Thyroid Paradigms and Mitochondria

So welcome, Dr. Balcavage. Such a pleasure to connect with you again. Yeah, thanks for having me. So you are a thyroid expert and you're one of the most respected thyroid experts out there in the functional medicine world.

And what is interest eating about you? And what I love about your work is, you know, in a sea of thyroid experts and I think functional medicine experts in general who have positioned hormones at the top of the hierarchy and sort of the most upstream thing that is controlling our physiology.

You have written a book and put forth an idea that says, hey, hormones are not the thing that are the big boss that's controlling everything else. There's other stuff that's upstream of that.

And in particular, you've put a huge emphasis on the importance of mitochondria. So can you can you talk about that kind of landscape in your own words?

How so many other people have have put forth these ideas, positioning hormones as the things that control human physiology and how and why you differ from that?

Yeah, I guess when it comes to when it comes to thyroid physiology in general, I think we typically consider that an allopathic medicine, I think is as well as functional medicine.

We consider that the reason somebody has a thyroid condition for the vast majority of the population, at least in the U. S. and other developed countries, is not likely iodine deficiency.

And there's an argument that that maybe it is. There's a whole camp that says it's all iodine deficiency, but I think across the board is generally considered that immune driven thyroiditis is the leading cause of hypothyroidism in developed countries where there's iodine what we believe is a dimer depletion, and that the immune system is dysregulated or out of control and is creating problems that are damaging the gland for because it's out of control and that from the allopathic model or perspective, the solution is pairs that give more T4 replace with the gland can't make an all is good in the world as we have to do is normalize the lab value.

And from a functional medicine perspective or an integrative perspective, we say those silly allopathic physicians, they're only looking at H. A. for they can't see that the that there's a low T3 which is the primary hormone and so we're going to do a one better.

We're going to run a more complete panel and then we're going to see the low T three and we're going to solve that problem because that's the true issue, that the cells aren't converting T4 to T3 or the liver's not converting or whatever.

And so the solution is the body forgot how to do it or it can't do it. And therefore, we're going to give you a new theory and all is going to be good in the world and people go through the same rollercoaster ride with t t4 they then they go through the rollercoaster ride with T3 and now we've got a group of people that are saying, well, the real issue is that you're not converting that T3 to T2 in T2 is the ultimate solution.

If we just give you T2, it'll work. And that's the solution. And I think that's it misses the point in that most time my opinion and I totally be wrong and have my own bias.

But after doing this work for 30 years, I think what happens in the body is more adaptive response, at least at the beginning, and not broken physiology.

And when it comes to thyroid physiology, we've talked about this in the past that cells operate typically in one of

two modes. They're either in manufacturing mode where they want to bring a lot of nutrients in, they want to bring a lot of thyroid in and turn on the manufacturing process, make cells, make skin, make hair, make proteins, make peptides, make hormones, make all this great stuff for the cell.

And to do that, you need a high thyroid, high level of T3 in the cell, you need a lot of glucose and you're going to pull whatever's out there as resources in the bloodstream and pull it into the tissue.

And the big driver of all that physiology is your mitochondria. And so if we were in manufacturing mode, we'd have high running mitochondria, we'd have lots of T3, we'd be we wouldn't be glucose resistant.

We would be using all those resources. The cell can be in another mode as well, and that is in excessive stress mode where it's the cell is feeling threatened for some reason, hypoxia, emotional stress, trauma organisms, toxins.

And in that situation, when there's something that's creating this cell, it's danger response is what we've heard, that cells shifts from manufacturing mode into cell defense mode.

And part of the importance of that is cell that's perceiving danger is going to downregulate its metabolism. My belief is it's on purpose, not broken physiology and there's a really good reason for that.

If we bring more nutrition, more oxygen, more things that are going to support the cell, that those are the same things that may support whatever the threat is to the cell down regulates.

And part of that downregulation of metabolism is to actually reduce the number and amount of mitochondria and technically to reduce to improve the efficiency of the mitochondria.

But we have fewer mitochondria, but they actually are technically more efficient at generating energy. The downside to that is we see the side effects of reduced mitochondrial output, which often does it make us feel good.

And in both allopathic and functional medicine, we think that if we just put more stuff in there, it's got to work and it's got to make us feel better.

And the reality is it probably doesn't because it's working against what the cell is trying to do, and it has the potential for creating more oxidative stress and damage, which is exactly what we don't want.

When we go to the other hormones, we talk about sex hormones and people talk about how you got to regulate your sex hormones first. I don't think you need to regulate your sex hormones first, because if we're if I'm in danger mode, one of the priorities for me is not to have sex.

One of the priorities for me is to use those resources that are available to either defend myself or get away, not to have sex. So the sex hormone regulation piece gets down, regulated.

The other big hormones that we talk about is cortisol. And you have this stuff that goes on with adrenal fatigue and some of the other things that we talk about.

And a lot of people say, well, you got to fix your adrenals first before anything is going to work. I don't think the adrenals are broken. The adrenals are designed to help make extra energy, especially when we're talking about cortisol and epinephrine.

They're there to make extra cellular energy or cellular fuel, I should say, is glucose. And so in a normal physiology, we're using something called glucagon to make most of our our glucose in a fasted state.

But in a in a in a in a stressed state, we have two other hormones that can help regulate and make glucose to support that fight or flight mechanism. But then when we start to see downregulation of cortisol, I don't think we just have to rev up the adrenal gland even more.

I think to some degree there's a downregulation adaptive downregulation of the adrenal output because of this same chronic stress physiology. So I think instead of trying to play whack a mole with lab values by trying to support the physiology like we're in manufacturing mode, we have to take a step back many times and say, maybe we're not in manufacturing mode, maybe we're in cell defense mode.

Maybe that's why this treatment didn't work and the next treatment didn't work. And this hormone replacements not working. It's not because we just didn't jam enough into the system because it's not the right strategy.

So with that in mind, what is defense mode and what role do the mitochondria have in that? Because as as most people are taught in their high school and college and graduate school and medical school biology classes, basically mitochondria, what people know is they're the powerhouse of the cell and most people's knowledge stops there.

And, you know, in graduate school, in medical school, it's like it goes a little bit further and basically they'll teach you a story that, you know, mitochondria are one of many different organelles in the cell, but they're basically framed as these sort of mindless energy generators that just take in carbs and fats and pump out ATP.

And what you're alluding to here, very much like my work, heavily influenced by Dr. Robert Navajo and the cell danger response is that mitochondria are way more important than than we ever learned in biology and physiology courses in our in our formal educations.

Cell Danger Response and Energy Defense

Yeah. I think what we've learned from Navajos work and others is that the mitochondria have the ability to sense the energy flow through a cell and there's a certain amount of energy that we need for the cell to run smoothly.

And when there's a drop in energy, it's like somebody flicked the smoke detector or it's smoke, a fire alarm in the in the factory. Right. And so, whoa, there's a problem here.

And now, all of a sudden, instead of making widgets, we're going to shift to getting anybody who's not important out of here. And everybody else is going to be focused on trying to find a threat and put out the if it's a fire.

Right. And I think that might account what we're learning about the mitochondria. And, you know, for anybody listening to this, we know probably this much of what we you know, we think we know this much and we really probably know this much.

So we all this stuff, we say we're simplifying it, dumbing it down, but we mitochondria seem to have ability to sense energy flow. And when they sense that there's a drop in energy flow that can initiate the change in physiology from manufacturing, making peptides and proteins and hormones and all of these other things too, saying, hey, there's some type of energy, something stealing energy here, it's a potential threat.

And let's shift to defense mode. Slow down the manufacturing and start into defense mode. And then Navy oh in his paper talks about a whole bunch of different steps to that cell danger physiology and that and that process.

And reducing mitochondrial numbers and function is a large part of a protective cell danger response and people might consider why would that be a protective response?

If you're taking the thing that's actually generating energy, how could it possibly be that having fewer of those, it's better. And the reason for that, at least in what we believe right now, is that when we have cells that are in this state of low stress, what we call homeostasis or manufacturing mode, those cells are bringing glucose and fats and other resources into the cell.

They're jamming them into the mitochondria to be converted in through the credits cycle and something called the electron transport transfer or chain to turn food energy into cellular energy.

And the process of that is awesome, especially when we have oxygen to drive the process because we could take one glucose molecule and make 36 ATP, which is its energy cellular energy units.

So we get great return on in our investment and any excess we can drive off as heat and create a little some other side effects that are beneficial to the cell, just cell.

That process of going through that Krebs cycle, electron transport chain making that cellular energy results in a little bit of exhaust. Just like driving your car, you're still driving a gas car is going to create a little bit of exhaust.

And so that sounds bad, like it's making some waste that comes out. Yeah, you're making some exhaust. We call those free radicals. Well, that doesn't sound good.

Well, the good news is the cell also makes, as with many things, in cellular physiology for the free radicals we make, we also have a system inside the cell that makes anti oxidants things to kind of balance out those free radicals that are being generated so that we don't damage the cell as part of the process of making cellular energy. So that's how it should work in a in a low stress state.

But one of the defense mechanisms to find a threat, it's a bacteria virus, an organism is to ramp up some of those free radicals and ramp up inflammatory chemicals, which could damage the cell if they were excessive.

But they're also part of the tools that we use to deal with the threat. So the cellular intelligence is pretty smart. If I have all the exhaust and I'm making this regular mitochondrial function blocks, I have more free radicals that are being generated as part of my defense response, way, way more free radicals being generated.

And I have the ability to make antioxidants. And so if I don't do something, I either have to make more antioxidants or I need to decrease the free radicals.

Otherwise, we have excessive, free, radical formation. We call that oxidative stress. And that's what creates damage and destruction to the cell cellular intelligence.

Is this smarter than that? So what it does is it says, hey, what's the more important thing here, making cellular energy or defending myself, defending myself?

So what am I going to do? I'm going to downregulate the mitochondria. I have a mate that's cellular energy, but I'll also make less exhaust. Then I can use those antioxidants to deal with the fallout from this defense mechanism without causing damage and destruction to the cell.

My opinion, based on some of the sites. So you said earlier, I loved when you were describing sort of the the overview of the paradigms of how conventional medicine looks at thyroid conditions and how a lot of alternative and functional medicine practitioners look at it and how you look at it.

Similarly, there's this other layer to what you're describing at the mitochondrial level where there's another parallel of of what's going on, where where, you know, when when I started talking about mitochondria ten years ago, it was it was a strange thing to be doing.

And I would get a lot of funny looks. And I was saying, you know, mitochondria are really important to this energy and fatigue story. And everybody else was focused on adrenal fatigue and thought I was crazy.

Now mitochondria are in vogue and everybody's talking about mitochondria. But there is a what I would say and I think you'd agree that there's a very simplistic frame and understanding about mitochondria and most functional medicine practitioners basically approach it by saying, you know, they run some tests and we don't even really have very good tests for mitochondrial function.

But they run some tests, maybe organic acids tests or maybe a few other things that indirectly might indicate mitochondrial function or deficiencies of certain nutrients and cofactors needed for mitochondrial energy production.

And based on that, they'll say, Oh, you have mitochondrial dysfunction here, take this acetyl l-carnitine and de ribose and alpha lipoic acid and coke ten and PCU and boom.

Now we're solving your mitochondrial dysfunction. And what what you are talking about is something considerably more sophisticated than that. So describe the difference between what your approaches to understanding and fixing mitochondrial function versus the one I just presented.

Well, I think the big argument that is made when we look at tests like organic acid test and other tests or somebody says you have mitochondrial dysfunction, but anybody who's got chronic illness, I think they I'll make the argument or the agreement that, yes, there's changes in your mitochondrial function that don't make you feel awesome.

But after that, I have a real issue because what somebody would say is, okay, what you have is if you have your mitochondrial not working, therefore it's broken.

And therefore the primary reason it's broken is because it doesn't have enough micronutrients. So I'm going to give you B12 CoQ10 up above in my argument would be first of all, if you have that many micronutrient deficiencies, then the issue is probably not that you need a mitochondrial supplement.

What you need is better diet, better digestion, better gut functioning physiology, better assimilation of those things, not just more stuff, right? So that's problem.

If you have that many micronutrient deficiencies, then you've got to start with why? Why am I so deficient in nutrients? So that's part one. And then but that also goes to why I might have mitochondrial downregulation in the first place, right?

Because maybe I have this chronic dysbiosis, maybe I have a leaky gut, maybe I have a dysregulated immune system. All of these dangerous things are going on.

The second part of that is we make the assumption that the cell has no control. And then if I just give enough stuff with the Will of the Jedi, it is going to go into the cell and it's going to work the way I want it to.

And that's what's it would love if that happened. But how many you know, how many times I told my kid to go clean the room and they didn't do it? I mean, and you expect me to get then supplement.

I'm giving you to work the way I wanted to write. I have almost no control of my kids at times, and yet I have more control of them than I have. What I give you as a supplement. Right.

The other problem that goes on is we make assumptions like that sometimes based on labs that aren't well validated in what they're really measuring or showing.

And when you really do look at mitochondrial, when somebody's got reduced mitochondrial function like Culture ten comes up all the time. But if you look at the literature and research, Q10 is often not deficient when somebody has downregulated mitochondria. Why?

Because they're not using it. Because the mitochondria is not using the same load of CoQ10, so they don't have sufficient deficient levels. You'll hear that with people where they have hypothyroidism, so they're going to have low coax.

You know, when you have downregulation of T3 in the cell, you actually have more coax. You tend because they can't use it efficiently, so they don't need more.

They need to the better thing. We need to step back and say, hmm, why is the cell working like this? You know, ultimately, could there be some mitochondrial dysfunction?

Yeah, we can make that argument and talk about things that may cause the mitochondria to truly be dysfunctional.

But I don't think it's just as simple as just give B6 B12.

I think we do that too often with stuff, and I think it's one of the problems, the same thing we do with thyroid physiology. Well, I don't like that number, so let me give you more of that and that'll make it work.

Well, no. It also assumes that the cell has no control. I like the cell does not get to be able to control what's going on inside it.

Why Mitochondrial Supplements Often Miss the Mark

And I think we do have enough literature that suggests that the cells actually get to control what happens inside. There's a level of intelligence that we don't fully understand that cells get to determine what crosses the membrane, what gets into the mitochondria, what doesn't go into mitochondria.

So I think it's a very naive approach when we consider it that that's it's as simple as that. My argument is if we think that the mitochondria is damaged or dysfunctional, then we should ask the question why?

And honestly, when I look at mitochondrial tests, I when I you can look at organic acid, but one of the tests I really like to run as it's a test if I'm looking at mitochondria is the might a swab plus from Watts I can't think of Teresa lab name not a mess yeah but.

The test is called Midas swab. Yeah, it's called a minus swab. Or might a swab plus. And essentially it's a swab. You look at mitochondria so we can see mitochondrial density and we can see how well complex one, two, three and four work.

And some of the strategies that I you know, when people are on a strategy and I'm like, okay, well let's see how it works. And we look at their mitochondria is not working any better because it's the wrong strategy.

And even when it comes to thyroid physiology, what I'll see is people on higher levels of mitochondria are on thyroid support that are given by their physicians.

They don't have better mitochondrial capacity and function, but what they often have is higher mitochondrial density and more oxidative stress, because you're pushing the thyroid hormone will increase mitochondrial density, but now you're creating more mitochondria.

The cell, as part of the defense missing, was trying to reduce the mitochondrial density. The fewer mitochondria now with potentially less resources coming into the cell, it's a recipe for more oxidative stress and damage, which I've seen over the years.

I want to stress to everybody listening the importance of understanding, paradigm understanding one one's frame, one's lens, or the way that they understand what the problem is.

As an example of this, one might understand depression and and say one might look at depression and say, Oh, this is a chemical imbalance in the brain.

You've got a deficiency of this neurotransmitter, too much of that neurotransmitter. And and this has arisen just for random reasons or due to one's personal genetics and because of this random imbalance of neurotransmitters in the brain.

Here's this chemical that will interrupt the way that these nerves function so that you produce more of this chemical or so that we prevent the re uptake of this chemical.

So in other words, the paradigm is depression is the result of a randomly or genetically developed chemical imbalance in the brain that requires a drug intervention to fix it.

Or alternatively, I would argue much more sophisticated and science based understanding of depression would see depression as a very natural and normal result of a person being out of harmony in some way, being not aligned with either eating healthy, living healthy.

And we know, of course, that nutrition impacts brain function and mood and depression. We know, of course, that exercise impacts that. We know sleep and circadian rhythm impacts it.

We know light impacts it. We know toxins and inflammations and gut health impacts it. Right. So we start to see all these layers emerge. We we know that social connection impacts it.

We know that we have we have all of these these lay out, like also how aligned you are with, you know, if you're working a soul sucking job that you're not passionate about and that's how you're spending your days, like it's pretty reasonable to be depressed.

Whereas if you're spending your days doing something you love and you're passionate about, you probably are going to be in a different mood. And we know that all of these dimensions, we have lots and lots of literature showing all of these dimensions impacting on brain function, mood and neurotransmitter balance.

And ultimately, this, this whether you are depressed or a happier person. And in light of all of that knowledge, it's actually ridiculous, absurd and un totally unscientific to reduce myopically reduce depression down into just a random chemical imbalance in the brain.

And this is just our unintelligent body doing this for random reasons. Here's this drug to fix your chemical imbalance. And so so what you're talking about is essentially the same thing at the level of the body.

You have a lot of people who are in a rush to do chemical interventions and treat the body as unintelligent and what you are arguing in favor of is seeing the body through a lens that says, why is the body why is the intelligent body doing this and responding in this way?

And that totally changes the types of interventions that you will do, the types of approaches you'll you'll use to try to fix that. Yeah, well and I think based on what you said, we'd say, hey, that if you have better gut physiology, you have probably better neurotransmitter function.

Okay, so I have a potentially compromised neurotransmitter function. Okay, well, then what are the things that can influence it? Well, your gut. Well, maybe we should take a look at that.

I forget about that. Let's just give you this drug. Let's just bypass the thing. And it's. But we do that with everything we know. Exercise increases, mood increases, dopamine levels.

Right. Makes us feel good. Increased serotonin makes us makes us feel well. But I'm depressed. Do you exercise? No. Well, maybe the issue isn't that you need a drug.

Maybe the issue is you need to do the things that are going to create that positive environment. You may be doing a lot of things or have a lot of things going on in your environment that are creating not.

It's still, in my opinion, it's still an appropriate response, at least at the onset, right? If you have a bad gut, the appropriate response might be, well, I've got an infection.

I need to move serotonin away from or move tryptophan away from me making serotonin and drive it down. The Clinton lytic acid pathway and makes them maybe things that can be used as more toxin to deal with this organism or that threat.

Right. Feeling stressed? Oh, I'm. I'm. I have insomnia. Well, maybe the reason you have insomnia is because you have this stress response going on. Your body's like, whoa, we're in danger.

We don't need to take a deep sleep. I don't really need that level of melatonin. I really need my body to be more alert. So I'm going to drive that tryptophan away from serotonin and make more stimulatory chemicals.

So, you know, I think it's sometimes we just assume that the body intelligence isn't working. I think it is work if it's responding or adapting to whatever is going on in that environment.

So that's where we have to ask what's going on in your environment that's creating this to manifest. So we have to, but that's hard, right? That takes more than five or ten or 15 minute visit every four months or a couple times a year.

And it doesn't leave us too much room to not take care of ourselves. Okay. I mean, we know other model allows it to be like it's an external, it's a disease or disorder.

I'm not in control. It just happened to me in the model that we're talking about is more where somebody has to say, not my fault, it's not fully my fault.

There's a lot of things that could have happened, but it's my responsibility to make the change. And I think that's the really important part. I think sometimes people hear the message like, Oh, you telling me I did.

It's my diet, did this or whatever. It's not necessarily your fault, but it is your responsibility. Once you're educated that you have to take care of yourself. You just can't do the catch on the dashboard and say, Take me wherever and expect that you're going to get to where you want your path to plan the strategy.

If you want to be healthy and be functional and most people aren't, they're not worried about their health and, well, their well-being until they're in a state of chronic illness and disease.

Unfortunately. So let's get practical. How do let's say the people, let's say a person listening to this and probably most people are who are listening to this or in this category are in defense mode to some extent have symptoms.

Whether those symptoms are hypothyroid ism or brain fog or depression or chronic fatigue or whatever else, we can see them through this paradigm as a reflection, as part of the intelligent body's adaptive response to being chronically overwhelmed by these stressors.

Danger signals. Right? How do we get the body unstuck? How do we get it out of danger mode and put it back in energy mode where the mitochondria are switched back online and are functioning optimally?

I wish it was sexy. All right. Would I mean, I wish it was. Make it sexy. Make it sexy. But it comes back to, I think, number one and, you know, shameless plug.

You know, how they all know Halderman and I wrote a book called The Thyroid Box. And that is what, you know, the third part of our book, we don't have any supplement recommendations, the lifestyle and diet and all the things that aren't sexy.

But if you really want to start to recover your health, you've got to take a look take a look at what what I talk about called the fitness factors. And those are the things that are really influence how your body is is it is in a manufacturing mode or is in cell defense mode.

So you look at your emotional fitness like what's going on in my life, what's going on between the six inches of my ears, like, what am I thinking about?

What am I focusing on and what am I were? If I'm in worry mode all the time about something in the past or something in the future, you're not living in the present and that takes a lot.

Create trust. So what is your emotional fitness? And then once you and for my clients, I give them a scale 0 to 10, I ask them like each of these fitness factors, give yourself a scale 0 to 10 and rate yourself, and we'll look at

emotional fitness, physical fitness, metabolic fitness.

That's how the chemistry of the body's working. We'll look at dietary fitness, sleep fitness, respiratory fitness. We'll look at your habitual fitness.

What are the things you do day in, day out, things you may realize and things you don't realize you do every day.

Body Intelligence, Depression, and Adaptation

And when we put all those pieces together for what most of my clients, we just start with, okay, well, this is the week. It's one. Your sleep is terrible.

Let's take a let's now you scored that the worst let's look at your habits and behaviors that center around sleep and let's start there and we start there now while they're working on those things, I'm also looking at their chemistry and what can I use dietary nutritionally to kind of tweak some of those systems.

That's the crux of how I get my clients well. And people say, well, you're a thyroid specialist. Which thyroid hormone? Listen, I typically I'm taking people I'm get people off of thyroid medication.

Their stuff they're taking is not converting. Well, they've got mixed in this belief that they can just Whac-A-Mole it with three, three, four, two, one, whatever, and it's going to work.

And they and they after years, months or years, they realize it doesn't work and they actually feel worse. And so it's not sexy, but it's you. You have to look with an objective lens.

In most times we need a third party to actually help us look objectively at what's going on. And we have to say this is this is a an area that you feel is a problem.

It looks like it's a problem. Now, what can we do incrementally to start making changes and to bring your level of fitness up in this category? If we think about it from an in from a physical fitness perspective, I can't I don't I don't lift.

I don't run. I can't do it. I can't I can't do that. Can you walk 5 minutes? No. Great. Let's walk for. Okay, I can do that. Great. Now we started and now we have a building block that we don't need strength training.

No, I can't do it. What can't you do? I can't do anything. And you get out of a chair. Well, yeah, I can get out of a chair. Can you do three times in a row. Yes.

Right now we're doing some physical fitness, but we'll give them a physical fitness test in the beginning. From an environmental standpoint, what's your toxic load around in your environment?

Like where do your personal products, what are your what's your sleep? What's your cleaning products? Right. What are your what's your electronic stress that's going on?

Right. Then look at the things that we can do to reduce things that are stressful on the physiology and do things that can raise them up. That fitness scale, none of it sexy.

But if you want to be healthy and stay well, the solution rarely comes in a bottle you know and that's it's not attractive because in people who make supplements and recommend them, I recommend them too.

But they're not a long term strategy. They are a short term strategy to help us get to the next level. But ultimately, if we want to get somebody out of cell stress response and get them back into feeling physiology, we have to identify the stressors, reduce or eliminate them.

Who has greater degree is possible and then then support the recovery of those tissues back to normal function

physiology. And when you do that, it miraculously people start to feel and function better.

I mean, crazy without a lot of drugs, without lifetime of supplementation. It's these fundamental things. But a lot of people don't want to do those things or they're not aware that the things that they're doing potentially cause them to be unhealthy.

You I want to add a little to this and maybe like some meta context. I think the fact that you introduced everything that you just said as this is not sexy is itself something to analyze because first of all, I agree with everything that you just said.

I disagree that it's not sexy. I actually think it's super sexy for the gifted. I think this is the important stuff. This is the most important stuff. And here's why I tell you my analysis of what's going on.

Over 80% of the chronic disease burden in the world today are diseases of nutrition and lifestyle. And it is because the vast majority of people are not engaged in the things that our biology has evolved to require to express normal function.

And those include a healthy whole food diet, and they include honoring circadian rhythm and sleep cycles and and the light signals that relate to that, as well as the food signals that relate to that nutrient timing.

And it includes the psychology and how the modern world differs psychologically and emotionally in terms of chronic stress and the hustle and grind culture and consumerism and materialism, lack of of social connection, tribe and community that has also been eliminated in the modern world largely.

And and the the loss or almost near complete elimination of or medical stress from our life's, which includes movement. Our ancestors were moving almost constantly throughout the day and engaged in physical activity and exercise.

We're exposed to heat and, cold. We're engaged in periods of food restriction and famine, food shortage, intermittent fasting, basically, and other many other types of hermetic stressors and most modern disease comes from that, comes from the disruption of that.

But if you go to the average, typical conventional medical doctor, they are not treating any of those diseases that are emerging from those nutrition and lifestyle factors by addressing any of those root causes.

And I would also argue that most of functional medicine today is not doing a great job of addressing those things either. But is has largely and again, this goes back to the use of this word sexy and why you introduced what you just said by saying it's not sexy because there's there's a whole culture of doctors trying to one up each other by presenting something that is more sophisticated and more sexy because there's financial incentives and egoic incentives to do so that it boosts them to a higher status.

It makes them more money. So everybody is in this search for constantly trying to have this more sophisticated approach with however many thousands or tens of thousands of dollars of seemingly fancy testing, which you and I both know is often many of those tests are not even scientifically valid or accurate.

And it it creates a culture that is in pursuit of. Clickbait health care. Of of presenting the sexiest looking approach, but is not actually the most intelligent or helpful approach.

And I would argue the one that you're presenting is actually the most helpful and the most grounded in actual evidence and real understanding of what is actually causing most health problems in most humans.

Today. I mean, we're looking for clickbait, right? So we want somebody to get all that supplement. It's going to give me more testosterone. Awesome. Right?

Or cache we have we see this all the time. You do these four things, you'll increase your testosterone. Maybe,

maybe. But realistically, I think a lot of this stuff is just crap we put out there.

I mean, you can go ahead. And it's everything that we just said is is also compounded by that. We're all indoctrinated through the pharma influence, conventional medical culture that we're all brought up with since we were little kids to to have a belief in the magic pill that there's going to be a pill, a drug cure for every disease that we have.

And then modern, natural wellness, functional medicine has also basically aligned itself with that mode of thinking. It just replaces the pharmaceutical drugs with natural lots of supplements.

Yeah, it's greenwashing of medicine is what it is. Right. And so, listen, I get it. I understand why people do it, but we make I think we've got people even more confused today as to how to get healthy because you're like, oh, you got to have I have to have a cold plunge.

Oh, that's the whole thing. I've been missing a $55,000 cold plunge. That's why I have these chronic health issues. So if I just buy a cold plunge, I'll be good.

No, no good. Doing cold therapy or hot or sauna. Be awesome for your guest, but don't go for the flashy, shiny thing before you go for the basics, the foundational things.

You didn't have a cold plunge when you were healthy. It's not the thing that's going to take you from chronic illness to health on its own. It's a tool, not the tool.

But we jump over dollar bills to pick up pennies.

Getting Out of Defense Mode

Right. We all I don't need to. I just had this conversation with somebody. They said, I want to take these amino acids. I think I saw somebody say I need amino acids.

That's part of my problem. Like, okay, wait a second. So where do you think they come from? Amino acids? Well, from food, I guess. And I'm like, right. They come from food. So do you eat food?

Yes. Okay. So do you know how much and protein you know, animal proteins, the best source we can get some animal if you want those amino acids, our protein is going to give you the like it's complex, but you can get them from plants as well.

What are your what's your caloric intake? And tell me what your macros are. I have no idea. Well, that would be a first place to start. If you think you need more amino acids that may, then what you're telling me is you're not eating enough protein in your diet.

Well, they said that you need these amino acids because they're building blocks. I'm like, right, but they come from your food. And if they come from your food and you need more than maybe you need more protein.

So why don't we take a look at that? What if I'm getting enough protein? I may still need these amino acids. No, no, no. If you are getting sufficient protein and you have sufficient stomach acid, pancreatic enzymes, digestive issues, no, no dysbiosis and new, it's and you can absorb and assimilate.

Those are appropriately. All the amino acids you likely need are not in that plastic top there in the food that you're putting in your mouth and you've already paid for.

So why don't we optimize the stuff that you've already paid for before we just add a whole bunch of stuff you still may not absorb. If you have low stomach acid and gut and stuff, but again, we make it look good and flashy and all those things.

But I agree, you're right. This is the stuff we somehow have to make sexy enough that people go That's good. And to tie that into, we could say, well, people talk about working out and they and so they got their shirts off that isn't that sexy to see somebody really fit which now but a lot of the people we're looking at that are really fit aren't naturally fit.

What you're looking is is a fake, right? That's not natural physiology. That's some extra hormonal, almost that they're putting into their system. So now somebody who is eating healthy, eating right, getting sleep, they're in their forties and they're looking at the other dude next to him who's just ripped eight pack of abs muscles coming out of everywhere in the going.

Must be something wrong with me I mean, because I don't look like that. So we get this false sense of what health is at one end and the other end. We're telling everybody, you know, you can be overweight, obese, and that's still healthy.

And, you know, so we've got this super confusing discussion going on, which I think is great for whoever is selling whatever. Keep them confused and we've got them.

Yeah, yeah. And actually, just to add to the esthetics part of of bodies, that's that's kind of since I was a kid, one of my areas of expertize. But one of the things that that people don't realize is a lot of the what is seen in magazines and social media and bodybuilding competitor stages are people who are dieted down, not only chemically enhanced by anabolic steroids, by fat loss agents, by exogenous thyroid hormones and clenbuterol and and more dangerous fat loss agents like DNP, but also that it's the product of many weeks or months of caloric restriction to diet down temporarily to these levels of extreme low body fat percentages where they pose on stage or get some photos taken.

And this is implied, it's presented to the world as if this is how their body looks all the time. And actually, if you do a hormone panel on somebody in those states like a man who's dieted to these very low body fat percentages, so they're ripped for a photoshoot, for a magazine cover, their testosterone has tanked and their thyroid hormone levels don't look good.

And many, many other aspects of of their blood chemistry don't look good and they don't feel good and they don't have good energy and brain function. And so anyway, this is a bit of a digression, but there is a to your point, there is a toxic culture around that.

Yeah. And so do the everyday layperson. You're just trying to get healthy. How am I going to do that? Right. So if I can't do that and that's what health is, being plugged is healthy, why even try right.

So I think we have to do a better job educating people as to what health is, right, what it is, what it is, and how do we achieve a higher state of health?

How do we measure it? How do we how do we and how do we assess it and measure it and manage it on a consistent basis versus lying and saying being grossly overweight or obese is is healthy or that being ripped and and unnaturally nothing bad like looking right.

Is healthy. We have to say that. Sure. The here closer to what the norm is and here it's the standard. And we really just don't have an adequate standard as to what health is and most people aren't.

That's a discussion most people don't really want to have. Like, what is that mean? How do you how do you define it? Because obviously the classic definition of health in textbooks and things of that nature is the absence of disease.

The best definition that I've ever heard is actually from an eccentric former doctor who became a sort of legend in the surfing community. His name is Dorian Paskowitz or Doc Paskowitz.

And there was a surfing a movie made about him called Surf Wise. He there's a very interesting story about him, a

very interesting thinker and raised his family of like nine kids, ten kids in a very unusual way.

But what he said is something to the effect of, you know, health is not just the absence of disease. Health is a pizazz. Health is like living with a certain level of overflowing vitality that you that you move through life with.

And I was like, you know, it's very informal in very casual language. But I really appreciated his distinction of what he thinks health is, distinguishing it from just an absence of disease.

Yeah, I think and everybody says it could be different for somebody else, but I think health is a state of like physiologic function and adaptability in your environment.

Right? It's not a static thing. It's not like you are healthy, you aren't healthy. It's this kind of spectrum or continuum and that's important to know.

So if you're truly have health and fitness, then you are adaptable in your own environment without access to poor. And so what does that mean? Well, I can be super healthy if I live here in Pennsylvania and I and I exercise and I do things that put me in, you know, Alaska, I may not be healthy in that environment.

Right. Because not adaptable to yet, but give me time and I can modify modify my physiology to now be healthy in that environment. So I think it is a state of your ability to be and I hate to use the you can't use the word health itself in it in the in my book and I'm it's a shame because I have it laid out in my book better but the state of adaptability without negative consequences if I'm healthy then I can then I'm impacted by bacteria or virus.

I'm going to have a healthy and appropriate sick response and then recover. I don't think the absence of getting sick means you're you're not healthy.

I think if it's an adaptable, sick response, it's normal. Having a fever if you have an infection is a healthy response, in my opinion. But if I need if I can't do the things I need to do in my environment without assistance, I'm not as healthy as I could or should be.

So I do have a whole chapter on that kind of laid it out a little bit. I'm not doing injustice here, but definitely I do a better job of it. But I think we need a simple defined definition that people could go to and say, okay, that's it.

I don't know. But I have the best definition that it's a a state of physiologic function and adaptability within your environment. I don't know that that's the best one, but we got to start somewhere.

But it can't be emotional well-being, right? It can't be the state of physical, chemical and emotional well-being. Okay, well, because what does well-being mean?

Well, that means you're healthy just to. Find words with other words. Yeah. So what's the criteria? And I've asked other profession all this, I'm like, okay, so you're a if you're a longevity expert and health expert, how do we assess it?

Well, I don't know. We don't have good tools. Well, then how how how can how do we help somebody if we're telling them, I'm a longevity expert or a health expert, and we are not giving them a set of tools to be able to do it, maybe for me or you, if we're looking at a comprehensive blood chemistry panel, we might say, hey, look, we want to try and get your your blood values within an optimal range, which might be considered one to a half standard deviation from the midline.

Given whatever environment you're in, it doesn't mean all the labs have to be perfect in that range. But when they're interpreted within your situation, you're close to that range.

I don't know. We got to have some tool. We have to have some tools. I just don't think we have a great standard yet to measure that by.

Health, Fitness, and Where to Find Dr. Balcavage

So looping back into hypothyroidism and from your model of hypothyroidism, cellular hypothyroidism, looking at the body's sort of intelligent response, creating this state of physiology as an intelligent adaptive response to what's going on from the signals from the environment and one's lifestyle.

What would you say are your top three biggest needle movers that you've seen? You know, on average, understanding there's individual variation sometimes for this individual, it was this thing for this other individual is that thing.

But consistently as a pattern, what do you see as this that the top three biggest needle movers to get people well and get their thyroid functioning properly?

As a general rule, I typically always start with getting somebody off a standard American diet into a whole food diet. I really don't care which whole food diet you go to.

I'm not tied up in any one of the food religions. I think they all have benefit and I think that's the first thing somebody needs to do is spend less time eating processed, more processed Franken food and more time eating healthy whole food.

And don't worry about what what the name of the diet is. It's a healthy Whole Foods start there. I think that's one of the biggest things. I start with that with almost everybody.

And it's it's not unusual that when I talk to them about three weeks later, they're like, hey, my bloating is better, this is better, that's better, this is better.

Great. Or What are you going to give me? Like, because they want something on that first visit and usually I'm not giving them anything. Second thing is, and this is going to sound counterproductive, is if they're already on a whole bunch of supplements, the biggest mover needle is often taking them off their supplements.

And that's it's tough to do because I think there's a I think there's a supplement addiction that's going on in our culture. But that's that oftentimes is one of the biggest needle movers because too many of the people that come to see me are over supplemented and they don't realize that the supplements they're taking, even though they're all natural, are creating problems for them.

So that be number two and then the number three would be, man, it's in between. I would but I would start to go with the leap to some degree sleep when you sleep, you heal in your repair.

So I go there now. I'm not typically trying to give them anything to sleep. I'm not a big melatonin GABA, all those things. It's really more about the behaviors and that and and what's going on in their life.

I have them simple things to help with sleep. Wake up at a certain time, go to bed at a certain time. I'll have them turn trying to turn their Wi-Fi off at night so we don't have wi fi creating an excuse because whatever somebody wants to say about Wi-Fi, there are there are some studies.

I don't know if you saw those where low frequency radiation increases and I think it's fourfold. And why is anorexic genic hormone which then tells the body I'm still hungry and so now they consume more carbohydrates as a result of that and when are we doing those things?

We're on those things basis a lot of times at night and we're eating more carbs that we need. So anyway. So try and set that and then and then a lot of it, it's just really work into those life stuff out.

All of them to me are important, but I typically start with dietary change with the vast majority of people reduced their supplement load and start working on trying to get sleep habits and behaviors kind of grooved in there.

And then, you know, then, you know, physical fitness, exercise, breathing, all those things become really important. But those are the two, I'd say those are the top three.

Brilliant stuff, my friend. It is. It is always a pleasure to connect with you. Let people know where they can follow your work or learn more from you.

And to everybody listening, especially those anybody who has hypothyroid ism or struggling with their thyroid health or just wants to optimize it and keep it healthy.

I would highly recommend getting Dr. Malkovich's book, The Thyroid Debacle on Amazon. But Eric, please let please let people know where you want to direct them to follow your work or get in touch with you.

Yeah. So my website is Rejuvenation Center sitcoms. You can go there if you have if you have an interest in potentially working with me or just questions, there's access to a discovery, complimentary discovery call there.

We did do a more of a clinician level thoughts based on the book, and so that'll be on the website shortly. And if you want, let me know, I'll send you the link and you can tie it to whatever.

And then I have a podcast called the Thyroid Answers podcast, which You still need to come on my podcast and talk mitochondria, which you haven't done yet, but I'll let you get to this.

Yeah. And then I have, I do a bunch of educational videos, so YouTube rejuvenation and Instagram, I guess Instagram is where I just put stuff on no dancing tik tok videos.

I'm not a dancing tik tok video type of guy. Just cat videos. No cat videos either. I'm just here. Let me tell you what's going on here. Education? No, no dancing.

You don't want to see me dance. Awesome. So that's that's about it. Thank you so much, my friend. Always a pleasure. And I look forward to to our next conversation.

You got it. Thanks for having me on.