

**EPISODE 155**

**[0:00:00.3] AV:** Welcome Paleo Nation. I'm Ashleigh VanHouten and you're listening to Paleo Magazine Radio, the official podcast of the original Paleo Lifestyle Publication.

[INTRODUCTION]

**[0:00:18.3] AV:** Everyone's talking about Four Sigmatic, Time Magazine, Vogue, Forbes, even the New York Times. This super food company's goal is to popularize medicinal mushrooms by incorporating them in popular products like coffee and hot coco. Basically, they're nicely tricking us into eating what's good for us already. Their products launched in the US market in 2015 and are now sold in more than 25 countries.

Today's interview is with the founder Tero and I won't even try to pronounce his last name because honestly, I asked him and he told me not to bother. I did try. Anyway, Tero grew up in a farm in Finland where he foraged for mushrooms and learned about natural foods from an early age and he later got a degree in chemistry and a certificate in plant based nutrition from Cornell University. He's an authority on super foods and natural health and he was chosen as one of the world's top 50 food activists by the Academy of Culinary Nutrition.

My interview with Tero is so full of interesting information. If you're into food and bio hacking, you really want to stick with this one, I can't even list a preview of all the things that we talk about and all the things that mushrooms can do. I mean, the answer is, basically everything. Boosting immunity, sex drive, absorbing toxins, I mean, some mushrooms could eat plastic. Mushrooms are everywhere, they're everything, it's insane.

First, let me introduce you to our sponsor today, Restorative Blends. The company offers two products. Armor is a super food green powder mix that you can put into your smoothie to help you get that daily dose of greens. Even better, it's gluten free without the barley, wheatgrass, and oat grass that you can find in other green drinks. Their other product, Clear Mind, is a cognitive enhancement supplement that can improve your memory retention, focus and cognitive capacity. It will help you listen to my podcasts.

I've tried clear mind myself and I did notice a positive improvement in my ability to focus and process information. I think it made me more calm and like positive throughout the day like a stressful kind of long work days, I was a bit more just sort of even, which I think is a kind of a big deal. So I had a great experience but you don't have to take my word for it, learn more about their products at [restorativeblends.com](http://restorativeblends.com). You're never going to look at mushrooms the same way again, I promise you. Let's do it. Paleo magazine radio starts now.

[INTERVIEW]

**[0:03:06.3] AV:** Hey Tero, welcome to the podcast.

**[0:03:10.3] TI:** Hey, thanks for having me on.

**[0:03:11.5] AV:** Awesome. Before we get started into the real reason why we're here, there are actually a couple of things that I learned that we have in common that I wanted to just mention briefly before we get started because I thought it was interesting.

The first one is in one of your bios, you said that you are 2.9% Neanderthal, which I also I am and you got that 23 in me right?

**[0:03:33.4] TI:** Yeah, that's where I got the data, for sure.

**[0:03:35.1] AV:** Yeah, I just thought that was interesting because I guess 2.9% for folks who have not done this genetic testing yet, that's a pretty high, we're in like the 85<sup>th</sup> percentile or something, that's pretty good. I remember being very proud when I found that out.

**[0:03:49.8] TI:** I was a little sad because I feel like both of my parents side, I'm at least like 13 generations Scandinavian on both sides. So I was kind of hoping for higher number but I'm happy with 2.9 as well.

**[0:04:01.4] AV:** Yeah, I mean, 85<sup>th</sup> percentile is not too shabby, it's pretty good.

**[0:04:04.9] TI:** It's not.

**[0:04:05.5] AV:** Yeah. Did you find anything else interesting that you maybe didn't know from the 23 in me?

**[0:04:10.9] TI:** I did and I've done a bunch of different testing in different sites but I guess the challenge have with a lot of that stuff is what's actionable? It didn't really change anything in my behavior or my life. It's just like good to know and but I don't know. I just find that sometimes more data and more information is not helpful if you can put it in to knowledge and wisdom on actual behavior so it didn't really change my diet in any way or my lifestyle.

Yeah, it was fun information and like to do it and I can recommend it to others, I'm just not sure what should I do with that information.

**[0:04:49.4] AV:** Right. Actually, I had a similar situation because I found out a couple of things that basically just confirmed things I already knew. Like for example, I do not metabolize caffeine very well and it's like, I definitely knew that already and of course it still doesn't really change, I'm still going to have some coffee every now and then. But yeah, I guess what can you really do with that info, but it's still kind of neat.

**[0:05:10.0] TI:** Yeah, I mean, it's the same, I used to run competitively, long distance running. You use a heart rate monitor in the beginning when you're just about to get started with running, you get to know your body and it kind of gives you indication on insights but once you've run enough, you really don't need it. You know when you're in different zones and you kind of get the feel, so to say, for it. But in the beginning, it's very helpful but you know. That was the one...

**[0:05:36.6] AV:** More information isn't always better. Always.

**[0:05:38.1] TI:** Yeah, definitely not but for that one reason alone, it was a definitely worth it. So that's a great conversation state.

**[0:05:44.9] AV:** Yeah, okay, the second one before we get into it, I listened to one of your podcast where you talked about using an acupuncture or a nail mat. I actually just recently bought one of those myself. I was reading Tim Ferris's book, *The Tools of Titans* and he

mentioned this acupressure map that it helps down regulate or helps you sleep at night, which is something I'm always trying to do. You use this as well, you like it?

**[0:06:09.3] TI:** Well, I have to confess, it's 11 AM here and I've already had one nap and I napped on the nail mat just before this podcast. So I woke up maybe like 20 minutes ago. I definitely use it. I'm not the biggest fan of the ones you could get on Amazon, the plastic ones that have that lotus leaf. It just doesn't feel right. I don't know? But I have this eastern European version that has actual nails and that's the best thing ever, literally.

**[0:06:39.2] AV:** Do you always sleep on it or do you sometimes you just spend like 10, 20 minutes just hanging out? Is it — you're napping on that thing?

**[0:06:45.4] TI:** Yeah, I'm napping on it. My naps are anyway really short so I don't nap long. I don't have a 50 minute nap, they're short naps and I don't know — I don't really even fall asleep per se. I kind of snap out of it for a moment. So I don't see dreams or anything. It totally relaxes, takes me out fully. It just helps with that and I feel I can get — it feels like an hour and a half nap even if I'm there 10, 15 minutes with that one.

**[0:07:14.2] AV:** Right, so we can put it in the show notes, can you tell us where we could look at the one that you have?

**[0:07:21.0] TI:** Yeah, I hope I could. It's kind of like from my friend's dad's source that I don't really know. So I don't know where to buy it. I can't really say where to get that one, unfortunately. Just look for those and try to find ones that have a little bit stronger. The plastic ones that I've tried, there's not enough of the pressure points to me and they're also very shallow, I guess they've got to be careful.

So if you can find ones that have more of them and that will probably be helpful and also don't, definitely don't wear a shirt. I think that really takes a lot of the power out. Even if you have one of those plastic ones, try it without a shirt.

**[0:08:01.6] AV:** Right, cool. Okay. All right, now we can get into why we're actually here. I won't ask you to kind of go over the whole background of how you started Four Sigmatic, because I

know that's been done, we're going to put that in the introduction. But if you could kind of talk about the products that you offer and what those products do for people.

**[0:08:20.8] TI:** Yeah, our goal is to help popularize medicinal mushrooms or mushrooms in general and medicinal mushrooms are slightly different from your normal culinary mushrooms that tend to grow on trees. So they're tree mushrooms generally and you don't really eat them for macronutrients, you eat them for their medicinal properties. But they're safe, so kids and elderly can have them. They're not like — don't think of them like medicinal marijuana or something like that.

The name partly implies to the fact that about 40% of pharmaceuticals are derived from them. Their isolated compounds take into pharmaceutical as well as these are whole foods and they're extremely well studied. They're among the most studied foods in the world, but there's a couple of problems and that's why I started the company to try to solve those problems. One is that they're very hard to use and for the paleo peeps, the best example is the bone broth.

These tree mushrooms are kind of like trees, so you can't just eat them, they're generally inedible and they have this chitin layer that you can't penetrate. You have to cook them for many hours if not days to get the medicine out of them. That's called a decoction and that takes a lot of time, a lot of effort and same with not everybody's willing to do their own bone broth, this is an even more complicated process. It gives you an indication. What we've done is we just pre extracted it for people so you just add hot water and you have all the medicine there.

That's one thing and then the second thing is that the end result is very, very bitter. We all know that bitter is better but a lot of people don't enjoy them. So we've tried to make products that taste good. So we make mushroom coffee, mushroom hot cacao, mushroom elixirs. We used anything from coffee bean to cacao bean, to mint, to rose hip, to make the flavor more palatable while still giving the effective dosage of the mushrooms.

Those are the two main problems we're trying to solve is flavor and ease of use and then obviously a lot of people have never even heard of these mushrooms so we're also educating people in their benefits and the science behind them.

**[0:10:34.2] AV:** Right. What's your bestselling product right now?

**[0:10:37.5] TI:** It's changed a lot actually in the years. When we first started, the two most popular products were easily Cordyceps and Reishi. Cordyceps is the most popular medicinal mushroom product in the US. Most people will take it who do cross fit or sports, don't even know it's a fungi mushroom. They just take it because it increase sports performance and then Reishi is the most well-known of the medicinal mushrooms. Right now in the last year, it has flipped totally over, they're not even near our top, those two.

It's become this two mushrooms, Chaga and Lion's Mane and the bestselling product is a combination of those two, our mushroom coffee with Chaga and Lion's Mane. I've talked to multiple different companies in the mushroom space and they all say the same thing is that these two, we used to be kind of like not even top five mushrooms necessarily have grown into huge bestsellers and I think that kind of indicates also their health benefits tell why.

Lion's Mane was originally used for people who have like Parkinson and Alzheimer and it shows a lot of great promise in both protecting and repairing nerve growth factor. The whole rise of the bio hackers and brain function, people's interest in that has probably grown it a lot and then the second one, Chaga is very anti-inflammatory.

It's one of my favorite mushrooms, it's been for a long time because it's very Nordic, it's very — where I grew up, it's one of our top super foods from the ecosystem where I grew up. That's always been dear to me but in the US, not a lot of people knew it. So those two have become really popular and we have this 10 mushroom blend as well, which is pretty popular that just you get a little bit of everything. I would say Chaga, Lion's Mane, coffee and then we have caffeine free versions of Chaga and Lion's Mane and those become really popular in the last year.

**[0:12:24.6] AV:** I didn't know you had caffeine free ones. Okay, it's interesting how the products kind of change in popularity depending on what the population wants right? In terms of maybe it's more energy or they want to be able to calm down at the end of the day, that kind of reflects what they want.

**[0:12:40.6] TI:** Yeah. I think there's like generic themes that people want but there's also a lot of product out there for those but there isn't really any products that do what Lion's Mane does. There's other anti-inflammatory products but it's definitely a booming thing. You can see that a lot of anti-inflammatory things are. People are getting more knowledgeable about what's inflammation, what's causing it?

Gut health is increasing and gut health and medicinal mushrooms are very tightly linked with each other so people knowing, getting this anti-inflammatory and gut friendly food into their diet is people now know more about it. Especially the Lion's Mane; there's not really anything else that does what Lion's Mane does. It's hard to substitute with any other whole food product.

**[0:13:27.1] AV:** Okay, where do the mushrooms that you use come from?

**[0:13:31.8] TI:** The most popular mushroom, which is the Chaga comes from Siberia. Chaga and most of the other medicinal mushrooms are extremophiles so they grow in extreme climates and Chaga is the most extreme of the extremes. It grows only in really harsh climates. Canada, some states in the US, Scandinavia, which is a very small area of like Finland and Norway, Sweden, and then Russia.

Russia and Canada is probably the two places where you can get it the most. You should never pick Chaga out of near where people live or where there's roads because mushrooms accumulate and hyper accumulate toxins and then they essentially are like sponges and they clean the forest so you should get it from isolated places. We use Siberian.

Internet loves to debate. Some people say that the Siberian is the best, I think all the Chagas are pretty solid. Wherever you source Chaga, because it grows in the same forest called, Taiga. If you source Canadian Chaga, you're solid. It's more about the extraction and as long as it's grow on a birch, don't get it from maple or ash, you're solid. Sourcing Chaga is a little bit easier than some of the others. Ours comes from Siberia.

The second most popular, which is Lion's Mane, comes from china. Lion's Mane does grow in the northeast but there's not really anybody collecting in Maine and Vermont, there's not really any source for it. There's some north American Lion's Mane out there that is grown in

laboratories, they're mycelium products, which are not traditionally used, they're not mycelium products really aren't paleo. You can't forage them, there is no historical use, they're fairly new invention.

Most of the Lion's Mane products out there come from China and Japan and then, you know, I think there's some Taiwanese out there. Generally, china, and japan where you can source Lion's Mane commercially and then you just got to make sure how it's grown and obviously lab test it for its purity.

**[0:15:29.6] AV:** Okay, these are coming from all over the world, that's crazy. You mentioned before how most of this — you can't just pick this out of the ground or what have you and eat them. There's like a processing that needs to take place to get the most benefits from them. From sourcing them to buying a package of your mushroom coffee, what are the processes that take place? How is it prepared?

**[0:15:54.4] TI:** Yeah, I mean, it's the same as with any herbal product or food in general. You can first start, I mean, I'm a 13 generation family farmer so I can use samples from our farm as well and you have the genus or the breed of the animal plant or fungi. Then you have the source, the condition to how it's grown and then you have how it is essentially processed and how it's served.

Let's start with the genus. The same way as like our family would grow heirloom cow breeds, a lot of people think cow is a cow but obviously there's huge differences on the breeds that we use on animals, same way as it's in the fungi. For example, Reishi mushroom, the north American Reishi mushrooms like *Ganoderma oregonense*, it has less of these active compounds than an oriental *Ganoderma oregonense* has. There are also color differences. So there's red Reishi, black Reishi, purple Reishi. Red Reishi is the most studied one.

First you got to choose the right genus, maybe even the right color to get the one that actual's been studied for it and second is the growing conditions. Like I said, there's increasingly a mound of this lab grown mycelium products that might have 2% of the net weight is the active compounds where as if you get it in the wild or you grow it in a log, in a tree where it's naturally

grows in, it might have 40% of the net weight will be this main active ingredients called polysaccharides.

There are studies coming out of Australia, they're like, shiitake growing on these kinds of trees is better than these kinds of trees and whatnot. There's more and more knowledge about that, even the colors are different. So enoki mushroom that some people might have seen in grocery stores which is partly culinary, partly medicinal.

Enoki, if you grow it in a lab or in a farm, greenhouse, it's white but if you get it in nature, it's like orange brown. Second is the growing conditions and then third is how it's processed. These mushrooms are for example not in any way bioavailable raw. You can't eat them raw, you have to cook them to get the immune supporting benefits out of them and then you have to use a lipid. Fat or an alcohol to extract this fat soluble compounds out of them that are more adaptogenic.

Finally, how they're served and we can geek out on that as well but what you need to know is, do have the right genus. The right type of mushroom, the right — the Latin name is it the one that is actually been studied? Secondly, is it grown in a laboratory or in its natural environment? How is it extracted or it hasn't been extracted at all? Once you get into it, you realize why even chefs go to farmers market and look for this local wild mushrooms and why they cook it in butter and so to give it, apply heat and fat to it, to both make the flavor better but also make it more bioavailable.

I can obviously talk about any of those four aspects as long as needed. It's good to understand where does your food come from with anything and fungi are not any different.

**[0:19:04.7] AV:** Right, now this is just my ignorance of how this stuff works but for most of the medications that use medicinal mushrooms, would most of that be laboratory made or would it be natural?

**[0:19:20.8] TI:** Unfortunately in the US — so the biggest market of medicinal mushrooms is the oriental market. It's like a humongous 18 billion dollar global business, which is mostly in Asia. If even you look at the name of the mushrooms, a lot of them are "take"; maitake, shiitake,

enokitake, and the “take” means “mushroom” in Japanese. There’s a lot of Japanese heritage with it.

In the US, a lot of it, it’s grown in laboratory. It’s somewhat of a fairly new industry, so a lot of them are mycelium products. You must understand that you’re eating not the actual fruit of the mushroom, which is what if you forage in the forest, it’s called a fruiting body. The mushroom to traditional mushroom shape, the cap, you see is called a fruiting body.

It has roots so think of like an apple with the apple tree and the apple itself. Instead of eating the apple itself, you’re trying to eat the bark of the apple tree. In this case it’s called mycelium. They grow this mycelium on grains and so a lot of the mushroom products on the market are actually grown on grains, which is obviously for a paleo person, very problematic.

Also, if you don’t have problem with grains, what’s fascinating is that mushrooms have traditionally — not traditionally, but naturally don’t have any starch. Once you grown them on this grains, they have a lot of starch. That can also cause digestive issues with people. Funny enough, mushrooms that are actually good for your gut and are very gut friendly and they help heal your gut, if you source them incorrectly, they might be bad for your gut.

Majority of the products on the market are mycelium based products and not extracted properly. That was a frustration personally I had to start the company. Like I said, the main problem we’re solving is flavor and ease of use but there was a lot of sourcing issues and quality issues and a lack of lab testing.

Like when we started testing mycotoxin and the talk with other companies out there, nobody had even heard of what they are. “Myco” refers to mushroom toxins. Mushroom of these companies didn’t know about mushroom toxins. Luckily, a lot of people have evolved in the mushroom industry and a lot of the mushroom companies are learning. But early days it was like they never even figured out what’s an aflatoxin.

**[0:21:45.0] AV:** This is so interesting, the idea of them being sort of made in the laboratory with grains and that being an issue for folks taking it. I was going to ask you, for people who are just getting into medicinal mushrooms, are there folks who have adverse reactions and what would

those be? And I guess this is a prime example of one for our listeners but are there any other kind of issues that people need to be aware of when they're just learning and trying things out?

**[0:22:11.1] TI:** Well fungi itself is a kingdom. Think of it like plants and animals are a kingdom as well. You might be allergic to carrots but you might not be allergic tomatoes or vice versa. Same way with fungi. Funny enough, almost all the mushroom allergies don't — medicinal mushrooms don't belong to them. If you're allergic to mushrooms or if you have fungal diseases like candida, you can have this mushrooms and actually mushrooms like reishi and shiitake, maitake are actually good against candida. They're actually mushrooms that fight bad mushrooms.

That's kind of the cosmic giggle of the universe and evolution but the funny part there is obviously that, or not funny but you have to know that some mushrooms, you might be allergic to but some you're not. You shouldn't look at them as a blanket statement. Now generally speaking, medicinal mushrooms, very few people in the world are allergic to medicinal mushrooms especially these polar pores, these hard wood like mushrooms. Generally almost nobody has issues with them.

Now, there is a couple of exceptions that I would say is one is the source and if they're grown on grains that causes starch and might cause issues, digestive distress, with people. The second one is that if you're taking antibiotic, anticoagulants and things like that which often are derived from some kind of fungi or have very similar properties as fungi.

A lot of these mushrooms are naturally a very antiviral, anti-inflammatory, antibacterial so if you take them with antibiotics, you might get almost like a double dosage. I would just recommend especially on the case of Chaga, I would not recommend you taking if you're on antibiotics because the dosage might change. Obviously hopefully nobody's on antibiotics, but if you're on antibiotics or blood thinners, I will just generally say do not take medicinal mushrooms.

**[0:24:12.5] AV:** Okay, that's good to know. Speaking of information which you have a lot of it for us today. One of the really cool things you have is this mushroom academy, the free video series that you have on your website. Videos where you can learn anything you'd ever need to know about mushrooms, the different types, their medicinal properties, how to prepare them.

I mean, there's tons of information on there and I have gone through a couple of the videos, it's really neat. I'm just wondering why you decided to offer this to folks?

**[0:24:41.6] TI:** Well, a two way street. We've built a small but pretty active community of people who love fungi or just generally fascinated by the topic and a lot of people would ask for videos and more support and we started out early on, we had a blog, we had some YouTube videos and we did this content but it was all like scattered all across the board. We just felt like, for a lot of this people asking for the help in our community, we felt that we could essentially provide them a simpler choice by just collecting all this information at one place. For that reason.

Now, the second reason is, we're constantly now, especially in the last year, year and a half, the kind of the mushroom category has totally blown up and same way as a lot of other ancient foods from like we've discussed like fermented foods and good bacteria and other paleo — the paleo in general is such an explosive thing right now. Everybody's looking into more ancient primal diets and mushrooms are obviously one of the oldest things on the planet. Not just most western research or research around them, they also are one of the oldest things.

They were said to be the first thing to come from the sea to the dry land, 1.3 billion years ago and for the first 600 million years, they would just eat rocks when there was nothing else growing and they would help build top soil. So people have said that about 25% of earth's biomass is fungi. They're one of the most primal ancient things and if you look at cave paintings, there's all kinds of fungi there. Now that might be related to psychedelics so that might be a different story but generally, fungi has been with us since the age of time so it's obvious that those are also booming.

In that time we're getting more and more people who are not — they have no understanding of mushrooms and they don't know anything. They're like, "Where do I start?" One of the reasons why we made the academy was like, "Hey, here is like essentially in three hours you can become a world class mushroom expert." That's our goal is like, by watching this short videos and like a little bit of text but very minimal amount of text.

These short videos, combined 30 videos, you can learn like fundamentals of the top 10 mushrooms plus all the mushroom related topics and you can have a discussion with pretty much anybody. We also have this shroom club community kind of like a Facebook group where you can join and just ask people from others and ask questions. Hopefully that will help people more to get into it. It's 100% free and we don't make any business with it. It's just something that we get constantly get asked so we thought we'll just make an online e-learning course with it.

**[0:27:25.6] AV:** Yeah, it's very cool and it's very refreshing too to encourage self-education and learning and discussion when so many — I feel so many companies often just say, "Look, this is what we have, this is what we do, take it and that's it." This is the opposite of that because it's really having people kind of take the information into their own hands and learn about it before they make decisions, that's really cool.

**[0:27:49.6] TI:** Look, from a business purposes, I would love if that would be the case, if I would just put down a products and people will buy it you know? What we chose to do and what we're passionate about, nobody was really doing it like how we wanted to be done. That's the price you pay for being the first one on doing something unique is like people have questions. They're like, "Why?" Which I actually love.

That's one of the most gratifying things that we do is actually like getting people who never knew anything that, "Oh so much of earth bio mass is fungi, what's fungi?" I'm like, "How are they related to everything we do on the planet earth and how fungi are related?" It's always, I actually love that fact when people are like, "Wow, I didn't know that." That's insane not just for my health but also for the bigger picture.

**[0:28:35.6] AV:** Yeah, I mean, when most people — you eluded to it before but when most people think about mushrooms you know, they think about what's in their salad or they think about psychedelics and obviously there's much more to it than that. Besides your company, which is doing, making a lot of really bringing attention to it in the mainstream. What else do you think needs to happen for medicinal mushrooms like mushroom coffee, that kind of thing to really sort of takeoff and for more people to know about it and be willing to try it?

**[0:29:06.9] TI:** Yeah, I mean. I'm over simplifying here, but from a listener's point of view, there are a few different kinds of mushrooms that can really impact your life a lot and our company is just focused on one of them, which are these medicinal mushrooms or tree mushrooms in general. Those are for our health and hopefully we, with the products like mushroom coffee that taste like coffee so you get like a jitter free coffee experience, hopefully we can help expand people into that platform and focus on some of those mushrooms. That's one way of how fungi can play with your health.

The second part is just foraging and more of the culinary mushroom side. People using them instead of vegetables. So not only can you have a more diverse set of macro and micronutrients in your diet but also hopefully with the foraging, people can go out there and enjoy nature and live that, even part of that hunter gatherer life, by the way, this mushrooms, the culinary mushrooms sometimes, the entrials, the morels are very expensive. They are like Michelin star quality stuff that you can go get for free, depending obviously where you live.

So hopefully the local mycologist associations and others will get more active in that frontier because we're not focused on that because every ecosystem, every city is different. Then there's the psychedelic that are now like universities like John Hopkins, NYU are doing a research on for depression, for people who have very serious issues and how that could potentially help with people who other things have not helped and that research is going out there, I don't know how or where that will end.

I think there's a lot of promise the first set of research has been very promising for depression and there is a lot of indigenous use like our native people, the Sami people would use this mushrooms for seasonal depressions. Finland and Scandinavia are think of like living in Alaska where there really isn't any sunlight during the winter. We have 24 hours of sunlight in the summer, no nights but there's like two hours of sun in during the day or four hours, maybe five but it's often overcast so you get no sun.

You get the seasonal depression and it's actually a huge thing. There used to be a lot of suicides and whatnot. Getting that vitamin D and the use of some of this psychedelics including the story of Christmas is partly related to that but that's another conversation is that...

**[0:31:35.5] AV:** Whoa, really? That's a good side story.

**[0:31:38.4] TI:** Yeah, there's like, I think the psychedelic work and I think because it raises people's attention being a schedule kind of one substance where it has bright now, no scientific proof that it would help us. I think that the universities are doing good work.

Then there's the environmental aspect. Mushroom's being shown to eat plastic and you can use that. Mushrooms can clean oil spills, there's mushrooms now used for — made of sustainable material, packaging material. I think IKEA used some in to make sustainable packaging materials. I think there's like some people were making surf boards out of them, body suits.

Using mushrooms as a burial suit so when you get buried after you die or help you decompose faster and better because it's actually an issue as well as that we eat so many synthetic things in our lifetime that we're not composting it anymore as well once we die. That's also another topic. There is a lot of this environmental work that there are great scientist and people in the mushroom making worth behind the scenes.

**[0:32:43.0] AV:** What can't mushrooms do? Holy moly. That's crazy. Another thing I wanted to talk about or have you talk about is medicinal mushrooms and cancer treatment and I know that proceeds of your company go towards providing mushroom kits for cancer patients.

Can you talk a little bit about what's being done in that area right now?

**[0:33:03.7] TI:** Yeah, obviously that's a very sensitive topic. We actually work with donating to cancer patients for almost two years without really talking about it because it's such a sensitive topic like I lost my aunt from cancer and right now, that kind of like depends on the country, where you live and where you are but roughly, one in two people will have cancer and a lot of the top cancer experts say that actually, everybody will get cancer but one in two will have a strong enough immune support to resist it.

Carcinogenic properties are everywhere and it's just the thing that we face. What's fascinating is that both on a traditional use, from be it traditional Chinese medicine to Russian culture, these mushrooms were used against tumor and actually for example. Chaga became popular a few

decades ago when a Nobel winning author Aleksandr Solzhenitsyn wrote this book called *Cancer Ward* where he talked about how you would use Chaga against cancer in that book.

People have been like kind of familiar, this like, “Oh, there’s something there,” and there’s been a special annoyance of countries that has done quite a lot of research like a mushroom called turkey tail versus color has a compound called PSK, so polysaccharide krestin, and PSP, this other polysaccharide that had been used for breast cancer as an official cancer drug for a couple of decades now and for a couple of years it’s gone through FDA trials here in the US as well.

There’s quite a lot of research around it, pretty much all cancer hospitals and cancer organizations, somehow recommend them for people who can’t get surgery or alongside a traditional therapy like chemotherapy to rebuild your immune system after the therapy has kind of destroyed it. It’s destroyed the cancer hopefully but also destroyed a lot of good stuff as well.

There’s a lot of promise there. Obviously more research is needed but if you’re fascinated, you can go to PubMed, you can put on any of this top mushrooms Latin name and cancer and you’ll find an insane amount of research on it and that doesn’t mean that all cancers are the same and there shouldn’t be more research but there’s quite promising that what mushrooms might do for cancer.

I’m not talking about our products, but in general that the promise of some compounds in mushrooms having antiviral and anti-tumor properties is very fascinating. Yeah, people can go and Google and do their own research and make their own decisions and the people who we donate to, they work with our oncologist so it’s not like they just decide to have it.

No, they have a conversation with their oncologist and see if it works on their therapy and where they are, either they’re in remission and what’s the situation and does it fit to their but then we do the donation and work with this company called Boarding for Breast Cancer, which is an epic nonprofit cancer organization and it’s been a great partnership.

**[0:36:04.3] AV:** Would you say for those of us who are just trying to sort of maximize our health in any way that we can that medicinal mushrooms can be more of a sort of proactive

preventative measure in terms of its like adaptogenic and immune boosting properties as opposed to, “Okay, I’m already sick now, let’s try to fix it with mushrooms.” Or does it work both ways?

**[0:36:27.4] TI:** Yeah, it does work both ways, it’s called immunomodulation or immunoreaction versus being an immunostimulant or just or just immune suppressants. If you have cancer is what happens when your immune system is really low, it also happens when you have a flu or a cough is when your immune system is just passive and down.

Then you might need an immune stimulant. More and more people have got issues and issues with their immune system being hyperactive so this is when you get your autoimmune disorder. That’s like MS, Lupus, arthritis, all that stuff, Crohn’s disease and what then you need is immune suppressants.

What mushrooms do is they have this immunomodulation that can do both so same way as their recommended often for cancer patients, use of mushrooms, there’s actually quite a lot of the top selling drugs in the world are immunosuppressants that utilize fungi in them.

For example, their only kind of official cure for MS disease utilizes a fungi cordyceps in its formulation. It has this two directional property that is sometimes hard to grasp but what it essentially is, it’s like a boot camp for immune system and immune system is like sleep, it’s one of those things that is so vital for everything. From our skin to our sleep quality, like I said, inflammation but nobody really cares for it until you get sick.

Then it’s often a little bit too late so you should definitely build your immune system every day all the time and mushrooms are not the only way, cold therapy and the good bacteria on your skin are things how you can improve your immune system but mushrooms are definitely one of the most studied ones.

**[0:38:12.3] AV:** Right. I know that this is a very sort of general question that it’s very dependent on the individual person but for maybe for athletes or for people who are trying to maximize their performance and stay healthy, when they’re very active or they’re training for something. How

much and how consistently and how often should you be taking certain products to really notice the difference?

Like, you know, we've got folks like Rich Roll and Ben Greenfield who are big fans of your products specifically and talk about how it's helped them with their training and performance. For those of us who are you know, we're just cross fitters or like to train for our own individual things, how consistently, how much do we have to be taking in to really notice a benefit?

**[0:38:57.1] TI:** Well, it depends on the mushroom a little bit and obviously on you. Like you said in the beginning, it's hard to make a blanket statement but I'll do my best. I'd say that there is, there's a couple, I would say three major reasons why mushrooms might help with sport performance or just being physically active.

One, as mentioned, is blood circulation and kind of oxygen intake. The cordyceps is the most famous one of them. That's probably the one that you'll notice immediately. Instead of using coffee or putting it in your coffee if you're a big coffee drinker but in general, just using cordyceps as a pre-workout booster. Studies show that it's been able to increase up to 15% of your VO2 max.

Even a small increase in VO2 max and the maximum oxygen intake that you have is, can obviously huge for a performance and that's the thing that people like Ben and Rich love and you can Google and there's quite a lot of triathletes and cross fitters who have been playing with cordyceps so you can definitely look into that. That's one benefit that you might get is pre workout boost, cordyceps being the best for that and kind of blood circulation.

The second thing is after a workout, actually, your immune system is very jeopardized, that's a time when you can get easily sick. That's why you should shower, change to dry clothing, you shouldn't have those, that wet T shirt on for too long because you might get cold really quickly and get sick really easily and obviously, anybody who has had an ambitious target or generally exercising, consistency is key. Getting sick even few days really is a bad thing because you get away from your normal training rhythm.

Sometimes it's better to train a little bit less and lighter but stay healthy than the training really well and then being sick for three weeks and then you have to kind of almost start from the beginning again. To generally, mushrooms like reishi and others are really good for your immune system and keeping you healthy. Then the third one is inflammation. So depending on the type of exercise you do, exercise is still stress, it's good stress but it's still stress and it takes your body a certain time to recover.

And inflammation is one of the key things that you need to get down and mushrooms like Chaga really help drive down that inflammation and that can help you quickly you can do your next exercise or how well rested you are in your next exercise, how fresh you are when you start. Those are three benefits that you might get out of medicinal mushrooms on the timing with the cortices is pretty instant, usually you notice it in the first few times already.

The other mushrooms usually, the studies last from six to 12 weeks, how often you take them but as a holistic health rule, I would say that I'm a firm believer, I could be wrong but I'm a firm believer that a diverse diet is a good thing. Just incorporating same ways you can incorporate some animal and plant based foods into your diet, you should incorporate good bacteria and fungi into your diet every day.

In some form or capacity and these medicinal mushrooms are just the most studied ones of this mushrooms but using some kind of a fungi kingdom product in your diet every day is probably useful for just general health. So I would say in small amounts every day but to get noticeable results, it usually last anything from a couple of days to a few weeks.

**[0:42:17.4] AV:** Got it. As with anything, basically consistency is key right?

**[0:42:21.4] TI:** Yeah, I mean, this is a food. This is not a supplement, this is actual food that people use to forge. It's not any different from getting berries; they just happen to be very powerful but it's still very much safe and same way as you probably want to have chlorophyll in the form of something green, dark leafy greens in some capacity throughout every day. You probably also want to have some fungi every day in some capacity.

**[0:42:51.1] AV:** I really enjoy the hot cacao mix, a little spicy. I am a big fan of that one and I think that that might be a good place for sort of a good gateway for people to start who are maybe a little bit — they're interested but maybe aren't super adventurous, they're unsure about what they should try. But what do you recommend for folks who are interested, they want to give it a try but they're maybe a little hesitant?

**[0:43:14.1] TI:** Well, I mean, I was chatting with people at the last PaleoFX and it seems to be that there is really two buckets of the paleo people out there and maybe this is too generic. People who really care for the flavor and want something that tastes good and then people who don't care at all like they will eat anything as long as it's good for your health.

That really drives down the decision where to start with mushrooms but let's assume that you really care for the flavor as well and you want delicious things and you're not used to the bitter flavors of this mushrooms yet and it takes a while or if you hate the flavor of mushrooms in general, you don't want that 'shroomy flavor. I would recommend the coffee and the hot cacao. I think the cinnamon hot cacao is the most popular one.

I do like the spicy cayenne that you also had, but I think the sweet cinnamon, is the most popular one. The coffee is definitely an easy way. It has about 40 milligrams of caffeine per serving so that's about half to or even a quarter of the caffeine of a normal cup depending what's your definition of a normal cup.

You have some caffeine so those are the two most popular ways to get started. You can also add these to your smoothies and other beverages if you want, but those are usually for the people who want easier flavors.

**[0:44:31.5] AV:** There are plenty to choose from. One of the cool things I like, correct me if I'm wrong, but it seems like for all of the offerings you have, you got the coffee, the hot cacao, the elixirs and you have all of those in those flavors with the different mushrooms depending on what you need, right? You can get the coffee with Lion's Mane or with cordyceps or you can pick and choose there.

**[0:44:54.0] TI:** Yeah, we have also a “find your shroom” so you can go to the website and find what’s your shroom. Based on just your needs or functional needs which I will offer options but also the flavor. Like you said, you can choose based on what kind of flavor profiles you like but also you can choose based on the function that you need the most help with.

**[0:45:11.8] AV:** Cool. Are there any new products or projects or anything cool from Four Sigmatic that’s coming up that you can tell us about?

**[0:45:19.8] TI:** Yeah, there’s a lot. I’ve been actually in the last few months I’ve been in the lab, in the kitchen making recipes and new products but unfortunately I can’t talk about them quite yet. Probably the easiest is go through the mushroom academy and join our email list or follow us on social and you see them when they come out but cool stuff on the way.

You can’t stop; it makes life so boring if you stop doing cool stuff. At least even if you try them and if it doesn’t work out, that’s also cool but...

**[0:45:50.2] AV:** Of course. Will you be a PaleoFX this year as well?

**[0:45:52.5] TI:** Yeah, we’ll be there.

**[0:45:53.3] AV:** Awesome, great. I’m going to have to track you down, I was there last year for the first time but I don’t think I got to see you guys, we’ll have to do it next time. But can you tell us just before we go where folks can find you guys online and on social media?

**[0:46:06.2] TI:** Yeah, it’s Four Sigmatic on pretty much all the social channels. Foursigmatic.com is the website and @FourSigmatic same way on Instagram, Facebook, twitter, whatever and then where you can find us on the website, you have the mushroom academy if you’re looking for that and depending on where you live, we’re sold in a lot of Whole Foods, Sprouts, Natural Product Stores, online you can get us on our website, Amazon, thrive market, a lot of places. Just hunt us down. If your current retailer doesn’t have us, you can also request it and they will probably get it there soon.

**[0:46:51.2] AV:** Awesome, well thank you Tero very much for being with us, you gave us a lot of information. Maybe next time I know we're getting to the end here but maybe next time we can have you back on and you can tell us about that psychedelic Santa story because I really, I want to know that one. Maybe we'll hold that for next time.

**[0:47:06.6] TI:** Sounds like a plan.

**[0:47:07.4] AV:** All right, thanks, take care.

[END OF INTERVIEW]

**[0:47:08.4] AV:** That was Tero, from Four Sigmatic, a company that's doing its best to take medicinal mushrooms mainstream and doing it very effectively I think. I will say, from the products I've tried, their mushroom coffee and cacao with cordyceps is an awesome alternative to regular coffee for people who get jittery or maybe just can't tolerate caffeine very well.

It gives me a much more natural energy boost that I really enjoy personally but the cool thing is, if you go to their website, you can learn about all the different properties of the different mushrooms that they offer and you can try products based on what works best for you.

I hope your brain is buzzing with information like mine is right now and I highly recommend that you spend some time with Four Sigmatics' mushroom academies that you can learn about health benefits and just interesting facts about one of the world's most ubiquitous living things.

Next week's episode is what I'm really excited about with the founder of Primally Pure skincare. I am a huge skin care buff/nerd and I'm always trying the newest product, trying to find the perfect balance between what is natural, what's good for me, what's good for the world and you know what also? Luxurious and nice. I'm a huge fan of her products.

She actually just launched a line of baby care products as well. She's going to talk to us about how she started the company and how she uses tallow from grass fed cows from her own family's farm. It's a pretty cool story and by the way, if you want to follow more of my natural skin

care adventures, you can check me out on Instagram @themusclemaven and you'll see lots of food, fitness, natural skin care stuff and more so drop by and say "hi", why don't you?

One last reminder before you turn me off. If you subscribe to paleo magazine radio on iTunes and stitcher, you won't have to miss any of this great episode, it's very easy to do. If you like what you've been hearing, leave a rating or even a nice review so we can get into the ears of even more people and so I can keep my job. No pressure.

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[OUTRO]

**[0:49:26.8] AV:** Paleo Magazine Radio is brought to you by the Paleo Media Group and is produced by We Edit Podcasts. Our show music features the song *Light It Up*, by Morgan Heritage and Jo Mersa Marley, and on behalf of everyone at Paleo Magazine, thank you for listening.

[END]