Breaking the Sympathetic Spiral of Doom: Lab-Guided Strategies to Restore the Parasympathetic Edge Transcript

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Podcast Intro and Guest Introduction

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We're more like gasoline powered cars than we are electric powered cars. We make waste in ourselves. We make ATP, which is our energy currency. We make about 150 pounds of that every single day.

So a huge amount of ATP. You're listening to the Lifestyle Medicine podcast with Dr. Ivan Rusilko, brought to you by Access Lab, where we explore new perspectives at the forefront of personalized health care.

How's it going? I'm Dr. Ivan Rusilko, the host of the Lifestyle Medicine podcast powered by Access Medical. If your doctor's not checking labs, he's not a doctor.

Today we have a treat for you. Dr. Shura. He's really, really, really unique because he not only specializes in things like hyperbaric oxygen therapy, but he's going to talk to us today about methylene blue, which is one of my favorite things to prescribe.

He's an internist, and when it comes to what he does as well, it's health optimization medicine, which is really unique. We're going to find out kind of what that is and kind of how that…

how he manages that very unique and growing type of field. But Dr. Schur, thank you so much for being here. I know you had like a little issue with power going out, so I'm definitely glad you're here now.

All power, all ready. Ivan, thanks for having me. It's good to be here, man. I know we're just coming back, you and I both from Vegas and kind of picking up steam after a couple days of recovery.

My goodness, man. I'm so happy I do. I tell everybody, I went to medical school to basically learn how to fix me after long weekends. And that was a long weekend in Vegas, wasn't it?

Vegas Conference and Wellness Trends

Every weekend is long in Vegas, I feel like. And it's also like a super spreader event because if somebody is sick, like everybody gets sick. So my whole team, except for me and my CEO Boomer actually got sick from going there, but he and I are like militant when it comes to protocols of what to take when and how to take it.

And as We have done this over the years. We certainly gotten better at not crashing afterwards. And certainly you have a clinic so you can just like go in and just stick yourself with a bunch of things and, and, you know, make sure you're good.

But like while you're there, it's also really important to like hone in on optimization as well. And, and, you know, sleep can be an issue. The air is an issue.

Sometimes it's the people in Vegas. And it was funny. I was, I was given a lecture on Friday on sleep medicine.

Yeah. Yeah, the architecture get to bed right then like five o'clock rolls around.

I'm still out going crazy. I'm like that really wasn't practicing what I preach, but it was worth it. So you know, sometimes we all have to a little bit get off the wagon.

It's important. Moderation. Yeah, I think, you know, with my, my patients, I always say the same thing. It's like, you know, you can't always be perfect.

That's okay. And if you worry about being perfect all the time, you're going to be stressed about that. And then that stress causes its own spiral of things that can cause it to be harder for you to heal and, and, you know, optimize and feel good.

And then you're always worried. So now I'm a big fan of. understanding that, you know, threading the needle with patients, you know, certainly not five o'clock every evening in Vegas, maybe one night, I guess, if you have the right protocols the next day to help you recover.

But again, there's that threading the needle, which I always try to do. Okay, like it's funny is this industry now is almost like threading the needle in every different category, physicality, mentality, emotionality, sexuality.

I mean, everything under the thing is like, well, this one hormone goes here, this one peptide goes here, this one modality goes here. And it's super unique to see all the stuff that was actually at the Vegas show.

You know, I tell everybody all these different conferences you can go to are kind of like the warm up that that show is literally the Super Bowl of wellness medicine.

And it went from what 5000 people last year to over 8000 people this year. Like, how crazy is that? Yeah, it's a big conference and it is a place that it's good to go to get a sense of the pulse of things.

You can also get a sense of what people are trying to ride as far as trends go. And, you know, it's funny, I would have never have known because I spoke about Methylene Blue in 2023 at A4M.

In 2024, I spoke again about the GABA urgent neurotransmitter system. And we saw Methylene Blue getting much more popular in 2024, but I would have never have known how popular it would have been starting in 2025 and how it's kind of like gone bananas from the Zeitgeist perspective in 2025. So it's kind of funny.

Like, you know, when we started our company in 2020, we were the only company with a Methylene Blue product. We were the first company to pioneer it. And then by 2024, there was maybe 10 companies.

And by the end of now, as we're recording this 2025, There's like over a hundred companies with some element of a Methylene Blue product. And so it's just seeing like how people go on trends at the Methylene Blue trend, you know, which has a lot of…

The NAD one's the big one that I saw this year is like, everybody's got a new NAD product. Everybody's got a creatine product. I'm like, guys, like really?

I mean, do you really have to have another product with creatine on it? Like it's a single compound. Like what can you do with this to make it any better?

Really? You know, are you going to make me like a cream that I put creatine on my face or something like that? Injecting creatine in my face with like PRP and I don't know, whatever.

People get a little bit crazy, but, but it's really a good place to get, you know, see people you haven't seen in a long time. Here's some good speakers.

Um, it sounds like you had some great, great talks. I spoke as well on redox, repair and resilience. I spoke about

nothing blue and GABA for like interventions for people right now while they're on the longer path of health optimization.

Although funny enough, none of my lecture slides worked. My complete lecture was a disaster from a. an AV perspective because their computer wasn't working.

So it was, it was kind of hysterical, kind of absolutely really effing frustrating, as you can imagine, like trying to give a lecture.

Methylene Blue Basics and Clinical Uses

But, but I gave, I had a couple of good lines about climbing to Mount Everest base camp with methylene blue and, and, and not drinking Bud Light for my GABA system.

I love it, man. I love that. So let's actually get into Methylene Blue. Methylene Blue is one of my favorite things to prescribe. I was actually doing Methylene Blue IVs back in 2012, actually, way back in the day.

I like the way that Methylene Blue works. A lot of physicians only I think Methylene Blue does one or two things. The way it actually works on a biochemical level, which I would love for you to expand on, is actually fascinating.

What you can actually apply the ability for Methylene Blue to improve the amount of oxygen throughout your system. It's pretty amazing what Methylene Blue can actually do.

Yeah, it sounds like you have much more experience than the majority of people, Ivan, if you've been using it since 2012. I mean, from an IV perspective, it's been used for a long time in ERs, for example, to reverse the capacity or the incapacity of your red blood cells to carry oxygen, something called methemoglobinemia.

And that's the capacity of changing the redox state of iron in a way that allows you to carry oxygen. And so it's, it's an antidote for, for huffing. If I get those like glues and people have glues and things like that, if you get too much of that, you can die because of this redox state of iron.

You can reverse that with methylene blue. It's also used for acute septic shock, cardiopulmonary arrest. If people don't have enough blood pressure at very high doses, you can use nothing blue for that.

Um, it's also using ERs for cyanide poisoning, which is pretty rare, hopefully for most people. And then, you know, the, the ideas with how you can use methylene blue now are much, there's a large spectrum really from very low doses of it, from like four to 25 milligrams to being really great from a redox support.

So mitochondrial support specifically to a milligram per kilogram or higher as an anti-infective both for chronic infections and acute infections. Maybe a little bit higher dose on that, maybe about up to two milligrams per kilogram, at least orally.

Um, IV is a little bit different because it gets into the body much faster. But like where I usually focus a lot of my efforts and education is on the mitochondrial redox side of things because that's really weird.

I love this. This is great. Normally when I talk to a doctor like, well, I don't really know how it works. I just know it works. You know what I mean?

Like, well, ferric and ferrous and all this kind of good stuff. So please keep going. Yeah, well, I mean, I think that, you know, you and I both went to medical school.

Like we know that when you go to medical school, you learn about mitochondria, you learn about the citric acid cycle, you learn about the intermediates, the antioxidants, all that kind of stuff.

But you don't really understand the clinical relevance of all that because as soon as you go and finish like your

initial anatomy and physiology, you go directly to pathophysiology, you're directly to disease and directly that you forget about all the basic science.

And so I had to relearn about this stuff all the time, but like the statistics are kind of crazy. Like 94% of US adults have some element of metabolic and subsequently mitochondrial dysfunction, meaning that they can't either make energy effectively or they cannot detox or neutralize the stress that happens when we do make energy.

Everybody's heard of this word metabolic health, like am I metabolically healthy? Am I metabolically healthy? In essence, that's all we're really talking about is can you make energy effectively and can you detox or can you deal with the stress of making energy?

We're more like gasoline powered cars than we are electric powered cars. We make waste in ourselves. We make ATP, which is our energy currency. We make about 150 pounds of that every single day.

So a huge amount of ATP. Yeah. It's huge. Right. But a lot of that doesn't stick around for very long. It gets recycled very, very quickly, but our energy demands are gigantic.

We have some cells in our body that have zero mitochondria. We have actually just one cell, the red blood cell. We have other cells in our body that have thousands of mitochondria per cell.

The most mitochondria per cell actually is ovaries, so eggs and sperm, followed by the brain, the heart, the liver, the cardiovascular skeletal system as well.

Infertility rates going up dramatically, rainfall, concentration, attention issues, mental health disorders just skyrocketing, right? And then detoxification issues and exercise-induced fatigue and chronic pain and chronic inflammation.

Like in essence, these are all mitochondrial issues at their base. There's about five or so things that are causing it primarily. The first one is insulin resistance.

So people that have high blood sugars for long periods of time, this causes oxidative stress. because you're making too much energy over time. If you have toxins in your environment, medications that you're taking, even common medications like birth control pills and metformin and pump inhibitors and many others, antibiotics, especially these cause mitochondrial dysfunction.

Like ciprofloxacin is a common one, like being floxed to people have probably heard of before. And there's also the infections in themselves that can cause mitochondrial dysfunction.

And then a bigger category that I call this sympathetic spiral of doom, which is like the chronic sympathetic activation that causes mitochondrial dysfunction over time.

So you're chronically in fight or flight. You have a toxic partner. What's that? So you basically burn yourself out. Yeah, you burn out your mitochondria, right?

You burn them out because you can't make energy effectively. You go into something called the cell danger response, which screws up your capacity to make energy.

So in the end, you have mitochondrial dysfunction. And because of any of these reasons, you have 94% of US adults that are kind of in this state where they can't make energy effectively.

And so what's nice about methylene blue is that it comes in here very early on. Um, you can start it early on.

Mitochondrial Dysfunction and Metabolic Health

You can start it later too, because started early on and it becomes what's called a redox support, which means that

it can help with both energy capacity and detoxification at the same time.

There's very few compounds that do this. Many things will help you make energy. Many things will help you detox like your glutathione of the world. There's very few that'll do both at the same time.

And that's what's so key about using very low doses of it and very effective using it. It's funny because I always give lectures and I always come back to the actual how you actually produce ATP.

You know, everybody thinks NAD doesn't do anything really. It goes through and that's how you produce more ATP. And it's unique to sit there and see because everybody's so focused on just NAD.

There's so many different more aspects of how you can maximize that actual electron transport chain and the actual mitochondria. A lot of methylene blue comes in, tosses the oxygen in there, accepts the electrons, gets it rocking and rolling.

And so it's funny to sit there and see when I start talking lectures, I'll be like, yeah, NAD, 5-amino-1MQ, human, and MOTC, and then methylene blue. They're like…

Why methylene blue? I don't get it. I was like basic biochem man, go back and learn that stuff. And that's how I think physicians need to understand. Like you said, when we like the more specialized we become as physicians, the more stupid I think we become, honestly, because we forget all the basics of what it is.

And just like you said, right there, redox reactions, not many physicians even understand what a redox reaction is. Granted, they don't have to. You know what I mean?

But they should. It's gonna help maximize how they actually treat patients. Do you see a lot of that with colleagues that you have and things like that or no?

Yeah, I think it's a lot of relearning. You know, what happens oftentimes is that we forget the basic biochemistry, we forget why things work. And there's always a focus on treating disease.

There's even a focus now, which is better, which is like looking at the root causes of illness, which I think is important. But I think what there isn't a lot of emphasis on yet, which we're trying to change at our nonprofit, Health Optimization Medicine and Practice, or Home Hope for short, is a conversation about What is the universal, what's the universal common denominator for all of our organs, all of our tissues.

And it's our cell, our basic cell, whether you're a neuron, a heart cell and in the, in the eggs and, oh, and, or a musculoskeletal cell. These are all the basic cell that we've forgotten how to optimize.

And not only that, it's not only focusing on optimizing it for your age. We don't want to be normal for 45 or 60. We want to be optimized, right? Right.

And so we want to be optimized. And so what we do is we shift all of the nutrient gut hormone neurotransmitter networks to between 21 and 30 years of age using Um, it was called metabolomic markers, markers that are focused on the real time, small molecules that you can measure what, how, how our cells are working right now.

This takes into account things coming outside of your body called endogenous or sorry, exogenous metabolism metabolites, and then inside your body endogenous metabolites.

And then how well are your, are your cells working in real time? And then you can move those nutrient gut hormone networks 21 to 30. That's when our optimal range is.

So, you know, typically if you go. and get a laboratory test at your regular doctor or quest or whatever. Like the average there can be gigantic. So for example, if you're getting a thyroid level checked at quest, the normal range is averaged out from somebody that's like eight to 90 years old, which is ridiculous.

So do you want a TSH of four and a half? The answer is no, you don't because that's not optimized for somebody to be 21 and 30. And this is something with Dr.

Mark Gordon, who I've spoken about a lot about hormone optimization, his own regions over time, but that just doesn't apply to hormones. It actually applies to your gut, your neurotransmitters and other aspects of your biology.

And so we do what I do in clinical practice is focusing on optimizing the health of the cell, the basic cell using metabolomic profiles, and then understanding how you can use something like methylene blue to come in there and compensate for significant mitochondrial dysfunction where, you know, complex one or complex two isn't working very well or, or complex four is not getting enough, enough electrons flowing through it.

And then you have, you don't have enough capacity to utilize oxygen. Well, instead of that's just turning into oxidative stress and hydrogen peroxide, which it can be helpful if you're using it as an anti-infective, but if it's be trying to being used for energy and you don't have an effective electron flow, you're going to feel worse, you know, and that's, that's, that's the issue, right?

So the key with me is to understand that the whole lay of the land as best I can, but then asking myself, okay, well, if I really want to support somebody now, I really need to support that mitochondrial function now.

And what's nice about a redox cycler like methylene blue is. Here's an example, right? So say you're, you know, you're kind of toxic, you don't have a lot of antioxidant capacity.

So you start taking some glutathione, right? Okay, glutathione is good. It's an antioxidant makes you help you detox better, but has had no capacity to really help you on the energy production side of that.

Right. And so then you feel like you're less toxic, but you still feel wasted. Right. And so one thing I've done, like for sauna, for example, people love sauna, basically gives them detoxification.

They feel better, but oftentimes you feel kind of wasted afterwards, even if you've been using glutathione and maybe binders and sweating it out. But if you add on some methylene blue ahead of that.

then all of a sudden you have some energy capacity while you're also getting detoxification. So suddenly you get out of the sauna, you feel great. You feel energized.

You don't feel like you need to go take a nap. And that's just one example of like a way you could use methylene blue here. And I use it also in combination with red light therapy because methylene blue and red light also synergize together.

And so you can use it. as a way to increase the capacity for you to make energy better. At low doses of methylene blue and red light and high doses, over about a milligram per kilogram, you can start using it as an anti-infector or as a photosynthesize, excuse me, a photosensitizer as well.

Yeah. So it's cool. Like you stack everything. What are your thoughts on stacking with hyperbaric? Since you're, I mean, that's kind of your wheelhouse.

Yeah. You know, oxygen metabolism is one of the most important things here. So think about it this way, right? So when you go into a hyperbaric chamber, you're flooding the body with a huge amount more oxygen.

And so what you're hoping is going to happen is that a lot of that oxygen is going to go to help you make energy. And that the other parts of that, the oxygen that's not making energy is going to create reactive oxygen species, oxidative stress in the system.

that's a positive stress, a positive stress, meaning that it helps you re calibrate the way your genes are being transcribed via what's called epigenetics in a way that helps you with new blood vessels, new stem cell release that get mature immune system activation and more.

But many of us are going into hyperbaric therapy. This is actually where I got into trouble in the beginning when I first started using hyperbaric therapy 2012-2014 timeframe.

If I put people in the chamber where if they were too heavy on the oxidative load without enough antioxidant capacity, they would go into the chamber and feel like crap.

Afterwards. And they, and they wouldn't not, they wouldn't really be able to recover very quickly to the chronic infection, chronic autoimmune issue, et cetera.

And so what I found is that if you could start over the last several years, I've seen this where if you can start some low dose, methylene blue to support that mitochondrial redox while they're getting flooded with more oxygen, they're able to tolerate higher amounts of oxygen and pressure so that they can get more of that hormetic stress.

Redox Support, Sauna, and Hyperbaric Therapy

of the oxygen coming in without, you know, paying for it on the backend because they have enough additional antioxidant capacity to be able to neutralize what's called the oxidative load that happens.

Because in essence, hyperbaric therapy works because you're increasing the amount of energy that you're making and you're causing oxidative stress in the system.

That's really how hyperbaric therapy works. And then the rest of it is long-term is because of that oxidative stress, you get the stem cells you released, you get the epigenetic changes that are happening.

You get the anti-infective capacity or this synergistic with chemo radiation and things like that, or whatever it might be, other oxidative therapies.

And so that's all well and good. But again, if you don't have enough antioxidant capacity there, And also in the beginning, if you can't make enough energy effectively, you're not going to see the benefit.

And so I use very low doses. I don't know what you've done in clinical practice here, but I mean, I'm sure you have your own experience. Oh, no, for sure.

It's unique now because we also brought an Evo and throw an Evo at the actual end of it because you get the ozonation aspect of it. You get the UV, the LED light, and you drop some methylene blue in right after it.

I mean, the results we've been getting are fantastic. And like you said, the first couple ones, the patient's kind of tired. We've had people fall asleep during it and things like that.

But once they get more and more, I mean, their capacity to create energy. And like you said, I really like how you say create energy like you're the conductor, but you also need the garbage man.

And that's, that's one of the biggest things you want to create a bunch of garbage in the system. Cause that's just as bad as not having energy in a way.

You just want to have the, you don't want to have just a garbage man without the conductor, right? Because otherwise you're left with. Yeah, exactly. Otherwise you're, you don't have any energy made.

You're still not going to feel good. Right. And the elephant in the room always, I think Ivan, and as I've been doing this longer and I'm sure you can relate to this is that.

There's also this really, and I was mentioning it earlier, this sympathetic aspect, this, this fight or flight aspects. And so no matter how much hyperbaric therapy I give somebody, no matter how much methylene blue, if they're stuck in fight or flight, it's very, very difficult to see the outcomes that you're hoping for.

And so I've been really focused on certainly the mitochondrial support and the methylene blue, and then long-term. Health optimization strategies, using various kinds of things, but looking at dialing in from laboratory data, optimizing to 21 to 30 years of age as that range.

But that sympathetic part of it is so big on what I do now, because if I don't address it, they're not going to see the benefits long-term that they're looking for.

No, for sure. What kind of markers are you looking for to start a patient on? What are your go-tos to test and then to maximize afterwards? Yeah. So metabolomic profiles are typically what I look at.

This is usually a combination of urine, organic acid, plasma, amino acids, fatty acid levels, heavy metals. I'm also looking at minerals, vitamin D levels.

It's kind of a big, I use Genova's Nutrival oftentimes. Mainstay of my first test. I also do GI panels as well, looking at stool testing. Oftentimes I'll do a food sensitivity test as well, although there's controversy around those.

I do feel like they're helpful, at least from an initial evaluation, looking at things like leaky gut, for example, but also looking at a full battery of hormone tests as well.

But I typically wait to do hormone testing until I do a little bit more nutrient gut optimization because Yeah. Yeah. Because you can often see things really improve on their own a lot before you even need to add in things like hormones.

And for example, and, but often depending on their age, they may require them to some degree, but you might need less of them. If you're going to be more nutrient optimized, that's usually my, my mode of operation.

But as I'm doing that, I'm thinking, well, how can I really help down regulate their nervous system? How can I leverage the GABA system specifically are the breaks of our brain, the off switch, how can I help them with breath work and meditation and mindfulness training?

Getting out of a bad relationship, getting out of a bedroom where your partner is snoring, for example. Oh my God, we are sleep men. I love it. It's very true.

Yeah, it's a big one, right? If you don't, if you can't sleep well, I mean, you know this more than anybody. I mean, if you don't sleep well, nothing else is going to get regulated, right?

You can't regulate your immune system. Yeah. You can't regulate immune system. You can't regulate your hormones. You can't regulate your, your sympathetic and parasympathetic balance because like my deal is, and I talk about this with my patients is like, I want you to have the best capacity to oscillate between sympathetic and parasympathetic nervous system.

Right. So that, that you're, when you're on. you're on and when you're off you're really off as well right so you can really rest digest detoxify and heal and so that's really the key with patients and that's like it's such a big part of of how i think about optimization in general and again i think a lot of physicians don't give sleep the the i mean i think sleep is probably the most complicated thing we do as humans which people don't can grasp that, and the amount of things that actually take place both during REM and delta sleep, and the fact that people are too busy about their partner snoring, their dog moving, something going on on Facebook or whatever it is, and they never get into that actual delta sleep where you release the growth hormone and then that just, it's a wire from there.

So I think sleep optimization for me is probably the first and foremost thing we do at my clinic. Even if they come fitness, fat loss, and sex, I'm like, well, we're gonna do sleep as well, no matter what, you know?

Yeah. I mean, it's, it's, it, yeah. What we say at, at our, in our organization, Dr. Ted Atracoso, who's our, our founder, he's a pioneering anti-aging doctor, multiple different medical boards and things like that.

What he said to me, what was really helpful, maybe, you know, this is helpful for people that are listening to is that. You know, typically all of us use checklists during the day, checking things off so they get them done.

And what we should all be doing, the first thing on our checklist every day that we should be checking off is our sleep. So it shouldn't be the last thing we do every day.

It should be the first thing. If you make it a priority like that, then it becomes something you prioritize rather than, you know, I'll sleep if I have time as opposed to like, no, the first thing on my checklist every day is getting enough sleep.

Um, and this is something that, you know, we're, you know, you and I are both probably guilty of not always acknowledging as well, but as I get older, I've definitely, since I hit my forties a while back, now I really try to prioritize it more.

Oh no. Yeah. Sleep for me is more important than any, any, anything I can possibly think of now. You know what I mean? And especially when you see what it actually does, you know, people come in, they want better skin, better hair, better this, that are the other thing is you can't have those things unless you're actually powering off.

And I love it. You said, you know, party hard, but you also got to turn off hard as well. for that aspect.

Testing, Optimization, and Sleep

Super cool. I want to get back into the actual testing. Do you ever test for things like chronic EBV, chronic CMV and things like that? Or no? That's not something you're going to get into your whole metabolic panel there.

So I don't typically test for infections or things like that. What I find, so I'm focused on optimizing the health of the cell, of the gut, of the nutrient networks, of the hormone networks, of neurotransmitters.

That's my foundation for everybody. So I think what can happen sometimes if you start testing for some of those other markers is that sometimes you can get sort of distracted by them on some level and, and not because at least in my experience, if you don't have a foundational biochemistry, the treatments that you're going to use for those various things aren't always as effective because you don't have optimized mitochondria, don't have an optimized gut.

You have an optimized hormone ecosystem now. But I'll often do is that I'll focus on that health optimization foundational piece first. And that's what the nonprofit is all about is training practitioners on how to use a seven module certification, specifically metabolomics, but other other modules as well, like gut epigenetics, expecomics, which is the study of toxins, bioenergetics, and others, according to biology and like, and trying to work on that with patients, because the beneficial side effects of optimizing your health is also optimizing your immune system.

So especially when you're talking about viral illnesses like chronic EBV or, you know, or chronic CMV, for example, these are often things that are not going to go away.

They're going to stay in your system. But what you're really looking to do is find ways for your immune system to work better, to optimize the immune system to work better so that it can keep it at a very low amount so it doesn't affect you in any major ways.

And so that being said, I do work with providers like you Ivan all the time. I'm like, hey, look, you know what? There is a significant viral load component to this as well.

So let's use something like methylene blue IV. Let's use something like eBoo to help us along the way. I will absolutely do that. But I don't usually start there.

Unless it's more of like, an emergency or significant urgency need. What I'll try to do is get them optimized between three and six months from a cellular perspective, or at least three months, and then start adding in more of my

hyperbaric oxygen therapy, more of the, you know, the ozonation therapies, other types of therapies that are more directed.

And then I'll send them to my colleagues that do those kinds of things. But if I can, I try to wait that three months to try to get that foundation a little bit more optimized before I start doing some of the major interventional therapies.

What about senescent cells or anything like that? You kind of look at those because again, I always say like cellular therapy is two parts. It's the ATP and the mitochondria as well as clearing out senescent cells, the garbage if you will.

So I would love your thoughts here. I haven't found testing yet that I trust to look at senescent cells and volumes of them over the time. I mean, I certainly know the research about senescent cells and I understand why we don't want them.

There are a couple of different technologies, including hyperbaric oxygen therapy that have shown to be able to- Going back to methylene blue and hyperbaric oxygen.

Yeah, to reverse these or at least decrease the senescent cell total populations. I think that there's something there, but I'm not familiar. I know there's a couple of tests out there, but I don't have a lot of familiarity with using them and watching those things over time yet.

Yeah, it's unique. I mean, I kind of look at the natural killer cell aspect of it. So you should see how your actual innate system's doing versus your acquired.

And then, you know, you kind of tackle it in different ways. You know, it was funny. I think it was, it came out Tel Aviv, the report that said hyperbaric chambers actually reverse telemeters and all this kind of fun stuff.

It was a huge thing in 2020. It just happens I got my hyperbaric in 2020, go figure. So it worked out well. But it's very unique to sit there and see because like we do a lot of heavy metal testing here, everything from arsenic lead, germanium, you name it.

And what we're finding is that, you know, we can, I mean, I can, I can detox the inorganic aspects out of your system super easy, but when it comes to the organics, and again, people have chronic pain, all this kind of stuff, your entire body is set up to be inflammatory.

So if I'm gonna say somebody comes in, they've had chronic back pain for the last 10 years, you know that those cells are just terraforming that area to be very, very acidic.

Acidic then does everything. Acidity causes your hemoglobin to dissociate differently, things like that. So you go through and you start picking all these things apart.

It's amazing how functionally perfect the body is, that everything can, you can start with hyperbaric and end with senescent cells and then go to chronic infections and then to nutrient deficiencies.

It's fascinating. But I think it comes back to what we were talking about, is this being a student of life. Like I think both me and you, Got through medical school very quickly and it's like, well, let's go back and actually learn it now.

You know, I mean, it's like running through Mario Brothers and just beating it. And it's like, let's go back and beat each level as best we can. And it's funny to see the more I dig into the basics of biology, biophysics, biophysics, everything.

I mean, like, you just get so much more of appreciation to what peptides can do, hormones can do, nutrients can do, minerals, ozone. I mean, everything under the sun.

So it's just unique. I love that we're kind of vibing on that. Like the basics of science is just something that is lost on

most practitioners. Yeah, we get so involved in clinical medicine so quickly, right?

We see people and they have all these diseases and conditions. And I remember when I was in internal medicine training and then I just finished and I was working for a year in a primary care office.

And it's just like trying to get through people as fast as possible. right? You have 15 minutes, maybe 20 minutes to spend with a patient. So you don't have time to like dig into like basic pathophysiology, even basic pathophysiology, right?

Not even getting to foundational biochemistry, right? So it's, it's hard the way the system is not set up in a way that makes it easy for practitioners to be able to get dig in here.

But once you start looking at pathways, once you start looking at how things are connected, then you can really understand the whole spectrum of what you could potentially do for somebody.

Not that you want to throw 30 things at them at the same time. You really want to be methodical about it. Give them a, an on ramping so that they really feel like they have support along the way.

So it's really one of those things where over time. My clinical practice has evolved dramatically. I always knew that I wasn't going to be doing standard of care and being in that world for the most of my life, but it took me time to understand, okay, what, what are the things that I really feel most aligned with?

And that's where I started with hyperbaric medicine. Soon after that, over the years, I created an integrative practice, understanding the hyperbaric therapy was just one tool of many.

And that an integrative approach is really important. And you'll like the story during the pandemic, I was disinvited to speak about hyperbaric therapy in a virtual conference because the title of my lecture was going to be, please do not put them in a chamber.

Yeah. So, and because I very much acknowledge that hyperbaric therapy is a fantastic tool, but it's not a tool that's ready right now for everybody. I always say, you know, it's not if hyperbaric therapy would be helpful, it's when.

Advice for Practitioners and Patients

And so, and then over the years, I, I kind of dove into cellular medicine and mitochondrial physiology, and then started working and helping as an educator with our nonprofit health optimization medicine and that's become a big foundation of what I do in clinical practice and what I teach others to do as well and then from there it was like well let's let's get some products out there that really can help people right now while they're on that path for optimizing their health let's talk about methylene blue let's talk about leveraging the GABA system but don't use GABA supplements because those don't work um fun fact everybody But, you know, looking at how you do all this and then supporting somebody's immune system and help them travel better and help understanding relationships and with, with various technologies and practices and stuff, you know, all becomes a sort of ecosystem.

So my evolution in short has obviously very much covered, colored the way I work with patients, but in a perfect world, I'm creating a foundation, doing a battery of testing.

And then from there building on top of that, because what happens as I know, you know, this Ivan is that people are just. You're looking for the next thing that's going to cure them of whatever, right?

It's like the one thing that's going to do that. There is no one thing except for maybe sleep. We'll talk about that, right? But you're right. That's not one thing.

Sleep is a very, as you said, sleep is a very complex thing, a complex, you know, five or six neurotransmitters that are involved in sleep. It's not just melatonin, everybody like that.

Say it's adenosine, it's GABA, it's serotonin, it's melatonin, it's the endocannabinoid system, it's the orexin system. And so you have all these things that are working together.

So, so we actually even have products that transcriptions that address, you know, there are eight different ingredients that are addressed to all these aspects of the neurotransmitters and hormones that are involved in sleep.

And so again, all that being said, Foundation is key, and then building from there. I think, yeah, the basics. And I think everybody in this industry, especially when we were in Vegas, you saw it.

There was so much just cluster, cluster there. I mean, that's the best way to go about it. Just like, you know, you're treating, you know, mitochondria here, then you're going over sleep, and then you're going over, I saw a booth that was going over actually ingesting prebiotics from somebody else.

Something like all kinds of craziness, you know? But I think, you know, understanding the basics of what medicine is, I think is probably one of the most important parts of being a physician.

Um, and this is, this is great. Again, this has been an awesome, uh, awesome chat here. And I always like to end on, on asking two questions. Okay. So the first question would be as a physician who's looking to get into this industry, me and you've been in it.

All right. But if we were coming from the whole traditional aspect, what advice would you give to a physician that's coming in this industry right now, eyes wide open being like, how do I get into this, this, this revolution that is the wellness industry?

Yeah, that's a great question. And when I get out, I get, I get a lot of that question oftentimes. And I think the key is to create a practice where you have training in something that you believe in.

And then I would include in that training in something foundational, something that really can help people really build their foundation and grow from there.

is if you just focus on one very specific thing, oftentimes that can be helpful, but it's not going to be foundational. And that's what health optimization medicine and practice is all about.

And people can check it out at home hope.org. We have a seven module certification. We're really looking to shift the perspective from disease to health, right?

And, and there's no real standard of care. for health. There's only a standard of care is for disease. And so we've created that in health optimization medicine where we're creating the standard of care for health, shifting all your nutrient gut and hormone networks, et cetera, to the ages of 21 to 30 years of age, using the metabolomic profiles to do that, using a concept called the holobiont, which is this whole organism that has you to do that.

And understanding that by creating a foundation, everything gets easier. You can even like what I really liked about it when I trained in it was you can set disease aside.

You can set illnesses aside. Yes, they're important, but that's not the primary focus. The focus is optimizing your basic cell, optimizing your immune system, your gut, your hormones, your neurotransmitters.

Because when you do that, Everything else gets easier. So I like functional medicine. I have a lot of friends that are in that field. Sometimes it could be a little bit unwieldy.

There's too many things going on, too many different pathways. What I like about what we do is it's really focused on the biochemistry of things and then making things clinically actionable for patients and for providers that are looking to get trained in it.

So that's what I would say is, is really, I think, important. If you're looking to get outside the system, create a separate system where you can build a foundation in your patients and you're going to see a lot of benefit that way.

Oh, I love that. Okay. Second question is if you're a patient now is coming from a traditional mindset of being like medicine is all about fixing bad things and blah, blah, blah, blah, blah.

What's your advice to patients that are now coming to this industry? What, what kind of physicians should they seek out? Where should they start? What's the best way to go about becoming a wellness patient?

My answer is going to be similar. Just didn't have been a different framework here is that stop chasing the guy on Instagram telling you to eat two kiwis a day.

That's not going to be the answer for you. Okay. That's the worst thing. A handful of blueberries is all you need now. Now I like Kiwi. I like blueberries.

Okay. But finding a practitioner that can work with you long term on building a foundation and a structure for all the things that you want to do, you want to do red light, you want to do sauna, you want to do hyperbaric therapy, you want to go and get stem cells and plasma freezes and you want to go get like young blood plasma, like Okay.

But none of that stuff's going to work long-term if you don't have a foundation that you're building on. So I'm a big fan of what we do at Health Optimization Medicine.

Again, you can check it out at homehope.org. You can find a provider to potentially work with if you have interest. But that would be the key is to focus on what's happening.

As you said in the beginning, right? You don't really know what's going on if you're not measuring it. So measure what's happening. Focus on that. You should, all of us, patients and, and, and providers, we should have a basic stack of supplements we're taking every single day.

That's based on the laboratory tests that we've done that show us that we need X, Y, Z. And that's why we're taking it. Now, if you want to have like 10% of your supplements is which would I do that kind of has more fun, like, okay, I'm going to try this for a month and try that.

fantastic. But if you don't have that basic stack, that's focused on what you need, because you've measured it, you're missing out, missing out dramatically.

So as a patient, as somebody looking into this, find a provider that you can work with that can help you build that foundation and grow from there. Oh, I love that, man.

Hey, Dr. Sher, it's been absolutely amazing having you on here. Thank you so much, Steve. This is probably the most spirited conversation on mitochondria I think I'll ever have in my life.

So it's been very, very good, my man. Thank you so much. Again, guys, check him out. He's awesome. This is Dr. Ivan Resolver from Lifestyle Medicine. Thank you guys for stopping by.

Your doctor's not checking labs. Not a doctor. Thank you guys. Thanks for joining us today thousand routine and advanced biomarkers with 24-hour results.

When signing up, select Lifestyle Medicine Podcast as how you heard about us and score 10% off your first invoice. Oh, and don't forget, drop us a review.

It helps more practitioners like you find us. We'll see you next time.