people who aren't going to get access to this? Are you working on that? Are people working on this?

Dr. Maya S-K.: That doesn't make me mad. I could never be mad at you, Dave.

Dave Asprey: I'm trying.

Dr. Maya S-K.: I would say this. I think that there are going to probably be a lot of pharmaceutical ways and I've been contacted by different companies that are interested in developing these kinds of products, but I think our real goal is going to be to increase people's exposure to clean soil. I know that sounds maybe pie in the sky, but that's what we really have to demand because the kind of benefits, which have been objectively measured that we get from being in contact with soil and being in contact with nature are so tremendous and so much beyond that little squirt of bacteria. For all we know, we need that bacteria to be maintained with other bacteria and tree bark. I don't know, but the point is we need to be out there and really getting dirty in a real way not just for that one bacteria, but for many other reasons.

Dave Asprey: We're going to switch gears in a minute here to talk about some other indigenous culture stuff, but first, Elon Musk wants to send a colony to Mars. When you're on a spaceship, how do you know which microbes to bring with you?

Dr. Maya S-K.: I would say you go to your organic farm, take a bucket or a number of buckets of soil and hopefully not right near where the sheep are pooping and just sprinkle a little bit of that in your food every day and you're probably going to be getting a pretty good biodiverse probiotic straight from nature.

Dave Asprey: Somehow I don't think that's what they're doing. I actually am a huge fan of colonizing other planets, and I think it will happen in my lifetime. I also think that my lifetime is going to be longer than the average lifetime. 180 plus is my goal and I'm actually working on that. That said, I think that we are so clueless about replicating even somewhat of a natural environment that makes us thrive that it's going to be hard to go to other places unless we figure out the microbial diversity and avoiding, say toxic fungus growing on your spaceship, because that'll sort of kill you as well as getting our lighting and even our EMF environment to replicate what we naturally had on Planet Earth. Apparently, we are plugged into our environment and we don't operate very well when we're not plugged into it.

That very much replicates some of the thinking you're doing. I'm just guessing that we don't have the ability on any of the spaceships we have today to replicate the diverse environments of the planet like, "Here's our jungle section. Here's our dessert section." We're not going to bring the whole pharmacopeia of the planet with us when we go somewhere. What are the minimum essential elements? I don't think anybody knows yet, but I certainly appreciate that you're looking into this and say, "What does this do? What does this do?" The interactions between the two, that's going to take some more learning, I think. Do you agree?

Dr. Maya S-K.: I think it's going to definitely take a lot of learning. I'm going to be really curious what we'll be able to replicate because there's definitely I think ... This probably does lead into our conversation about indigenous communities, but there is this innate intelligence I believe within nature that is very synergistic with us because we've been involved with all of these elements, water, air, soil, trees, plants, all these different things over a millennia. Our bodies, plant bodies, soil bodies, however you would talk about it in indigenous communities all recognize each other. I think it's going to be a real undertaking to try to replicate that, but I have no doubt that attempts will be made and interesting if they will be successful. I'm definitely curious.

Dave Asprey: That sounded to me like you were saying they're not going to be successful. Did I hear you wrong?

Dr. Maya S-K.: Mm-hmm (not sure).

Dave Asprey: I suspect that we can do it. My understand of things is that the environment is a very complex system and that we're definitely plugged into it. Our bodies listen to everything in the environment around us. A lot of what keeps us going is that we are a Petri dish for the things that make our energy. If your Petri dish is clean and has the right nutrient broth, it can generally succeed unless the environment the Petri dish is in doesn't work. You leave the Petri dish in the sun, it's probably not going to work the same as if you'd put it in the fridge. We need to account for things like that, but I'm guessing it's hackable enough that we can go somewhere and make interesting stuff happen. If not, I'm pretty sure some people will die trying. In fact, I guarantee it.

Dr. Maya S-K.: I agree with you on that one.

Dave Asprey: That is what happens when you are an explorer and it's happened throughout all of human history long before we had things other than feet to go walking to see what was on the other side of the hill. Turns out there were tigers there. Too bad.

Speaking of the other side of the hill, the other thing you do is you do a lot of work with indigenous cultures, plant-based medicines. I just finished my plant-based medicine, that would be coffee, mother nature's original smart drug along with say tobacco, another well-studied smart drug. Your work takes you just not for microbes and microbial diversity and nutrition from these native cultures, but also into some of the more spiritual stuff. Talk about what your work there as a neurologist has done. How has the spiritual side of indigenous practice affected your neurology practice and vice versa?

Dr. Maya S-K.: I like to just be clear that, as you're saying with the idea of plant medicine, that it's a really diverse category with many, many different ways to partake. One kind of plant medicine that I talk about that I think is really accessible to people is the idea of giving flowers to people. A lot of people say, "Oh, I don't know anything about plant medicine. I don't know anything about herbs. I don't know anything about all of that." I always like to think about, "Have you ever given anybody flowers?" Pretty much most people will say, "Yes," you've either given or received flowers.

We give flowers to people when we're happy, when we love them, when we want to congratulate them, when we're sad or we've experienced loss. The reason why we do that is because it transforms the way we feel. It makes us feel different. That's actually a form ... In these communities we would talk about it in a way like it's affecting you in your physical body, in your emotional body and in your spiritual body all at the same time. That transformative effect is actually what we would think of as a form of plant medicine. Obviously, we can take it into different kinds of herbs that we ingest including things like coffee and beyond.

Dave Asprey: Let's talk about flowers. You set some flowers in front of someone, so there's an optical effect. The different colors that come from the flowers, some of the light

that is reflected is going to be polarized. Some is not going to be polarized. You get the different frequencies, the different spectrums. Then you get the actual pollen and you get the terpenes, which are shown to affect your gut microbes as well and things like that. You get the psychological effect happens, "Look, beautiful flowers. I see beauty. I see nature," other stuff like that. There's a chemical thing. There's an optical thing. There may be an EMF thing that comes from flowers. I have no idea. There's maybe bacteria or fungus that comes in on those.

Dr. Maya S-K.:

What about scent? That's going to go right into your limbic, primitive brain and trigger all kinds of memories and feelings and pleasure centers. Speaking of the different kinds of chemical effects, that psychological effect of looking at nature really can't be underestimated because there have been several studies now where people just looking at nature, let's say they're in a hospital post surgically, they're looking at trees out the window versus a brick wall, they heal more quickly, they need less pain medication. They have fewer complications. They're discharged earlier, fewer negative notes and nurses charts. It's a real, real thing, but yeah, you've got all those things.

Dave Asprey:

It's just interesting as a biohack. The environment around you changes your biology. It changes on a lot of levels. "Oh look, flowers," but that's just the very highest level pattern of flowers that you're seeing. There's all sorts of effects underneath that. If someone hands you plastic flowers, even if they're really good replicas, it doesn't work the same. Maybe in the background or something, you would see that, but if you turn your awareness up all the way, you're like, "Oh wait, it's not the same." You know it at a visceral level, which is fascinating and something that I don't think is that well studied, but it's a real effect.

One of the other things that indigenous cultures, pretty much all of them do is ... How do I put this delicately? They trip balls. Was that delicate enough? In other words, they use hallucinogens or hallucinogenic practices, extended fasting, isolation in a cave, eating strange forms of cactus, mushrooms, ayahuasca. In pretty much every continent I think except for the North Pole has DMT containing plant compounds and in almost every single practice ... Mongolians drink fermented mare's milk that makes you trip. We seem to be driven, at least in indigenous cultures everywhere, to have these altered state experiences. How important are those both in human development and ... ? Are those an important or a meaningful part of neurology or the spiritual side of the things that you studied with these people? Just walk me through your thoughts on that.

Dr. Maya S-K.:

I think they have actually incredible potential. I would start by saying that the way that these substances are used is that they're considered sacred. This is, I think, really important because a lot of the way we interact with plants has been fraught especially in Western culture. For instance, the way that North Americans are referred to in South American that I heard several times were junkies. They mean that in many ways, not just in the way that we might think of it here. The idea is that we want to use these things and take, take, take. In

those cultures, the idea is that it's a relationship and it's an alliance and that it's sacred. You might think about the way we use something like the poppy plant or the coca plant is a great example. When I was in Ecuador, it's very common for people when they're going to high altitude or in the morning for good energy, they chew coca leaves or make a coca tea. It's actually incredibly effective for [crosstalk].

Dave Asprey: I used it.

Dr. Maya S-K.: Yeah, me too.

Dave Asprey: Certainly, mata de coca, I was actually sad I couldn't bring some back. Actually, I might have accidentally brought some back and found it a month later in my pocket. Sorry about that. I used it after so I don't have it anymore. It really did help with altitude sickness. You get these old people out there that have gone out and hand harvested this stuff. They typically are older. They're selling it in a market for relatively small amounts of money, but it's not an industrial process, whereas here, "Let me just snort some white powder that came from the same thing."

Dr. Maya S-K.: That's the point is that we go instead of having respect for the plant and using it in the way that ... Honoring what it has, what we call master plants in plant medicine. These certain plants are very powerful. Coffee is a master plant. Tobacco is a master plant. Coca is a master plant and so on. When we try to purify it and take the power from that plant in a way that's not respectful, that plant can destroy you. I think from a spiritual standpoint, because we don't have a good spiritual vocabulary, when we're talking about these kinds of things in North America and in Western culture overall, we don't really understand that. These plants are powerful and they actually can control you.

I like to talk about grass and I mean the kind that grows in our lawns. How many hours do most people spend if they have a house maintaining their lawn? Basically, grass owns us. We [inaudible 00:40:33] it, we mow it. We do everything so this one monoculture species can be happy. We'll do anything to make that happen, the whole thing. It literally controls us in a certain way. When we talk about these kinds of plants, even more so. I think the first point to make is just that these people are walking into this relationship from literally childhood knowing that these plants are sacred plants and that they're powerful. I do think they have incredible, incredible benefit. We're seeing that actually in many scientific studies looking at substance abuse, believe it or not, as well as anxiety and OCD and depression that's not responsive to treatment. We have really beautiful studies on many of these things for everything from microdosing of LSD to ayahuasca to psilocybin, which is in the magic mushrooms. There's really a lot, I think, of potential if we go into the relationship in the right way.

Dave Asprey: People might think I'm a little bit crazy here, but I'll tell you. I've spent my time in Tibet in shamanic training with Alberto Villoldo and various other strange

things. When I'm at home, we grow pretty much all of our own food. Every now and then we get stuff from neighbors' farms and things like that. In mid-winter, I might buy cucumbers from somewhere else, whatever. I would say 90% of our food comes from our own garden. When I'm picking the herbs that I eat every day, I actually say thank you to the plant before I strip its babies off it and eat them. I'm assuming the plant doesn't really like that, but it's going to have to cope.

The idea is expressing gratitude towards the thing that made your food, it certainly doesn't cost me anything. I know quantitatively the value of a gratitude process. You can be like, "I didn't think or I wasn't mindful when I harvested my herb or my fennel or whatever I'm eating right now," or I can just say thank you every now and then before I pluck the thing off and eat it. I actually think that whether or not the plant knows is entirely debatable, but whether I know that it was good for me to do that, I think it is. That is, I would say, more of an indigenous, traditional perspective, but there's nothing that says everyone listening, when you're looking at some amazing food on your plate, it came from plants, whether or not it's a piece of lamb or a piece of fish, it came from a plant because that's how it is. By the way, the plants came from animals because plants eat dead animals and that's just how it works.

Dr. Maya S-K.: Including dead humans. That's part of the cycle of life. I'd like to point that out.

Dave Asprey: I apologize of all of the vegans who didn't want killing to happen. Some animal died for your plant to live. That is simply how the world works. Yikes, you're going to have to be a graveltarian, which I've not made work for myself, but I'm open to the idea. Nothing dies to make gravel. What should those of listening, who are interested in a spiritual practice ... What are some options that you might recommend? Should more people be microdosing? Should people be traveling to Peru and Ecuador and once in a lifetime, like I did 20 years ago, doing ayahuasca in a traditional ceremony? Should they be joining a drumming circle in order to be more connected in nature? What are our options here? I was very fortunate to be able to do this as a young man, but for a lot of people traveling to another country to go out to the jungle and do weird stuff, it's a pretty big commitment and it may just not happen because you have a job and kids and it's just not financially realistic? What are my options in the US?

Dr. Maya S-K.: I'll say this. I think that as someone who's traveled to the jungle and experienced some of the things that are practiced there, I think that the people that ... There's a certain sense that you know if it's the right thing for you. Most of the people that I've encountered might have moved heaven and earth to get there because they needed it and they knew they needed that. I think definitely start with what you have right here. You don't have to go traveling for it. I think that that's almost always true that the things you need are nearby.

Dave Asprey: What does that mean start with what you have right here? Are you saying start a spiritual practice or are you saying call the neighborhood drug dealer? What does that mean?

Dr. Maya S-K.: I don't ... I mean [crosstalk].

Dave Asprey: I know you're a doctor. You have a license but ...

Dr. Maya S-K.: I mean in terms of a spiritual practice that simply ... There are basic things and I think having a connection with plants is a basic, critical foundation for any other kind of practice that you're going to have relating to plants. I go into the woods every day. I live in New York City. Actually, I live right near a park that has forest. I feel very blessed to have that and I express a lot of gratitude I feel many times a day for that. By the way, Dave, I don't know if you've read *The Hidden Life of Trees*, but there are some really beautiful books about plant intelligence. It's mind blowing.

Dave Asprey: Yeah, in fact, let's just endorse that. If you're listening to this and you want your mind blown, *The Hidden Life of Trees* ... If you think it's okay to eat plants and that they don't know it, oh my God, you have no idea what these plants are doing for each other and to each other and how they pass knowledge from one generation to another. It'll blow your mind. Also, the reason I read that book is that my wife, who does more of managing the organic farm than I do, given that I'm managing *Bulletproof*, which is its own big food operation in terms of doing something that's worth doing there, she read the book and was like, "You have to read this." I was like, "Okay, this completely blows my mind." Then literally, two weeks later the *New York Times* Bestselling Monthly List for science books, not for advice books, came out. This book was on the list and so was *Head Strong*, which was the hugest thing ever.

I just sat down and was like, "Wow." Lana looked at the list, she's like, "Oh my God, *Head Strong* hit the list with six of my favorite books of the year, including *The Hidden Life of Trees*." It's funny that you mention that because I shared the list with the book for one month. I have to tell people read that book. If you really want to know what's going on on your plate, it will change your perspective. It will also mean that when you see a clear cut forest, it actually will make you mad. There's no excuse for us doing that.

It's okay to take some trees, but leave some other ones because they'll talk to the new ones and we're reforesting parts of our property that should have never been cleared. It takes 30 years only if you make the right microclimates to do that. We've made the right microclimates and 30 years from now, we'll have an actual forest versus just a monocrop of trees, which is what's happening in most of the world. When you realize the vast intelligence of the planet that way, it's like, "Wow." I'll get off my soap box there, but you got to read that book. Where are you going with that?

Dr. Maya S-K.: That's fantastic. I was going with the idea that when you spend time in a forest or in a place where you're surrounded by plants, it actually is the beginning of a spiritual practice. In fact, you've probably heard of this, the Japanese practice of *shinrin-yoku*, which is translated to forest bathing, where you go and immerse yourself in the beauty of the forest. It's actually like a cultural practice and a

spiritual practice as well. There are all these science studies basically that show all these health benefits because it's practiced so widely. It lowers cortisol levels. It boosts anti-cancer proteins and natural killer cells. It improves focus and concentration and executive function.

There's all these incredible benefits that we measure, but at the same time, you're really connecting in a spiritual way with the natural world. I think these are the most basic things we can be doing to start that spiritual practice. Sometimes that's all you need. You don't need to do anything different and exotic, but then beyond that, the next kind of piece I think is, for me, I grow certain plants and spend time with plants in that way, having that experience. Then you can take it [crosstalk].

Dave Asprey: What does that mean? Do you have a little pot farm in there? Is that what you're saying?

Dr. Maya S-K.: No, no.

Dave Asprey: I'm just kidding. "Certain plants," I was just wondering. An herb garden, you mean?

Dr. Maya S-K.: Yes, [inaudible]. The point is that you have this contact with different kinds of plants before you ever make the step of considering ingesting them or whatever it may be. I do think that we are learning that these master plants, whether it be coffee, whether it be cannabis, whether it be something like ayahuasca or San Pedro or those kinds of things, all have incredible healing potential. It's going to be this kind of balance of how do we incorporate those things into our healing practices without trying to industrialize them or take away from the sacred practices? That's really, I think, what makes them so healing.

Dave Asprey: I was recently in a really remote part of the Pacific Northwest and had an opportunity to ingest a plant medicine. It was really interesting because it's not just even about healing. It also is about enhancing the capabilities that you have in sense. I've noticed this multiple times. With the right plant medicine, you can see stuff that isn't readily apparent. I don't mean, "Oh, there's a unicorn and a bunny in front of my floating." I didn't mean that at all. For instance, I could look at a hillside on a substance and your visual acuity goes way up. You can see leaves across the valley. You can see details that weren't apparent. One thing that popped up, I'm like, "Oh look." On the side of that mountain that looked just like a forest before I was on this substance, I could spot exactly where the streams were. You could see the veins on the side of the mountain and going, "Oh, if I wanted to find water," it's just right there when you know how to look for it.

Without the enhanced senses that come from some of these things, you aren't there. I imagine if you lived in that environment all the time, it would be apparent to you without a plant medicine helping. There are times when you

are more perceptive, but perhaps almost more vulnerable in other ways. Is there a downside to these plant medicines? Do some people have ayahuasca experiences that are not psychologically beneficial as well, things like that?

Dr. Maya S-K.:

It's definitely contraindicated in a number of people to various kinds of health problems. In many cases, even if they have a psychiatric history and certainly if they're on particular pharmaceutical medications. There's that whole category where it's really contraindicated. Then the way people describe ayahuasca is 10 years of therapy in five hours. I would say that is probably an accurate evaluation and I think for some people, they're not ready for that or they don't want to engage in that. If that happens, it could be traumatic. For some people, they're not going to feel positive about that experience. Even though the indigenous cultures that practice this kind of sacred medicine believe, and I believe, that the plant is giving you the medicine that you need, if you're not receptive to that it's not going to be a good experience. It's definitely not useful or worthwhile for someone who's not going to take it and want to integrate it.

Dave Asprey:

You may go do ayahuasca with someone who's untrustworthy and untrained in it and it may result in needing another 10 years of therapy because you can have a really bad experience. When I went down to do ayahuasca, this was 20 years ago in Peru. This isn't something that you did back then. I went to the guest house where I was staying and said, "I want to do this." They're like, "What?" I said, "Ayahuasca," trying to spell it differently. They looked at me, they're like, "But you're white." I'm like, "Yes, I'm aware of the fact that I'm white." And they said, "And you'll throw up. Only the medicine people do that. Why would anyone want to do that, much less you?" Like, "No, really, I do."

It took them like two days to find the right medicine man who was willing and able to work with me and to set up the ceremony the way I wanted to do it. I felt called to it. I'd been wanting to do it for a long time because I'd done my research. I was fortunate. Just like you're saying, I was ready for it. I am greatly concerned that when you land in Cuzco right now, there's a line of people saying, "Do you want to do an ayahuasca ceremony? It's 25 bucks. We'll take you up there and put the stuff in your mouth." I think that's risky. It's highly risky.

Dr. Maya S-K.:

It is. I think it's really important to say that, that there's actually a very in depth preparation process that involves things like changing your diet significantly for most people, everything from no meat, to no fermented foods, to no avocados, to minimal salt to no sexual relations. The whole gamut. This whole number of things. Obviously being off of pharmaceuticals, really not interacting with alcohol or other kinds of mind-altering substances. It's something you have to really prepare for and take care of yourself afterwards as well. As you say, really know and trust any person that you're going to be with because it's a very vulnerable experience. It can be dangerous if it's not done properly. What we're talking about is the pitfalls even if it's all done properly and you're supported well and all those things.

Obviously, the biggest concern and the biggest pitfall is that people want to make money off of outsiders or ayahuasca tourists or whatever you want to call it, who are not really able to differentiate between a good authentic experience and someone who might want to take advantage and who's going to do sloppy work.

Dave Asprey:

I would say that the summary of that is if you decide to do something like this, it's not something to be undertaken lightly. It's not recreational, and you should know who you're doing it with and you should vet them carefully. I do know people who've had some pretty bad experiences from it, had to pick themselves up. In North America, most of the stuff is just illegal, but I've interviewed a substantial number of people who believe that they're going to do all of their healing work, all their personal development work or even progress to enlightenment or be in a flow state using entheogens or hallucinogens or whatever else this is as the primary tool.

Yet there's a whole bunch of other indigenous practices, including ones that shamans do and Chinese medicine people, breathing, meditation, yoga, exercises, Tai chi and the whole side of it that isn't necessarily plant based, but is awareness based and is a core part of a spiritual practice. You're a neurologist. You look at children's development. You look at adult development and have a very interesting perspective on all this. How do you know whether going to yoga class and doing some pranayama every day is the right beginnings to a spiritual path versus like, "I'm going to do something big"? I'm sure there are people listening going, "Should I?"

Dr. Maya S-K.:

I think that the key is, like I said, that you have to start with a foundation. In indigenous communities, and I think in most people I've seen who are successfully maintaining their physical, emotional mental and spiritual health in ways that to me I would assess to be optimal or ideal, you have to start with the foundations, eating well, being connected with your environment. What I learned in the indigenous communities that I have worked with ... It was really powerful to me is physical sickness is actually something very downstream. All of your health of all your bodies begins with being in good relations with yourself, with the people around you and with your place.

To me, having those basic practices of taking care of yourself and your community and the place where you are are actually the very foundational parts of even a spiritual practice and then you can think about bigger things if you feel you need it and you feel called to that. I do think that when we look at things like pranayama breathing, for instance, I teach that to my patients including little kids because there are certain ones that are very stimulating to the vagus nerve, which lowers inflammation in the body. It lowers their risk of having seizures or migraines or other things like that.

Dave Asprey:

Hold on. We got to pause right there. A vagal nerve stimulating breathing practice? You don't have to just teach this to children, all that. Why don't you just teach everyone listening right now? You go to [Bulletproof.com](https://bulletproof.com)/YouTube,

that will provide the quick link to this episode on YouTube so you people can watch the video. Walk me through it. Do it verbally so people driving understand what it is. Give us the basics. I want to upgrade my vagus nerve.

Dr. Maya S-K.: I actually learned this from one of my teachers, Andy Weil.

Dave Asprey: He lives one island over from me. That's cool.

Dr. Maya S-K.: It's a form of pranayama. It happens to be very calming and very stimulating to the vagus nerve. It's basically you put both feet on the ground without crossing anything, no crossing your arms, no crossing your legs. You rest the tip of your tongue gently on the junction between your palate and your upper teeth. Just gently. You leave it there for the whole practice. Breathe in through your nose for four counts.

Dave Asprey: Eyes open or closed?

Dr. Maya S-K.: Either.

Dave Asprey: Breathe in through four counts.

Dr. Maya S-K.: Breathe in for four counts. Hold the breathe for seven counts and let it whoosh out of your mouth for eight counts. You repeat it four times.

Dave Asprey: So in for four.

Dr. Maya S-K.: In for four, hold for seven, and out for eight through your mouth with your tongue still in the position.

Dave Asprey: You do that four times?

Dr. Maya S-K.: You do that four times. If you do that as a regular practice ... Let's say at least two times a day. You can do it more times if you want ... You will actually feel your body completely relax. When you've stimulated your vagus nerve, you're lowering your heart rate. You're improving your digestion because you're stimulating the parasympathetic nervous system, which is the rest, digest. You're lowering your cortisol release so fewer stress hormones going through your body. Because the vagus nerve and the parasympathetic nervous system modulate inflammation, you're actually lowering your inflammatory levels in your body whenever you're stimulating your vagus nerve. Pranayama's such a beautiful and non-invasive way to do that. Even children can pick that up. Certainly, I practice it every day.

Dave Asprey: Proper time of day to do this? When you first wake up? When you go to bed? When you're at a stop light? What's best?

Dr. Maya S-K.: I'm someone because ... I work, I'm a mom. There's too many things going on for me to have the perfect time of day so I think getting it in is the most important thing and just making it a regular practice. Whenever is a good time for you is the right time. I do it actually when I wake up very often. I also like to have it available to me when I feel stressed out and my body ... I'm like Pavlov's dog. I start doing that breathing and the first four seconds, already I feel my whole body relax. I feel my whole body differently. My brain and my body are so attune to that practice because it's been a regular practice. I don't think time of day necessarily matters.

Dave Asprey: Got it. There you go. You just educated hundreds of thousands of people on this new kind of breath. When you're breathing in through your nose, is it supposed to be an Ujjayi breath or a regular breath? Does it matter?

Dr. Maya S-K.: I do basically just ...

Dave Asprey: A regular one?

Dr. Maya S-K.: Yeah. It does have to be relatively full because you're breathing in four counts, but you have to breathe out for double that. You need to take in enough air to be able to push it out for the full eight. It makes sense because when we're anxious, we're breathing in a very shallow and rapid way. This basically forces us to breathe slowly and deeply.

Dave Asprey: The thing I just mentioned, an Ujjayi breath for people listening, if you haven't heard of that. You can Google how to do it. Actually, I might ... One of the Head Strong bonus things, I might have ... I did a teaching on this a long time ago, but I couldn't tell you how to find it right now. Maybe we'll get that in the show notes. It's another kind of breathing, where you put your tongue in the same place, but you sort of make it sound like a sea shell on the back of your nose. Any good yoga teacher is going to be able to teach you an Ujjayi breath. It's something that can just knock you out. If you can't go to sleep, you do the jay breath 10 times, you'll probably fall asleep even if you have racing thoughts. They'll go away.

A lot of the techniques, like the one you just taught us, they call for that kind of a breath. I wasn't sure if you were cutting that out because it was too complex to explain or whether it just isn't necessary. Awesome. That's pretty cool. Maybe that's a place for people to start who have no particular practice. You could just do a breathing exercise like this. Like, "All right, now I'm doing something that didn't take a lot of time, something that I can do during brief pauses during my day."

I've done probably tens of thousands of breathing exercises at stop lights. Now that my commute is pretty much through my garden from my house to my studio, that means that I don't really get the same mindful time when I'm driving. I would encourage you if you're sitting there, you got nothing else to do,

the previews are coming on at the movie theater. There's all kinds of times when you can choose to do something like this if you just make it into a habit. It's a valuable thing. It doesn't require hallucinogens. It doesn't require a trip to Ecuador or Peru or anywhere else funny, but it actually does start to shift the needle, which is a cool thing. If you do that and you rub yourself in mud first to get the microbes, is it better?

Dr. Maya S-K.: I always think a little rubbing in mud is going to be fantastic so you're not going to get me to say no to that or go hug a tree. I actually will occasionally do Facebook Lives with my Treehugging Tuesday.

Dave Asprey: Nice.

Dr. Maya S-K.: Going out there and just actually ... I feel like if people see a neurologist willing to do that, maybe they'll try too. That's another thing I think in an urban environment ... You just have to be careful of the dog pee at the bottom of the tree, but then go throw your arms around a tree. I think it's a good physical practice. You share your microbe with that tree back and forth and I think also it is very grounding and a beautiful spiritual practice.

Dave Asprey: It's funny. The type of tree you hug matters. Where I live, there are certain cedar trees. You hug that tree. You're going to need new clothes. In the desert, where I grew up, you hug a Mesquite tree, you're going to need some Band-Aids because they're covered in thorns. One of the shamans that I did some work with a while ago had Mesquite trees growing in her area around her place and was like, "I don't like it that they're covered in thorns." She went out every day and meditated for a few minutes with her Mesquite trees. In a year, they all dropped their thorns. She has thornless Mesquite trees in areas where she wanted them. I'm like, "Whoa, that's pretty cool." I saw the trees. I don't know anywhere else that there's thornless Mesquite like that, but the ones that weren't meditated around certainly had thorns like any desert Mesquite would. I was pretty impressed. Who knows? The trees might be listening.

Dr. Maya S-K.: I've seen many, many interesting things like that, but I will also say that in Ecuador, the shamans that I've studied with believe that using things like stinging nettles, which for those of you who don't know is a wild plant that actually brings out welts on your body, painful and itchy welts, is the appropriate way to ... They make a brush of stinging nettles and brush your body with it. They use it on children because they feel it's the way to actually physically and spiritually protect them and help them become stronger. I actually did watch one of the children be cleaned with the stinging nettles and develop welts all over her face, which then went away soon after. It was very fascinating. In some cases, the shamans actually want to utilize that painful aspect of the plant.

Dave Asprey: I would tell the kids, "Look, if you don't behave yourselves, we're putting stinging nettles in your bed." No, more truthfully, my wife grew up in the old Czechoslovakia. I say Czechoslovakia because that's what it was called when she

grew up there, not the Czech Republic, which is what it's called now. Her grandfather and grandmother every spring would go out and get stinging nettles and rub them up and down their arms because they're like, "It stops allergies." We actually do that including with my kids. I've done a ... I don't know if it was a Facebook Live, but certainly I've posted videos where every spring my forearms are covered in welts because I go out there and brush them. The kids do the same thing. We don't brush them. We just tell the kids, "You can do it, and it makes you stronger." They're like, "Okay." It's neat to watch a five year old or a six year old go, "All right, I'm going to do this."

If you've never experienced stinging nettles, like, "Oh my God, what is this?" They're little tiny micro hairs. They have something called oxalic acid that if you ingest it is pretty bad for you, but in the skin it just causes a histamine response and release. You get these brief little red welts. They sting for a couple of hours. Not in a horrible way, but kind of an itchy mosquito bite way, and then they're just gone. You realize, "Okay, I didn't die. I wasn't even that uncomfortable," but it actually does build character toughness and probably has some biological effects that we're still figuring out. I practice this regularly.

Dr. Maya S-K.: I have a good one for you, Dave. I bet you're going to be doing this with me next spring. I don't know if you've ever done this, but taking the sprouts of poison ivy ...

Dave Asprey: That sounds evil.

Dr. Maya S-K.: The sprouts and making a tea from them when they're really ... Yeah. Yes. Drinking that tea actually is protective against getting poison ivy. A lot of plant people actually will do that.

Dave Asprey: On the West Coast here, we don't have poison ivy or poison oak. That stuff is just mean. If you burn it and breathe the smoke, you might need to go to the hospital because it's so toxic. Does that work with poison oak too?

Dr. Maya S-K.: I don't know.

Dave Asprey: Don't try.

Dr. Maya S-K.: But I'll get back-

Dave Asprey: Don't try that. Just for anyone listening. There's a difference between poison oak and poison ivy. I would not reckon poison oak unless someone has vetted this before you or you have epinephrine and be ready to go to the hospital. Poison ivy maybe.

Dr. Maya S-K.: I don't recommend doing the poison ivy thing either except for crazy people like us.

Dave Asprey: Or with an herbalist. If you're going with someone who knows what they're doing ... If you get too much or pick the wrong stuff, the vast majority of plants out there will kill you. I remember when we had a ...

Dr. Maya S-K.: I feel like I would take issue with that.

Dave Asprey: Would you?

Dr. Maya S-K.: I don't think the vast majority of plants, but I would say ...

Dave Asprey: If you eat them?

Dr. Maya S-K.: Yes. I would say there are plants out there that could kill you and if you don't know what you're doing, then you could screw up and get really sick or die, but it doesn't mean that the vast majority of them could kill you.

Dave Asprey: I suppose it's a question of dose and all those things. I remember my daughter when she was three. We taught her, "Go to the garden and these are the plants you can pull off any of the herbs and eat them and they're good." She'd walk around oregano. One day, she's like, "Yum." She pulled some leaves off the squash plant and ate them and had the world's worst bloating and gas for a while. It's because plants have defense systems. There are plants that are good to eat and plants that aren't good to eat and plants that a sheep can eat that we can't eat and things like that.

Dr. Maya S-K.: Absolutely.

Dave Asprey: Plants do cover themselves in chemicals to prevent themselves from overpredated. Poison ivy's a good example of that. If you overdo that, you might not like what happens, but poison ivy probably won't kill you unless you just can't breathe.

Dr. Maya S-K.: I will say that when we're talking about phytonutrients, like we're talking about all the terpenes and the oxalates and all the different kinds of antioxidants, really what we're usually talking about in fruits and vegetables, those are actually the plant's immune system and the plant's defense system. Having those kinds of predators actually is what triggers those plants to produce more and more of those, which is why wild plants are so incredibly nutrient dense. Those stressors are actually boosting the plant's immune system. Those are the things that actually then come into our body, act as small poisons in a certain way because they are in a very small way toxic to us and make us up our game. It's all really this very cool cycle.

Dave Asprey: It's incredible when you think about it. If you wonder what's the difference between organic blueberries and wild blueberries, if you measure them for their polyphenol count and things like that, there's a huge difference. It's that predation thing. Introducing enough stress into your life to cause you to get

stronger and introducing enough stress into your plants' life to make your plants stronger so when you eat it, you'll be stronger is also important. This is one of the concerns with modern agriculture. "Oh, it's organic." "Yeah, but it was organic grown in a place with no natural stuff around it. Even though it's organic, it's not going to make the stuff that you're supposed to get from those plants." It's of concern when we look at growing everything in these vertical gardens and things like that. Where's the stress coming from? It's got to be the right stress.

Dr. Maya S-K.: Right, but it's certainly ... When we're applying things like the most toxic kinds of pesticides and we're getting rid of all the microbes in the soil and getting rid of all the pests, it actually ... Conventional farming I think is the lowest in those phytonutrients. Organic farming-

Dave Asprey: Is better.

Dr. Maya S-K.: Certainly has better and biodynamic is probably even better.

Dave Asprey: That's what we do.

Dr. Maya S-K.: Wild is the best.

Dave Asprey: You mentioned biodynamic, which is really cool. Dr. Mercola was just over here actually the day before we recorded this, over here at my house. He's doing biodynamic. Our garden is mostly biodynamic. This is the next standard beyond organic, where you're planting with the cycles of the moon and you're enriching the soil in a way that isn't required in organic farming in order to increase yields. It's fascinating what can be done, but then you look also at what's probably on your plate unless you're buying at the farmer's market or you know what you're doing or maybe paying 20% more for your vegetables because you know the name of the person who grew them and because you knew that they cared enough to take these things.

I'm certainly concerned for the health of the plants that we eat because it's not enough to say, "I ate plants." I ate the right plants that had the right environment so that they would send my body the environmental signal that's best for me. It's a tough thing and you'll never know for sure you did it right, but you'll know, "Wow, I felt really good when I ate those. I didn't feel so good when I ate those other ones." It's amazing. Pick the food that makes you feel good. Shocking.

This has been a fascinating and fun conversation. It's not so often that anyone gets to hear from a neurologist who's traveled to indigenous cultures and learned about those as well and focused so much on microbes instead of just nerves. Thank you for having just a diverse set of interests and tying them back into your well-grounded Western medical knowledge, which is something that's often times lacking. You've got to fit in both worlds, which is admirable and

cool. If someone came to you tomorrow and said, "Look, based on all this stuff you know, all the things you've experienced, I want to perform better at everything I do as a human being, what are the three most important things I need to know," what would you tell them?

Dr. Maya S-K.: I would say, number one, is going to be the food you eat, nutrient-dense food that is as unprocessed as possible coming from the right environment, as you say.

Dave Asprey: So eat Pop Tarts.

Dr. Maya S-K.: Organic Pop Tarts. The second would be getting outside into nature. I think that's absolutely critical. That can be in any number of ways. The third would be actually I think having a spiritual practice. I think that that's critically important. My spiritual practice is in most cases very connected to the natural world, but I think whatever spiritual practice speaks to you. Just doing something and having a discipline around it, I think those are the three optimal ways to live and function.

Dave Asprey: Thank you Dr. Maya. In fact, just for people who want to hear your full name, Dr. Maya Shetreat-Klein. People can find you if they Google for The Dirt Cure, which is probably the easiest way to come across you. That's the name of your book that's done very, very well, where you talk about microbes and all. I really appreciate you being on Bulletproof Radio. Is there anywhere else people can go to find more info about what you're up to learn more.

Dr. Maya S-K.: They can come to my website, drmaya.com. All the information about everything I'm doing and courses I'm teaching and trainings I'm doing are all there.

Dave Asprey: Beautiful. Thanks for spending time on Bulletproof Radio today. Have a beautiful day, and go hug a tree.

Dr. Maya S-K.: If you liked today's episode, you know what to do. Head on out there and pick up a copy of Dr. Maya's book or read *The Hidden Life of Trees*, which is awesome. If you haven't read it yet, you could read *Head Strong*. There's some good stuff in there as well. If you read any book that's worth your time, the number one thing you can do to express gratitude and just to make your own life better, go to Amazon and leave a review for the author. Authors, like Dr. Maya and me, we spend thousands and thousands of hours compressing what we know into about four hours of read time for you.

If it was worth your time to do that, if you say thanks in the form of a five-star review or four stars, however many stars you're supposed to get ... I don't know. Lots of them ... And then leave two sentences that says whether the book was worth your time, it helps other people know it's worth their time. Book reviews

matter enormously to authors. I'd be grateful if you'd go out there and leave a review for any book you've read that was awesome.