

Caspar (00:00):

What if there was a naturally occurring molecule that could keep your cells young and disease free? And what if it was present in all plants and animals? And, no, I'm not talking about NAD+ in Nadovim. Our guest today is helping to further our access to such a molecule as the Director of Applied Science and Brand Development at Longevity Labs. This is the story of Spermidine Life with Don Moxley. Don, great to see you.

Don (00:26):

It's great to see you too. I'm excited to be here with you and, uh, meet your new tribe. My new tribe. Yeah.

Caspar (00:32):

Your new tribe. It's all new tribes. I mean, I met you at the Biohacking Congress, uh, last year in Miami, and I had known of spermidine. I had heard people like Dave and others talk about you were on there mm-hmm. But a lot of people haven't heard about this, and it's, it's a very interesting molecule. Can you give us a little bit about the history and maybe what brought you into working with this product?

Don (00:53):

Sure. So, yeah, I had not heard about it. It was funny. I, my, my background, I'm an exercise physiologist and sports scientists by training. Um, I've taught university for 35 years. And, but I had left, uh, I'd kind of left academics and was working in another industry. And I get a call one day from a buddy and says, Hey, what do you know about autophagy? I said, eh, I have a passing understanding. It's not, it's, I'm not, I haven't done a deep dive into that yet. And he said, have you ever heard of something called Spermidine? I'm like, Nope, that's a new one to me. So he sent me the links. He said, do some work on this and see what you can figure out. And literally, it started with a TED talk, an Austrian TED talk that, uh, Dr. Frank Madeo did.

Don (01:38):

Um, and I'm like, okay, this is really interesting. And so when you understand a autophagy, I think you understand this, and most of your listeners do that. Listen, living longer is about fighting inflammation. Inflammation is the, when, you know, everyone talks about living to 120 or 180 or whatever. Well, you can't get to one 20 unless you can get through 70 to 90. I mean, you know, that's the challenge. Um, and, and right now, the thing that's going to keep you to getting from 70 to 90 is an inflammatory-related disease, whether it's, uh, whether it's a drop in your immune system or cancer or, or cardiovascular disease. It's, it's all inflammation-related. Well, when you start to look at autophagy, you know, listen, those two are inverse to each other As inflation, as inflammation goes up autophagy goes down.

Don (02:33):

As you raise autophagy, inflammation comes down. Um, so that's one of the basic things we pick up along the way. Autophagy is critical for longevity. Well, and, and when you look at that, it's critical for a lot of healthy aspects that we're fighting in this modern lifestyle that we live in. So, Dr. Frank Madeo, he is a researcher at the University of Grotts and Austria started looking at this novel molecule called spermidine. Spermidine was discovered 400 years ago. The guy that dis that discovered the, the single lens microscope, Antonie van Leeuwenhoek, probably a bit of a freak because somewhere shortly after

he figures out how to count threads with his, he's got semen on a glass, and he's looking at what's in his semen.

Caspar ([03:17](#)):

Such a guy thing to do.

Don ([03:19](#)):

I'm telling you. And, and I wonder what would happen if we had given that first microscope to a woman. Right. You know, how much further ahead would we be? Um, but, um, but they, he, he described these crystalline structures in semen. That's all that happens for almost 200 years then some Dutch researchers, uh, dig back into this molecule. And that's when they gave it the name spermidine has nothing to do with sperm. It's found, it's found in semen, mother's milk, babies. So, and all cells actually. Um, and, um, in the eighties, we were looking at spermidine as it related to cancers. There's, there's correlational stuff there, not causal stuff there. But in, in, in 2016, you know, I'm you, I think you know this, but we, they gave a Nobel Prize to the Japanese researcher that described autophagy and the processes of autophagy.

Don ([04:14](#)):

Well, this was a great breakthrough. And, and then Dr. Madeo started looking at autophagy benefits as it relates to senescent cells, um, and then started using sperm and put it on senescent cells and saw the revitalization of cells. Um, so we see a autophagy, senescence is a, it can be caused by a lack of auto toy. As we increase the autophagy, we sell cellular behavior, return to normal. Um, and this was the important part. So, uh, Dr. Madeo did this work in the 20 ninetees, 2020s, 20 eighteens ninetees and twenties. And then, um, they figured out how to extract sperm from spermidine-rich wheat germ in Austria. So that's where sperm life came from. We are a sperm rich. It's called cell VO extract. Uh, spermidine is actually what's called a polyamine. You know, your audience has heard of an amino acid an amino acid.

Don ([05:16](#)):

If you take the acid off an amino acid, you wind up with a polyamine. There's nitrogens and carbons and so forth. Uh, it's a fairly stable molecule. Uh, it's, there are other in the class. So our spermidine life product not only has sperm, but it has the precursor to spermidine, putricine and the, and the post-cursor, uh, spermine. So it's got that full bandwidth of, uh, natural polyamines. And, and that's where we came from. Uh, they started in the market about three years ago. And, uh, myself and, uh, two other guys have been ramping this company up in this country.

Caspar ([05:51](#)):

Yeah. And it's really interesting because a lot of people forget that you can't have health without proper cell rejuvenation, duration, all of that. Our cells are the building blocks, and so many of us forget about this and don't really focus on cell health. Uh, it's something that, that we really focused on. As I mentioned, we love, you know, NAD for that factor, that of course it boosts, mitochondria, all of that. And that's why spermidine was very interesting to us as well, because it is about cell health. Can you walk the audience through the process by which sperm aine does lead to cellular autophagy?

Don ([06:27](#)):

Yeah. So actually we've got some new developments here that have just come along recently that we used to refer to spermidine as a calorie restriction mimetic. Meaning that typically through fasting, through a lack of energy coming into the body, we see a drop in insulin. We see a drop in IGF. And the cell and the cell looks for insulin and IGF to say, 'Hey, there's nutrients out here. Let's go do what cells do.' But as those drop the cell looks and says, 'huh, there's no energy coming in. While we're in this state, let's go ahead and clean ourselves up.' And that is autophagy. Because when cells are making proteins, they're not always made correctly. You know, they may be folded incorrectly or there might be some change in the development. But that protein that the cell made incorrectly doesn't go anywhere and it just sits around in the cell.

Don ([07:22](#)):

If that builds up, that looks like that's where dementia's coming from. When we look at tau proteins and these kinds of things with dementia, it looks like it's that buildup of proteins. Autophagy is the process for cleaning that up. So we typically trigger this using, uh, calorie restriction. Now, what we've learned along the way, there are things that mimic calorie restriction. That's why we call it memetics, um, resveratrol. This is what, uh, uh, Dr. Sinclair talks about in his book Lifespan. We also have metformin kind of hot in this space. Metformin, up-regulates, uh, one of the same proteins that exercise upregulates, AMPK. And then we, then the classic, and I'm sure your audience, if they've listened very long, they've heard of rapamycin, the antibiotic that targets the protein in the cell that actually tells the cell to make protein well and cools that off.

Don ([08:20](#)):

And then you wind up with an up regulation of autophagy. Now, this is what we've just learned is that we've got a paper that we expect to see. It's been accepted. We expect to see publication by the end of the year. If you take mice and you fast them, you get autophagy. Okay? It, it upregulates. If you take a spermidine knockout mouse and you fast it, you don't get anything. So we're about to move spermidine from memetic to key molecule in the autophagy pathway. It's critical down there. There. So this is some of the stuff that we're learning as we go on this. So spermidine, it's more than, you know, listen, we know that when you up, when you raise spermidine levels, you raise autophagy levels. We know that that's very clear. But we weren't sure at first is this a trigger or is this a key mechanism? Well, with this latest paper, it looks like we're gonna start referring to it as a key mechanism, because we know it's critical in that autophagy pathway. We know people, we know people who live in blue zones who have these 90 to a hundred regular living in 90-100. They have spermidine-rich diets. Now. They get those diets from raising it. Nutrient-rich food, typically gardened on their own. It's not industrial produced. You know, we struggle to find spermidine-rich wheat germ in this country, mainly because industrial, uh, growing processes have milked a lot of these micronutrients out of the food. You know, we, we, we, you know, we're all trained when we, when we go to university, we learn nutrition is proteins, fats, carbohydrates. This is the first thing we learn. And then they throw in vitamins and minerals. They take, they take these micronutrients, which is the list is, is 50, and they compare 'em to three of the macronutrients. And it's like, okay, the micronutrients look like they may be as important and, they are as important, if not more than the macronutrients. So getting these micronutrients into the diet is critical. And spermidine is just one of those molecules that we now recognize as an essential nutrient. We, we expect it to get vitamin status at some point.

Caspar ([10:35](#)):

And it is the little things, there's nothing bigger. Right. So it's the little molecules we all overlook and always want to go for something bigger. But, you know, it's, it's very true that we know spermidine can be replenished through diet. It's just our diet, our, the quality of what we kind of sucks.

Don ([10:52](#)):

Exactly.

Caspar ([10:52](#)):

Now, if someone were in more in charge of their diet and having a higher quality resource available, whether that's a farm, like you said, a lot of the blue zones, they're making their own. The soil isn't as depleted, it's not conventionally done. What are those foods that are highest in sperm?

Don ([11:10](#)):

Well, the, the, the thing that we see classically, um, besides wheat germ is fermented soy products. So I don't know if you've ever, uh, eaten nato. Good on you. God bless you. Cause I can't choke that down. Um, so that, that's something that's typically very high. There are some naturally grown mushrooms, things like that, some hard cheeses. Um, again, I think of the food that if I were, if I were traveling through Tuscany and I were stopping at the roadside to eat some local farm food, you're probably gonna find high spermidine-rich food. Because the nature of it, if you're driving through Kansas and you're getting food that was raised on a 20,000 acre farm and harvested with million dollar machines, probably not gonna be there.

Caspar ([12:00](#)):

Yeah. Again, the unfortunate part of living in the United States. But we, we all are in the same boat, or we should say most of the world's not just United States. I mean conventional, you know, food in the food industry has changed rapidly, even in developing countries. Now, one of the, the trigger words of of many people are wheat, gluten, we associate with it. So tell me about people at gluten sensitivities or celiac disease. Is spermidine life something that they can take?

Don ([12:32](#)):

We have many celiac patients who are using spermidine. They, now, let's be clear, there is a very small amount of gluten in our product. We're a wheat germ extract. And it's very, when you look at, uh, the celiac association, what they tell you is you want to have your gluten consumption below 10 to 50 milligrams per day in a serving of, of, in a serving of Spermidine Life. We have one milligram. Mm. Um, so now my wife has celiacs. Okay? And I'm telling you, I've held her hair back way too many times when she's gotten polluted. And, and she is militant on preventing, uh, you know, the introduction of gluten into diet. So we have to be careful. Now, to be called gluten free, you have to be below 50 parts per million in the product. Okay? We're about a thousand parts per million in, in our dose.

Don ([13:33](#)):

But if you just take our capsule, we have a lot of people that break it into a protein shake, you immediately, your parts per million go way up. Right. Your, your million goes up and your parts stay the same. And we see a lot of people manage it that way. But if you do have someone who is gluten sensitive, celiac, something like that, listen, you gotta be careful. It's, there's just no two ways about it. Again, we've all experienced this and we do have, you know, we have a great doctor out in Boulder, Dr. Elizabeth Yurth and she talks about the benefits of the improved endothelial and epithelial cell

development that comes with spermidine, and many times, she believes heals the gut and there is a benefit. There's a greater – you know, it's all risk benefit, right? So there's a greater benefit to the lowering of inflammation in the gut and the improvement of those epithelial stem cells than there is risk from exposure to gluten.

Caspar ([14:35](#)):

Right.

Don ([14:36](#)):

So, work with your doctor, be, you know, go slow. But we have a lot of celiac patients who use our product that we hear from.

Caspar ([14:42](#)):

That's good to know. Now, you're a student of human performance, of athletic performance. Spermidine obviously has an improvement on energy, on cellular function, on just, I would say performance overall. But now let's get into what a lot of our audience listen and, and are about, which is more on the medical side, which is healing almost, maybe some symptoms or even chronic disease that they're living with. What have you seen, I know you work with practitioners, you work with medical office. What have you seen as far as aiding, we're not gonna say treating of course, here, preventing. These aren't the words we use for supplement, but in, in helping patients at least alleviate some of the symptomology. What, what have you seen?

Don ([15:24](#)):

Well, we see, we've seen three or four big things. And I'll, I'll walk you through 'em. The first thing that you notice, phenotypically when you begin to use sperm about three to five weeks in, most of our customers tell us they notice a change in their fingernails. Their fingernails start growing like crazy. And we get a lot of reports of improvement of hair. And, and so when you go back and if someone wants to learn about spermidine, the thing I refer to an article that was in Cell, um, that was called Spermidine in Health and Disease. It's a great review article, and there's five benefits that that paper talks about. And one of those is the upregulation of epithelial stem cells. Now, your epithelial cells are the cells that make your skin, okay? They, they make all the, so not just the skin on the outside, but they also make that lining of the gut.

Don ([16:18](#)):

Those are epithelial cells as well. And so when you have the upregulation of those stem cells, again phenotypically you really see it show up in fingernails, start growing like crazy. That's, that's the big thing that we notice. Okay. Everything else on benefits has to be measured with some other marker. Now, we just did a small pilot study, uh, here in this country, and we had a group of patients use our six milligram product for 30 days. So we just released a six milligram product, um, that's available through physicians. Um, and they use this for 30 days. So we measured blood markers that included blood sugars, blood lipids, inflammatory markers, and we did quality of life measures as well. We measured at 0, 15, 30 and then 45 days. So we supplemented the 30, but measured at 45 days. When you look at the blood sugar markers and the blood lipid markers, not only did they improve throughout, but there was, it continued to improve at the 45 day mark.

Don ([17:22](#)):

And this was important to us because I think it's, uh, listen, this is working deep in the cell. A lot of supplements you take, hit a, hit a receptor fire, something on the nervous system, and there's an immediate response. Um, that's not the way this product worked. This product has gotta have time to work down into the cell to up-regulate that autophagy, and then go ahead and start that process. But at 30 and 45 days, we saw a, a dramatic improvement in all the sugar markers. So insulin, insulin sugar and A1C all improved. And the lipid markers, triglycerides, hdl, LDL all improved. Our inflammatory markers were, were mixed. We had some improvement. Some, uh, so we don't think it was a pilot study. It was really small. We didn't have a big enough N in this to get any kind of power, but we wanted to look for some initial, you know, what are we seeing with it?

Don ([18:21](#)):

So where do we start to look? Now, we backed that up with a paper that came out, it's now almost been three months ago, looking at fatty liver disease and sperm supplementation. So one of the things we see when you supplement spermidine, We saw an improvement in fatty liver in humans. So, and it talks about the paper, and, and frankly, I'm not a good enough chemist to, to dig down into this. I need to work on that a little bit more. But they saw an improvement in the enzymatic behavior in the liver. And it was the lack of spermidine that caused the drop of this enzymatic behavior that caused the increase of fatty liver. As you restore spermidine, you restore the enzymatic behavior, you see the resolution of the fatty liver, which falls right in line with our blood sugar studies. I mean, these things go hand in hand.

Don ([19:12](#)):

So this was really exciting. So it's not just that classic autophagy pathway in inflammation, but we're starting to see this at an organ level. You know, you talked earlier about, you know, medicine and what we do, you know, you know, medicine classically trains our doctors at an organ-system level. Okay? There's a problem with the heart. There's a problem with the kidney, there's a problem with the liver. Well, what, what we're finding is that medicine needs to operate at a cellular level. And so when we start looking at, you know, I, I use a talk, I talk in, I I do a term in my talking. So you don't, you won't die when you run out time you die when you run out of energy. And energy is a mitochondrial issue. And so when we look at mitochondrial behavior, mitophagy, all these things, these are all upregulated and improved with autophagy that is stimulated through spermidine supplementation.

Caspar ([20:05](#)):

Yeah, it's interesting you bring up that idea of energy. I was speaking with my father who's the medical director here at our clinic. And, and I was telling him I was interviewing you and then spermidine, and he said, you know, it's really all about the energy in the cell if you don't have the energy to defend and replicate disease ensues. So, you know, he says, we put patients on lowered immunity, this and that. It's not that it boosts the immune system, per se, the system, it boosts the cell's ability to defend itself cuz it has the energy. Now think about it. If you don't have the energy.

Don ([20:36](#)):

The energy itself.

Caspar ([20:37](#)):

Right? If you don't have the energy to go to the gym, to cook food, to do things, you start to wither away a little bit, right? You start to become weaker, you become more susceptible to other, other things and,

and injury, let's say. So, you know, it really breaks down. And you're right, medicine and doctors need to look at the building blocks, not the systems. The systems are just organized cells. That's it.

Don ([20:58](#)):

Yeah. And, and I, you know what, I wanna stay on that point for just a second because again, I come from the exercise community. I've been teaching the exercise sciences since 1987, and I believe the fitness industry failed, failed without a doubt. Because when you talk to someone, listen, we're going into it, we're recording this on Tuesday before Thanksgiving. We're getting ready to go into the holiday period, and then January 1st, boom, all, all the resolutions start. What are the resolutions? I wanna lose weight. Worst goal in the world. Okay? We have failed at that so many times. The reason you exercise is to train your mitochondria to improve them because that improves their ability to produce energy. It improves your ability to live longer, and you don't have to lose weight to do that. It is a nice byproduct, okay? When it happens.

Don ([21:53](#)):

But don't use weight as your primary indicator. It's a secondary indicator. And then we can take this one more step in the fact that, um, as we're improving energy and as we're improving these processes, you don't have to be in a CrossFit gym laying in a puddle of sweat in order to get the benefits of exercise. If you get a heart rate monitor and you learn to train in zone two and three of a five zone system, there are huge lifestyle benefits that come from zone two work. And, and the fact is, you don't know you're in zone two unless you're wearing a heart rate monitor. So this, this is, this is the real opportunity when you're looking at exercise and health improvement. Listen, I, I call it my four rocks in the jar of longevity. The bottom one is movement. As an animal, we evolve to move and adapt.

Don ([22:49](#)):

We live in environments that don't let us move and adapt necessarily anymore. So we have to hack that. We have to hack that with exercise. We need nutrient-dense food. We don't necessarily get it all the time. So we have to hack our food with supplements. Um, my third rock is sleep. Okay? You have it in the absence of sleep, everything, I mean, when mother Nature wants to take you out, she takes your sleep. And so always hacking our environment to sleep. You can't, you can't hack sleep. But we can hack the environment, make sure we're getting good sleep. And then light is my third. You see a red light panel here over my shoulder. I think light is a nutrient. And so those are my four big rocks. And they go in the jar of purpose. You know, you have to wake up in the morning and have a purpose.

Don ([23:33](#)):

You gotta have something that you're working towards because the decisions not to engage in exercise, get good sleep, get light, get nutrient dense food only is, is enabled through the desire to live long and healthy. And, and so this is the process. And it just so happens that spermidine is one of those key molecules that we've come across that wow, when we get it in the diet, it makes a big difference. But you can't take spermidine and be and be sedentary. You take spermidine and go walk, take spermidine, hack your sleep. Get your, get the lights outta your bedroom, get to sleep, get spermidine, get quality light. These all go hand in hand.

Caspar ([24:16](#)):

Yeah. And I love that idea done of purpose being a part of that as well, because it is true. I, I'm a big believer of purpose-driven medicine. Meaning if you don't have a why to get better, you're probably not

gonna get better. You're, you're not gonna put in the work yourself. Now, I think conventional medicine, just like I, I think you said fitness kind of failed, conventional medicine failed in that they don't care about a why. Here's a pill, keep doing what you're doing and you're gonna feel a little bit better, but then you're gonna feel worse and we'll give you another pill. We'll keep doing that until you are dead. And so it doesn't ever give you the true why to get better. It just gives you something to cover up the pain created by your not why. And you know, the actions you've taken to get you sick.

Don ([24:55](#)):

I saw a meme the other day, it was one of the best things I've seen on the internet. It says, taking a pill and thinking you're healthy is like getting a loan and thinking you're rich.

Caspar ([25:06](#)):

Very true.

Don ([25:07](#)):

Okay. There's it, they're, they're just not the same. You know, that health again, I call it those four rocks in the jar, I think those are critical, the jars purpose. But you've gotta get those four big rocks in there. And, and this come, I'll tell you where this comes from, is that Stephen Covey wrote a book called The Seven Habits of Highly Effective People. In that book, they talk about rocks in the jar. And once you get the big rocks in, is it full? No, you can get sand and gravel and water into the jar, but if you put the sand and gravel and water in first, the big rocks don't fit. So you can't get obsessed with the rocks and gravel. You've gotta get the big rocks in the jar. And too many times medicine is gravel and sand. Mm-hmm. If, if, if you'll get the exercise nutrient dense food, get sleep and get quality light on at an effective level, you know what? There's not a need for medicine.

Caspar ([26:04](#)):

Oh yeah. Those foundational pieces are free. Those foundational pieces like sleep, going outside, getting sunlight, like you said, light, right? You know, the fresh air, all this moving, walking outside. Again, these are not things you need to particularly go to the CrossFit gym and pay a membership for. You can do it without all that. Yeah.

Don ([26:23](#)):

You, you, you see a sauna over my shoulder. Sauna is a wonderful, and you know, we look at sauna, we look at heat therapy, it's culturally ancient. You know, I, I don't know. I've, I had a chance to participate in a Native American sweat lodge ceremonies for a while. Oh my God, what a wonderful experience. It's incredibly spiritual. It's the hottest sauna you've ever been in in your life. It was in, I mean, I felt like my skin was gonna come off at times, but what a wonderful practice. And whether it's in the Scandinavian countries and their use and love of sauna, or we see it moving culturally through a, through many, many cultures, heat and cold are good stimulants. And they can be a hack to exercise. They can be in, they can be, listen, there's, there's some data that says saunas as good as cardiovascular exercise. Yeah. Okay. The best data says a little cardiovascular exercise and some saunas even better. Yeah. Right. So, um, so, and then listen, that's one of the beauties and it's just about prioritizing and making sure it's part of what you wanna do.

Caspar ([27:28](#)):

So let's talk about some of those hacks. You're obviously about performance optimization. We talk a lot about auto through spermidine, you mentioned lights, red light, mitochondria; health, all that you mentioned sauna. What else is in your repertoire, do you, you advise people do?

Don ([27:45](#)):

So? Well, listen, it goes back to the four rocks. Yep. Okay. That, I mean, literally. And, and the other big recommendation I have, you know, listen, a heart rate monitor costs about 50 to 70 bucks. It can, I believe it is the single most important tool that you can use in exercise. Being able, it, it gives you a scoreboard. It gives you a place to look. And, and, and I'll tell you, if there's a little bit of an addiction that goes with this, when you start to exercise with a heart rate monitor, all of a sudden you show up to exercise and you don't have your monitor with you. You're like, oh man, is this even worth it? So I, I'll warn you now, um, and you know what, right outside the door of my office right now, my wife is riding our Peloton and she's got our Apple watch and it's talking to, you know, so there's a lot of good technology right now that's really enhancing our ability to improve that experience.

Don ([28:42](#)):

So I think hr, I think heart rate is critical. I'm also a huge believer in heart rate variability. So I wear an Oura ring. I'll confess, I, you know, I, you and I were talking before we start. I live in a, in a 42 foot RV. My wife and I travel nationally, but in my old house, I had a credenza that probably had 50 different heart rate measuring devices in it, heart rate monitors, hrv, things like that. HRV is a wonderful tool. We, we know hrv, I, we used it as a selection tool for my wrestling team at Ohio State. So I knew who would be an All American the first day of the tournament based on HRV status. I know your HRV will go to zero, the heartbeats before you die. Okay. That we know that will happen. So the way I look at it, the more I push my RV away from zero, the healthier and the better I am.

Don ([29:45](#)):

So using a piece of technology, like I said, whether it's an Oura ring or a a, you gotta be careful with the wrist straps. I'll tell you that technology I don't think is settled yet. It's, it's hard to measure HRV, there, there are, there, there's a lot of good tech that's coming up right now to measure this. So buyer beware when you're looking at these tools. But I think H R V is an important overall marker. I'm, I can't wait until I go and I work with a great functional medicine doctor. I love this guy. He understands systems, but he still depends on lab tests two to four times a year. I can't wait. I said to him, when am I gonna walk in and you're gonna look at my HRV and you're gonna look at my CGM data and make decisions?

Don ([30:33](#)):

Because I believe CGM data is much more valuable than A1C data. Yeah. And, and they go hand in hand, right? Um, but I think it's, it's more granular when you're using tools of daily measurement. It gets more granular, it gets, you get better feedback. Cuz you can associate with, with, with CGM data, I can associate exercise with an improvement in my sugar. I can associate good sleep with a change in my HRV. Those things go hand in hand. If I'm only getting data every two to four times a year, who the hell knows what it's associated with?

Caspar ([31:06](#)):

Yeah. No, I'm, I'm fully on board. We have a great HRV system we use here multiple actually at the clinic because it does give us a much more comprehensive assessment. Labs are wonderful, you know, but they're a little bit downstream at times. They're, they're very interpreted differently alone. Let's say if

you combine that with HRV, with other spectrometry types of looking at tissue instead of blood, all of these other things, you get a much more robust picture. And HRV you could do so much with. You could look at hormones, you could look at autonomic response, you could get all these different things, energy pathways. I mean, it, it really is a, a, a very, very comprehensive way to analyze the state of health of anybody. Yep. So I, I think it's awesome that, that you are really looking at that as a, as a main function to how you see your own health state.

Don ([31:56](#)):

Ultimately. And then, and then my third big biomarker that I use is watts per heartbeat. So when I exercise, I exercise using a device that measures wattage. We have a Peloton in our rig. I have a concept two ski urometer that gives me wattage feeds out. So ultimately I want to be able to do more work with less heartbeats. I want, I want this relation work heartbeats. So everything that you do should be raising your ability to do work at the same heart rate or lower your heart rate to give a given amount of work. But when we get 'em both moving boy, things are going great. So that, that watts per heartbeat is a great biomarker. And it, and ultimately that's what you're looking for. You know, you, you see. Listen, the first thing we learn in exercise science is that one of the benefits of exercise is lowered resting heart rate.

Don ([32:43](#)):

Okay. So that's where resting heart rate comes into play. The, the amount of work it takes to stay alive at rest is a constant, we call it one Met and as, and that's always the same. But as your heart rate drops to deliver the amount of energy to supply that one Met, there's a health benefit. That's why we see resting heart rate is such a great measurement. We know that when resting heart rate booms a little bit, there's a little bit more of a demand on the system. We can, we can see viral and bacterial infections two to three days before you're symptomatic. We used HRV as a tool on two occasions when I was at Ohio State. You have 10 guys your starting week in your starting lineup, you're allowed to travel 16. The NCAA lets you take 16 with you.

Don ([33:27](#)):

So we're trying to decide who the other six are that are coming with us. And I'm like, our 58 pounders gonna be sick on Sunday, so we need to bring a backup there. And they're like, what are you talking about? And this is on a Thursday. I'm like, is HRV started dropping this morning? He'll get symptomatic, he'll wrestle fine Friday, he'll get symptomatic Saturday, he'll be sick Sunday. And we nailed it twice. So, and I don't know if you guys see that, you know, it's, it's nice when I've gotten a group of elite guys, I'm seeing their data every day. But that's the kind of observations that you can make. Listen, we know that wearable data turned out to be one of the best diagnostic tools for covid. We knew there was gonna be a DR when you saw a drop in HRV an increase in respiration, an increase in body temperature.

Don ([34:11](#)):

It's a classic covid response. Ironically, what we know is that the covid virus interferes with autophagy in the cell. It actually interferes with the autophagy pathways. We have a paper in Berlin that's now a little over a year old that showed human immune cells supplemented with Spermidine. Life stopped covid transmission 85, 90, 90 2% of the time. So you know, this is, this is that autophagy exercise, life pathway immunity, it all goes hand in hand. And the, we just happen to sit at, you know, at the, at the entry of a, of a novel molecule, spermidine and spermidine life that turns out to be beneficial.

Caspar ([34:55](#)):

Yeah. I mean those patterns of health and disease are there if you find them and you look for them and you were looking through HRV. So they are everywhere. We see these patterns of life. And that that's the whole point of, you know, being in, in line with what you see in nature basically as well. Absolutely. Applying that to humans, which are part of nature. Now tell me, outside of spermidine, what else do you have going on? What's, what's exciting for you that you got coming up?

Don ([35:21](#)):

Well, it, I'll tell you one of the real exciting things was, um, my company, okay, so let me, let me build this up. So again, my background exercise scientist, I've had a background in HRV for a long time, but back in 2015, uh, I helped the coach from Ohio State solve a problem with one of his wrestlers. And we diagnosed it and we prescribed this guy back to exercise health using HRV strictly. Um, so he was way overtrained, he was mal adapting to his training. We put used HRV to say, okay, what training is appropriate? We take a kid who's struggling to remain all American that year, and we basically modified nine or 10 exercises. So it's like we saw the power of this from a diagnostic standpoint. We then used it prescriptively. Um, do, do we train harder? Do we train less?

Don ([36:09](#)):

Um, you know, with, with, in wrestling, the real season starts in January. So we have weight cutting season in November. Uh, you wrestle a couple tournaments, you go into December at wait, and then there's a break from Christmas to New Year's and the guys come back right before New Year's. And we usually start our next real drive for nationals. Um, now this is, I get about seven days between they get back and when we go to a match, I can really do a deep dive into training and really push 'em hard. Well, the guys all come back the first day and we're gonna bury 'em. Okay? This is, you know, we've got seven days and we're gonna bury 'em. Day one. Um, I got the worst HRV measurements on my team in an entire year the day they came back from holiday. Hmm. And what we learned is family stress is worse than any stress.

Don ([37:03](#)):

Okay. And, um, I, and literally I see this data and the guys are running are, are warming up. And I, it was completely unexpected on my part. And I went to the coach, I said, listen, we cannot bury these guys today. We need to go to plan B. We need to do a drilling low level. Let's get back in the groove. We did that came back the next day, all the numbers were back up and boom, we hit it hard. But if we, if we bury 'em that day, we may never get 'em back. We may never get the recovery back. So, so we used it prescriptively well, and finally we can use it for selection. Um, you know, listen, I I, we qualified 10 guys for nationals last year. There, um, eight of 'em had an RV that I predicted would make 'em all American.

Don ([37:48](#)):

They did, two of them didn't. Two didn't. So we can use it for selection. Um, it's an incredibly powerful, uh, variable. So when we start to look at that and for individuals, as I watch the HRV community, um, I see people making decisions on how they're going to train that day based on what their numbers were from the night before. I think that's a mistake. Hmm. Um, I think what you have to do is you gotta get a goal out there. I call 'em trainable life events. It's something that you put a picture on the wall for. No one takes a picture of their scale and puts it on the wall. Okay? It doesn't happen. So that's why weight loss is such a bad goal. But if my goal is I want to enjoy, enjoy the family vacation in Thursday and Friday.

So we'll have, we'll have Thanksgiving Thursday, and we've got a big blended family thing we do down here in North Carolina.

Don ([38:41](#)):

Friday is Family Olympics. So we have five, we have three families that are together that will be competing against each other in all these different kinds of games. And, and the, the, the, the, the memes that, come on phone texting are hilarious, getting ready for this. But this is an event. This is a life event. This is something we look forward to. Whether it's a 5K run or a marathon or a hike or something like that. You know, something where you throw your arm around someone and you take a picture. That's what we train for. Okay. Keep that out there. Use your HRV to make sure you're moving in the right direction. You may have a low day, but you still gotta do the training. If all of a sudden your stress is causing you not to adapt, then you have to take a step back and adjust.

Don ([39:31](#)):

But you gotta base it on the goal. Okay. Not what I did night before. Does that make sense? Absolutely. Um, now my company came to me and said, okay, so how would you supplement this? Well, I, I have, I left sports science to go work in cannabis. I had some people talking to me and I'm like, okay, I need to figure this out. The, and and what we learn when you go into the cannabis business businesses, chapter two of exercise 101 should be teaching about the endocannabinoid system. Part of your nervous system that is run with molecules that look like cannabis molecules. When you exercise, you produce a molecule that's called anandamide. This is where the runner's high comes from. This is the saddest. And, and it modulates your nervous system. HRV is a measurement of this. Okay. So when you look at, and, and we've all heard of CBD and these kinds of things coming along, um, as I've looked at this industry, I said, wow, there's, there's something here.

Don ([40:32](#)):

So we've been wor— we actually are releasing a product December 1st. It's called HRV plus. It's in a brand that we call mode and method modemethod.com. But HRV plus is a blend of cannabinoid cbd, cbd, a beta cariofileno which is a dietary cannabinoid. Some other supplements. This is all in a fish oil, omega three dha, EPA fish oil. But the fish oil also has what's called SPM specialized pro resolving mediators. SPMS are the final stage of the resolution of inflammation process. They're biologically available and they really improve inflammation. So our HRV plus is a combination of cannabinoids and omega-3 fats, dha, epa, SPMs in a single supplement. Our samples have, we, we went through a sample program with this. Um, the results have been wonderful. We're very excited about it. So that will release December 1st. So that's the other thing on our, on our docket as we move into the new year.

Caspar ([41:34](#)):

Amazing. Really exciting stuff. Now on top of that supplement and on, on top of the Oura ring, are there any other systems that you would recommend to actually monitor your heart rate variability? HRV monitoring?

Don ([41:46](#)):

Well. Okay. I gotta be careful how I answer this question. Um, I think you have to be buyer beware. I'm not gonna criticize someone's product that's out there. Yeah. But I absolutely do not recommend most of them. Okay. So let me, so what, what, when you measure HRV a lot, what you find is there's a lot of people making wearables that say they have HRV, but it, it, it, the data is not consistent with what I

think is necessary. It's not good. It's like getting on a scale and saying, Hey, you're somewhere between five and a thousand pounds. It gave you a weight, it weighed you, but can you trust the number? Well, there's a lot of stuff on the market that measure that says they measure hrv. And frankly, I don't think you can trust them. Um, so that's, listen, I trust Oura and I have no relationship with Oura.

Don ([42:35](#)):

Um, I've just spent a lot of time looking at data and looking at this and, and I really like that product. Um, so there are other things too. There's good, there's good groups out there. There's a group that's called Elite HRV. They have a technology that you can use on your phone. Yeah, these are good scientists. I've paid a lot of attention to what they're doing. There's a guy out in the Seattle layer, his name's Joel Jameson, and he has a, um, a program, um, called Morpheus. Joel, Joel gets it. He gets the data. Morpheus is a pretty solid process. So, you know, when you start to look at this, this is the place I look, you know what, and you know what, you can get a polar heart rate transmitter. You gotta get the chest transmitter because it's EKG. And you can use an elite HR V app that's free and you can start to learn to measure, uh, HRV, um, with a, with a, with a very small investment. I think, I think a polar H10 transmitter is, is 50 to 80 bucks. The app is free on your phone. Um, so this is a good place to start. But figuring out how to work it into your lifestyle is part of the challenge.

Caspar ([43:40](#)):

Oh yeah, no, that's part of the journey. I think just guiding a little bit to start and then you jump down that rabbit hole and you learn more about it. You experience it yourself. You learn what works, what doesn't for you. And that's, that's part of it. As much as I, I think it's great to ask these questions of the experts like yourself and other and gain guidance. You gotta experience it for yourself. That's, that's the biggest thing. You can't just listen to one person on Instagram, follow them to a T and expect success to just come. It's not how it works.

Don ([44:07](#)):

Well, there's so much, this is one of the things I talk about. Evolution only happens with extinction. Okay. So you, you have to have an extinction event for a set of characteristics to become evolved. We haven't had an extinction event for a long, long time. And so what, you get evol you get diversity, you don't get evolution, you get diversity. We have, have a huge amount of diversity in our genetics. This is the reason someone can be vegan and be successful and someone can be carnivore and be successful. It's not one or the other. You know, it's a giant bell curve, okay? It's a lot of people in the middle, but you might be on the ends. And this is where end of one medicine comes into play and HRV and these kinds of things are n of one medicine. You know, when a drug company creates a drug, it's designed to fit the middle of that bell curve.

Don ([44:58](#)):

But you know what, there's, there's a third of the population that are not there. There's, there's a six that's on one side, the six that's on the other that it just is not effective at hitting. So you gotta figure out where you fit in that, where you fit in that process and that's the end of one that you have to have if you want to be. Again, when we, when we start looking at longevity, again, a pill does not buy health the same way loan does not make you rich. You've gotta figure out how do we get to that point in a manner that's, that's driving cell renewal and cell performance and mitochondrial performance so that we have the energy to live.

Caspar ([45:37](#)):

Absolutely. Don, where can people learn more about spermidine life and the product?

Don ([45:42](#)):

So if you go to spermidinelife.us, that's, that's our website for Spermidine Life. You can also, and so that's, that's where you find all things sperm. Um, I think we'll probably have links in the show notes for a discount that people can use if they wanna try spermidine life. They can use the notes in the show notes to get a little bit of a discount there. If you wanna learn about HR plus go to modemethod.com. Uh, that's those two places. So spermidinelife.us S p e r m i d i n e l i f e – spermidinelife.us is the best place to learn about that.

Caspar ([46:22](#)):

Don, thank you so much for coming on. This has really been enjoyable.

Don ([46:26](#)):

It's my pleasure. I love working and I love, and if people have questions, you can find me on social media. I'm Don Moxley on, I, I, I, I'm, I'm, I put most of my signed stuff out on Twitter. Um, if you contact me through LinkedIn, you usually get a, you'll get a response there. If you follow me on Instagram, you might see where we're traveling as we, uh, move through our third, third of our life.

Caspar ([46:50](#)):

Now. And that, and good luck with that. I mean, we talked a little bit before the show on that, where you'll be going and you're searching for a new home. Or let's say the new home is searching for you, the new area, searching for you.

Don ([47:00](#)):

We're letting our new home find us. That's exactly it.

Caspar ([47:02](#)):

An amazing way to do it. So best of luck with that. And thank you again, Don, really appreciate it.

Don ([47:07](#)):

My pleasure. Thank you. And, uh, happy Thanksgiving. Have a great New Year's. And here's to, uh, here's to really moving into the new year with a set of goals that make a difference and, and, and, and really contribute to the betterment of well, people. I mean, this is, this is what's so important about what you're doing and we're, we're, we're just excited to be part of it.

Caspar ([47:28](#)):

Of it. Absolutely. Health is wealth and whether you're looking to extend your lifespan, ward off the diseases of aging or boost your energy better health does start with healthier cells. And as you heard Don say, spermidine is just one of the promising ways to promote cellular health. So until next time, continue writing your own healing story.