



Essential Alchemy

The Ancient Art of Healing Naturally

Season 1, Episode 20: How Plants Support the Parasympathetic State with Maya Shetreat, MD

Jodi: Hi, I'm Jodi Cohen, and I'm very excited to welcome Dr. Maya Shetreat. She is a neurologist, an herbalist, an urban farmer, the author of *The Dirt Cure*. She's also the founder of The Terrain Institute, where she teaches terrain medicine, earth-based programs for transformational healing. She works and studies with indigenous communities and healers in Ecuador, and is a lifelong student of plant healing. And, you're going to have to help me with this word.

Dr. Maya: Ethnobotany.

Jodi: Ethnobotany. Land on that for a second. What is ethnobotany?

Dr. Maya: Ethnobotany is basically the study of how different cultures, ancient, indigenous, and other cultures, interact with plants physically, spiritually, all different ways.

Jodi: That's amazing. And we're going to geek out on the parasympathetic nervous system, and also some really easy earth-based practices that you can do to kind of nourish and balance your parasympathetic state. So Maya, if you can just take off with that and talk a little bit about the parasympathetic state, and how plants can help nourish you?

Dr. Maya: Absolutely. So, I have always been kind of obsessed with the parasympathetic nervous system. And part of the reason is in my practice where I would see children and adults, it was so common. I noticed for decades that everyone was so much in sympathetic overdrive, and we live in this culture right now that is very sympathetic dominant. It's all about action. It's all about doing things. It's all about achieving. It's all about, kind of like, stressing to get to the next level, to be perfect, to do all these things. And it's so internalized, I think that we don't even realize it, and how we operate or how we have our children operate.

So what ends up happening is that we're in this fight or flight state, which the sympathetic state is. I mean, we could get more into that and I'm sure you have in other sessions. That kind of fight, flight, or freeze, where there's all these ways that we kind of are really activated, over activated, and we have cortisol coursing through our veins, like our stress hormones are going, and where our blood is kind of pumping to our limbs, but not really pumping to our organ systems as well as it could be. And our digestion shuts down. There are all these different things, that if someone comes to me and says like, "I'm really constipated, or my kid is really constipated." One of the things I'm always thinking about is, "Are you in sympathetic overdrive?"



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Dr. Maya: Because your gut's going to shut down, and so if you're not moving your bowels, it could be, not because not to say that it's one issue all the time, but so many people who are overstressed, it's such a foundational heart of recalibrating your digestive tract and your digestive health, which is so foundational for so many other things, as we know now. Just to be more in balance between the sympathetic and the parasympathetic. Everything in nature is about balance. And we love to kind of demonize like, "Oh, sympathetic or inflammation," or like there's a role for the sympathetic nervous system, we need that.

Jodi: Yes, in balance with the parasympathetic.

Dr. Maya: In balance. Right. And so as we know more and more about what the parasympathetic nervous system does, right? It's the rest and digest, so we digest better. We have more blood flow to our organ systems, which for our bodies, that's kind of a luxury, as opposed to, if you have to run away from the lion. You need to have blood coursing to your brain and to your limbs. So it's kind of luxurious for your body to say, "Ooh, like we're going to digest. And so you have time to go poop. Or yeah, you're going to get all the blood flowing to your organs, so they're nourished. And then we can detoxify whatever's in there that needs to be moved out. Or we're going to sleep well." And these are, I think, so many of us, because we do live in sympathetic overdrive either periodically or ongoing, we do think of these things as luxuries, right? Detoxifying is kind of a luxury. Sleeping is a luxury. Taking those moments of rest and digest are actually because of our culture, you know? They are luxuries. So, but what's really fascinating to me is that they're actually not luxuries and they're very foundational.

Jodi: It should be part of the cycle. And that's why I think it connects with nature to me, like there's always an ebb and a flow in the cycle and you don't just get stuck at night.

Dr. Maya: Right, right. Exactly, it's a cyclical thing, just like nature is cyclical. And so, we are intended to have our activated times, and our deactivating times. And if we have a balance, it's perfect. It's the same with inflammation. And the reason I bring that up is because inflammation has a really bad rap. Because it does, it is sort of the immune system kind of lobbing grenades in the body. And that can be to protect. It can be to actually destroy synaptic connections in the brain that are no longer important or useful. There's a very important role for inflammation in the body. It's when it gets out of control, it's a problem.



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Dr. Maya: Well, about 10 years ago, I found this really cool paper. And of course there's been a lot more published since then that shows, that the vagus nerve, which is a part of our primitive nervous system. And it's a meandering nerve. It doesn't really almost make any sense in the body from an anatomical perspective. It goes from the gut and it meanders its way up through the diaphragm and the lungs and the heart, and kind of moves its way through all the way to the brainstem.

So here we have this meandering nerve that's part of our ancient nervous system. And when it's activated, it actually is activating the parasympathetic nervous system. It's modulating the nervous system. And it's cool because it connects all different parts of the nervous system, right? It's like the gut, which we know is now an important part. It's the diaphragm and our respiratory rate, it's our heart rate. Right? All of these things. It's our brainstem.

But what's so interesting is it also modulates inflammation in a millisecond to millisecond way. So when you're stimulating your sympathetic nervous system, you're more likely to go into like an inflammatory mode. And if you have allergies, or autoimmune disease, or really any kind of chronic condition, that inflammation might just become to be too much. It might really cause problems. The parasympathetic nervous system, and the vagus nerve is the way we balance that out so that it doesn't go too out of control. We get the inflammation that we need to be healthy, but we don't go into overdrive, you know? And so I love this idea of engaging with our parasympathetic nervous system, and really nourishing it, and paying attention to that balance. Not saying, "Oh, like being in fight or flight is horrible." If it's too much, it is a problem. Just like if we were always in kind of this sort of lazy resting mode, that is its own issue too. Like I think everyone has their particular balance.

Jodi: Exactly. And I love. I was hoping you could dig deeper into how like earth-based practices can help, because the earth is so in balance. We have the seasons, we have the tides, we have the moon cycles and how that can help us to kind of remember own balance.

Dr. Maya: Absolutely. First of all, we evolved with the natural world and all aspects of the natural world. So, there are certain things, I'm just going to give an example of, like sounds, that are very regulating to us, like the chirping of birds, like waves. When I do workshops with people, or with my students, and I say, "Where do you imagine yourself, that is like the happy place? That place that really feels like calm, and safe, and all of those things?" You know, it'll be eight out of 10 people will say by a lake or by the beach, listening to the lapping water, listening to the waves. There's a reason for that. It's those rhythms.



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Jodi: I love that. Or the sound of rain outside when you're safe and warm.

Dr. Maya: Yes, yes. Or for me, if I go out in that rain, that's where you will find me, is running out, especially in summer rain.

We've evolved since the beginning of time, to be regulated by these, to be regulated by the sunrise, and the sunset. We're so drawn to those times of day, and part of it is this regulatory function that they actually have in terms of light, and drawing us to them, and looking at the horizon. I mean, all of these different practices are incredibly regulating to the nervous system. And there's a lot of data around this too.

So one example that I'll use is actually going into the forest. So forest bathing, which is based in the term Shinrin-Yoku, which is a Japanese term, and it's a cultural practice. I always laugh because when I kind of caught on to this whole forest bathing thing, like a decade ago, and I would meet people from Japan, and I say, "Oh, yes," like they say, "That's just what we do. Why are you talking to us like this special thing?" But really because it is a practice in Japan and it's kind of prescribed as preventive medicine in some cases. There's all this fascinating data that looks at both the subjective experience of immersing yourself in the beauty of the forest, in a relatively regular way, like maybe every three weeks or so, or even objective data. So some of the things that have been published around forest bathing is, you are more creative, you have better executive function, better focus, more organized, sleep better, feel happier, right? So, I mean, I'm not aware of any pill, any pharmaceutical, any real practice that does necessarily all of those things.

And then there are these physical measures as well, objective physical laboratory measures where they measure cortisol levels, which is the stress hormone, released from our adrenals, and cortisol levels go down. When we're in sympathetic overdrive, we have a lot of cortisol very often. When we're more parasympathetically balanced, our cortisol levels will go down to kind of their base point. So that's one thing. Another thing was actually that the immune system functions better, the nonspecific immune system. And so you have an increase of natural killer cells, and that sounds kind of malevolent, but natural killer cells are actually, you know, you want those for situations where you're encountering a novel virus, for example, or, any kind of challenge that comes your way.



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Dr. Maya: You don't have to have seen it before because your natural killer cells just kind of know to go after things that are not familiar. And then also, anticancer proteins increase when you're in the forest. So you're actually staying in balance because all the time, every person makes cancer cells a little, that's a normal part of our function. But what we need is for our immune system and our bodies to just keep that in check. So that's part of the job, every day, of our immune system and our nervous system, to be making sure that our anticancer proteins are activated, our natural killer cells are doing what they need to do, so that we stay in healthy balance.

Jodi: That's a great point. When the parasympathetic state is activated, your immune system is more on. Thank you. And I'm curious, because you mentioned sound. One of the things I read about forest bathing is that it's the smells. The Secret Language of Trees talks about how trees release smells to communicate, and then also the visual, and the touch. Do you feel like kind of being in your body and activating your senses helps you to get into the parasympathetic state?

Dr. Maya: Absolutely. We could talk about so many different ways and you just did, right? And I know this is one of your areas of expertise, but when we're smelling these kinds of phytochemicals, they're going directly to our primitive brain. Smell is the one sense that is not processed by our brain. So we don't have any commentary before it gets directly to our amygdala, and sends us into childhood state, or memories, or whatever. And that can sometimes be activating in not a great way for some people, but it's very often, can be very soothing, especially in the forest.

And what I think in particular, when we smell nature smells and we hear nature sounds, is it awakens something in us that's very ancient, where we have these collective memories of being deeply aligned with the natural world. And of course, I haven't even gotten into ingesting plants as herbal medicine or as food. But all of those different memories kind of awaken in us. And I think we have an epigenetic activation that happens when we spend time in the forest, or for that matter, in any natural setting, particularly if we have memories from our current experiences, that it can really awaken something that we hold very deep inside.

Jodi: It's like we reboot to factory settings, where it just resets our system. Can you talk a bit more about herbal medicine and gardening? Those are great points that I want to make sure.



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Dr. Maya: Yeah. The one other thing I didn't mention about being in the forest that I think translates also into gardening, and connecting with plants, is there's also this microbiome that we share, and everyone likes to kind of go in and look at, "Oh, well you get these benefits from nature because of the smell of trees, or the smell of soil, or it's because of the sounds, or it's because of the microbiome," but really, it's probably so complex because it's like we're a universe. And then the world around us, the plant world, just a little area of the woods, is its own universe, or many universes.

So here we are in this like shared kind of show, like a constellation in a sense, in this very complex system. And so, I like to just say, we can try to identify a lot of factors, and I think they're all true. But in the garden, one of the ways that we activate the parasympathetic nervous system is through soil-based organisms. And, of course, a lot of people may know now that pharmaceutical companies are actually now developing the next generation of antidepressants, not from a chemical or over this idea of we have a deficiency of a particular chemical necessarily, but more with the idea of that particular organisms stimulate our bodies and our brains to function differently. And what we know is that there are certain soil organisms in particular that actually help treat anxiety, that they shift people's anxiety, or shift people's depression. And the whole field is now called psychobiotics because it's like a probiotic, right.

Jodi: Your The Dirt Cure was ahead of the time, right?

Dr. Maya: Yeah, for sure. And so, gardening, you're going to get this experience and this is sort of a little more mystical, but actually very based in science. And as you know, I teach about this too, is this experience of plant consciousness. That there's this whole literature now that plants really live in community, they help each other in particular ways. They hinder each other in particular ways. They reach out to other species and living beings in different ways. And the data just becomes more and more complex, and more and more fascinating. But when we're gardening, or ingesting plants for that matter, we are in this relationship, this intimate relationship.



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Dr. Maya: And one of my teachers of ethnobotany, who is also a fourth generation shaman, used to talk about that when you're with a plant, and you're experiencing that plant, you create new shared chemicals together as if you're in love, the same way you might be with a person when you're in love. And so it's really interesting to think of the ways that working with plants, being with plants can actually activate this parasympathetic state. And an example that I love to bring up, because I think most people can relate, is actually when we exchange flowers with somebody. So, why do we give flowers to someone when we're in love with them, or when we appreciate them, or when they're grieving, or when we want to celebrate them?

It's because flowers, that exchange is a connection that we have with flowers, and with the natural world that actually changes us. It changes our experience. And certainly that can happen too. And when you're just walking. I went for a run in the woods the other day and suddenly there was this fragrance that just materialized, and I couldn't find the source. I was looking, and looking, and looking. And finally, I was like, I'm just going to take a moment and immerse myself in it, and offer gratitude and move on, just appreciate it.

And so that's the other piece that I think is really critical in all earth-based practices, whether it's gardening, and having that grounding relationship with the earth, which we can talk about, whether it's hugging a tree, whether it's standing in the rain, whether it's seeing a beautiful flower, walking in the woods, or listening to a bird, or discovering a beautiful hawk in the sky, or whatever those things are, that there is a feeling of appreciation and gratitude that we can fall into in awe. And when we are in that state, our heart rate changes, and our heart rate variability changes, and this is something also that's been studied where we go into this very particular state that is called coherence by the HeartMath Institute.

And when we're in that state, our parasympathetic nervous system is being very toned. It's being very nourished in a state of gratitude and appreciation. And from the work that I've done with indigenous communities, and what I've learned working with plants for most of my life, is that that is our role in fact, in nature, is to offer gratitude, and appreciation, and to engage in that relationship, that intimate relationship, just as if it were a person that you love.



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Dr. Maya: When we're in that state, our heart for one thing, like actually our heart, the electromagnetic field of our heart, regulates all the organ systems in our bodies, and our parasympathetic nervous systems, so that we are operating at an optimal state, from a nervous system perspective, from a mental health standpoint, where actually when you're in this state of gratitude and appreciation, you actually have, and this has been studied, less anxiety, less depression, less OCD for people who struggle with that, lower levels of psychotic events for people who actually struggle with that. I mean, things that, you know, sure we could say, "Yeah, it makes me feel less anxious," but for people who really have clinical issues that interfere with their daily lives in very significant ways, being in that state of gratitude and appreciation that is our role, and a practice and a discipline for us that can change their whole experience, not to mention lower blood pressure, lower cortisol, all the things that we talked about.

Jodi: Yeah, you've touched on so many things. I didn't want to interrupt you because it was genius. But gratitude has made the biggest impact in my own life because it's almost like the brain can't multitask. You can't be angry about something and be in gratitude at the same time, and so it changes lanes, and then it allows you to calm down and relax. I love what you were talking about with plants and the love connection. Lynne McTaggart actually calls the vagus nerve the love nerve. And there's this whole idea that when you're in fight or flight, you hyper-focus, and so you can't actually be in a relationship, and have a rational, thoughtful conversation because you're really just focusing on that one thing. So I do think there's also something about nature being so expansive and surrounding that allows us to kind of get out of that hyper-focus and really open ourselves in our heart.

Dr. Maya: Absolutely. Yeah. And that's kind of trauma vision. If you think about that sympathetic dominance, and being in that stress state that you're talking about, it's because you need to be able to see your path of escape to run away from that line. And I know I'm kind of oversimplifying it, but I do think it's helpful, just sort of helps us remember.

Jodi: I think it's brilliant.

Dr. Maya: But when you're in a parasympathetic state, when you're in that love state, in fact, it allows you to have multi-directional vision, and it allows you to have subtle awareness, which is something that I teach, and something that I practice. And it's a practice, it really is, to get out of that kind of, "I just have to take the steps in front of me," and get out of this situation and to be like, "Oh, what's around me?"



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Dr. Maya: And for me, another earth-based practice is, I forage for mushrooms, and I forage for plants as well. I do a little bit of wildcrafting with plants as an herbalist. And I do it very carefully, and I think everyone needs to kind of know what they're doing when they do it.

Jodi: Hopefully you'll teach us all that.

Dr. Maya: Yes, absolutely. I'm foraging into teaching herbalism now. So yeah, but what happens is subtle awareness is a critical part of being in nature. You will see things you never imagined you could see. And one of the tricks a lot of mushroomers will talk about, is if you look directly, you will not see the mushroom because they're designed to be hidden. You have to look out of the sides of your vision.

Jodi: That's so interesting.

Dr. Maya: What we're talking about is expanding your awareness, and walking with a full awareness, and nature allows us to do that and actually primes us in all the ways that we talked about, that our cortisol drops, and our focus and creativity increases, and all of those things, that then you can see the things that are around you, that are there to nourish you. You can see that Morel growing, and where the chanterelle's growing. I found lion's mane last year for the first time, it was like the happiness I can't really describe. Lion's mane mushroom, and it was growing inside the log. And somehow, I was walking with my two sons, and I suddenly just was like pulled there as we were about to leave the woods, and it was lion's mane. You don't even know how you see it. It calls you.

Jodi: Yes, well, there's a surrender process. And I mean, as a recovering Type A, you called me right after my son died. And told me that I couldn't see it, but it would open me up. And I think that when you surrender kind of what you think you're supposed to do and what you're really attached to, it's the same kind of thing. Like you're so hyper-focused, almost just like looking through a toilet paper roll, you can't see everything else. And when you let go, or are forced to let go from your own tragedy or from, you know, we're all indoors at the moment, we're quarantined from Corona, all of a sudden, these other possibilities open up, and things that you never would have considered if you had stayed hyper-focused. And sometimes those possibilities make life so much easier and they're so much better than what you could have muscled through.



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Dr. Maya: Absolutely. And I think, we have choices sometimes around that, because of course whatever's happening to us, and this is its own conversation that we could have separately, but whatever's happening to us, may or may not feel like something within our control, often not within our control. But what we can control is how we navigate, how we comport ourselves through it, how we engage, and the practices that we use, the tools that we use to really walk through it. Which for me, I believe, you know there are so many earth-based practices that are accessible right now, inexpensive, or free, and available to most people.

Even if you're in your house, like one of the things that I teach about and do practice myself, is creating an altar, a little sacred space, or a mandala, using, and it can be little bits of earth, right? I mean, it doesn't have to be fancy, it can be gravel from your driveway and you can use things in creative ways. Along with other beautiful, special things you might have. You might have a beautiful fancy crystal, or some very special photograph, or a jewel, or a gem. I mean, whatever, all of those things can be a part of it, but creating something just from your own, kind of as a moving meditation and accessing some kind of connected creative place and making something, a healing landscape for yourself, from things that are generally earth-based, this is a way to bring kind of nature and bring Mother Earth to you, even if you're not in a position right now, or at any point in time to get out into nature.

And I actually do that when I travel. I always find a few bits of nature from the place where I've traveled to. Maybe I have certain things I bring as well that I travel with. And I create some kind of shared landscape to kind of greet and ask permission, in a sense, for me to be in this place. So these are ways that I like to teach about that open that intimate conversation that I was talking about before with the natural world, and really activate, and nourish our parasympathetic state, that safe space, helps us find that safe space, which some of us really have to find a roadmap to the safe space that's inside of us, and that's always there.

Sometimes we never even really knew where that place was. So all of these practices are ways to nourish the parasympathetic state, and to find that safe space within, and feel kind of connected to all of these different elements that are around us, that are here to nourish through cycles of nature, to help nourish that parasympathetic state.

Jodi: It's so beautiful. This was so incredibly valuable and I have no doubt people are going to want to keep learning from you. Can you help them? Where can they find you?



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Dr. Maya: Best place to go is to my website, which is drmaya, D-R-M-A-YA.com. And they'll find there my programs that I teach about plants, about earth-based practices. And then they can always connect with me, I'm pretty active on Instagram, and that's @drmayashetreat and yes, that is my real name. And then they can check out my book, *The Dirt Cure*.

Jodi: Which is a great book. And you are a treat, and thank you so much. It was wonderful, and this was such great information.

Dr. Maya: Thank you so much for having me.