Mitochondrial Peptides: Have We Found the Path to Optimal Health and Longevity? Transcript

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Introduction to the Peptide Summit Guest

Hello. This doctor can't hold her for another episode of the Peptide Summit. Today we are honored to have Doctor George Rice, who is going to be speaking on, mitochondrial peptides.

Mitochondrial peptides? Have we found the path to optimal health and longevity? And I really think this is a key. We got pharmaceutical companies pumping tons of money into this because you look at, you know, basically all the diseases of aging have to do with low mitochondrial function, neurodegenerative diseases.

You know, the cells don't have enough energy and they just end up, totally dysfunctional. They cause mutations that cause cancer. So looking forward to to this talk, a little bit about George.

He's known as empowering, and a guide to, authentic next level health. He's a specialist in precision performance medicine. He believes that one should not just survive, but thrive.

He's an expert clinician known for getting people to look and feel better than they thought they could. And I love that we see it all the time. He combines state of the art lifestyle, lifestyle, life style assessment, technology with cutting edge epigenetic coaching will have him explain that.

Peptide therapy, hormone optimization and functional medicine to guide motivated clients to their full health potential. He is passionate about, for clients to develop the knowledge to obtain next level physical performance, and youthful appearance and longevity.

And I agree, it sounds like he becomes partners with his patients and which I think is key. He received his B. S. in, psychology from Stanford. Not too shabby.

He obtained an Ms. in Health science management and an MD from Rush University. He completed his family medicine residency at the University of Southern California.

I won't hold that against him. And he is board certified in family medicine. He is certified in age management medicine and certified by the Academy of Preventive and Innovative Medicine and the advancement, Biomedical Hormone Replacement Therapy.

He is certified in functional medicine through the Institute of Functional Medicine. So you can tell he's been to a lot of courses gone through a lot of training.

He's recognized as, IFM certified practitioner. He especially trained in functional medicine and nutrition. So highly qualified, I'd say, would sum it up.

Thanks, George. Thanks for being on. Hey. Thanks, Kate. It's great to be here. Very much appreciated. Sounds like you're doing great work. Well, it's all, part of, it's a passion, right?

And, it really is, a statement about, you know, what we need? It's a really a myth that you have to fill poorly as you get older, and, I really created all this stuff and participate with my clients, to help change that.

So, and I thank you for allowing us to, get the message out. Well, thank you. And I think that's that paradigm change to where, you know, standard physicians are lagging way behind where you don't go in until you've had a heart attack and tell your, you know, feeling so horrible.

And nine times out of ten, they don't know what to do with you, right? Because, you know, I've, brought this up. I don't I blame the physicians a little bit, but it's the system.

They don't get paid extra for learning more. Right now, it's the ego. Cares less wins because they can see more patients. But, so breath of fresh air.

You know, doctors like yourself are few and far between, especially in Alaska and, very far between. Yeah. So how many doctors do anything of the sort in Alaska?

There's a couple, there's a handful of those, off the top of my head. There's, 2 or 3, who are, dedicated to, functional medicine and then shifting that paradigm.

And you make a good point. You know, this, you know, I try to straddle both systems. I tried to straddle traditional medicine and bring this into traditional medicine because I saw the impact it made, on my patients.

Why Mitochondria Matter for Health and Aging

And so you're right. It's not, it's not their fault. Meaning, it's not the system's fault. The system is doing exactly what it's designed to do. It's designed to treat, acute problems and disease.

We can't fault it for that. But. And again, to your point is, when we get this new information and ability to make a difference and change, it is on us to do that.

So, you know, I try not to pit the two, the paradigm against the other paradigm. And in fact, I really pitch it as, this is just extra tools for your toolbox.

And so, but it is difficult to do, in the other system. So you're right there. Yeah, I guess. Yeah, I'm guilty of that because I love just seeing so many doctors that, you know, I don't know if you may have, I've seen this where you send the patient back.

The doc, the patient loves their doctor. Right. And but they haven't got better for ten years. And they come to you, they get better. You send them back.

You think the doctor will call you and go, oh, what did you do? Now they're like, that's quackery. If a doctor doesn't know about it, it's it's quackery.

And the least they know, the more adamant they're right. But, but I'll, I'll get off my soapbox and, and, yeah, we can, we can, we can chat about that offline.

So anyways, but but there's a lot of good, good physicians and a great but a couple of bad ones, really. Let's talk about mitochondria first. Right. But our mitochondria.

So the mitochondria, of course, we all forget about it, right? You know, that first year med school, it's like a cramming in and and you can't wait to forget it.

But I wish I had paid a lot more attention, when I was in Mexico, because it's actually, critical. So the Monica, Andrea are as I talk to my clients, these are the, the the little critters inside all our cells that make energy.

And they are the I call them the switch boxes. So food oxygen that comes into our bodies, they take that and convert it into energy, and they make us run.

And so it seems to me that, it's, you have to look at the mitochondria. If you are looking to get people to optimal health, it has to be part of the equation.

And they do a lot more than just make energy. We're finding out now to. Absolutely. And so that's how we're

traditionally thinking of it. And so they do a lot more.

So they regulate rather the cell lives or dies, they regulate, how much calcium in the cell. And that alone regulates lots of other processes, like how much insulin you put out.

If you're a diabetic or you have too much sugar. So they do a lot. And we're learning more and more about them almost every day. And what happens and maybe what conditions, if the mitochondria become dysfunctional and I don't even with date with age, they start declining.

But what are some major things that happen and what are maybe major, some major diseases that are clearly associated with mitochondrial dysfunction? And so, you know, the my answer is everything right?

It is. Right. Yeah. Right. But you're right. We've associated, and are beginning to recognize, at least in the literature, strong association, with mitochondria dysfunction with, for example, Alzheimer's, dementia for heart dysfunction, heart failure, the beginning of atherosclerotic disease, autoimmune, that is a big issue in that, right away people recognize the role of mitochondria in, in autoimmune dysfunction.

So inflammatory bowel disease, multiple sclerosis, psoriatic arthritis. So all of those connective tissue disorders, mitochondria are playing a central role, because and the reason why I say all of it is because and, you know, it's all about how much energy do you have to make things work.

And that's what it comes down to. Yeah. And and there's generally there's general, in the, health world, there's nine hallmarks, of, of of aging and longevity.

Mitochondrial dysfunction is one of them. But for me, and through my lens, everything, everything goes through the mitochondria. And, and also warm ups.

So they're critical. So. Yeah. And those that does go together. Yeah, absolutely. Yeah. I mean, you fix the mitochondria, you're going to fix a heck of a lot of things, you know. Yes.

And and that's what I want to say. Like for heart failure. It's like they do nothing to fix the heart. You know, I had a heart failure myself, a long.

And, you know, a big part of my treat was, was rehab in the mitochondria. And the cardiologist said, oh, you maybe get 10% better in ten years or so. Just forget it, right?

Like, I can't walk upstairs. I can't. And then a year later, you know, with peptides were the key. Stem cells also help those. Yeah. And a lot of things.

But and he's like, wow, we've never seen that before. Did he ask what I did? No, no, of course not. Right. It's a miracle, right. But, yeah. So, yeah.

So you kind of know the importance of mitochondria. So, like, what are some of the things that, like, how does someone know if they have this functional mitochondria?

It's what they have. One of those diseases or tired or, or forgetful or what are some of the for like the average person. Yeah. So that's a great question.

So as of now, you know, do we have specific tests specifically for mitochondrial function? And that's no, but and as you know, clinically, there are some, big signs.

And so chronic fatigue, autoimmune imbalance. So people who have, allergies or, what we call fibromyalgia, right? Chronic fatigue syndrome, any autoimmune issue, pretty much.

You can take that as a sign of significant, and all those go together. You look at, you know, chronic fatigue

syndrome. They did muscle biopsies and fibromyalgia, chronic fatigue syndrome patients and their mitochondria are all swollen.

They're just even anatomically dysfunctional. And this, dysfunction and, like, oh, it's a made up illness and psychological. Right. Because we don't have so much less calories, you know.

Signs of Mitochondrial Dysfunction

Right. And and to your point, earlier you were saying, you know, if in traditional medicine, if we don't know, then it doesn't exist. Yeah. Right. Yeah. And, to.

Yeah, the science is there. And the literature is supporting that. In fact, was it, 2016, I believe, there were a few articles, they looked at they did muscle biopsies and insulin resistant patients, and consistently they have lower numbers of mitochondria.

They have higher numbers of low functioning mitochondria. And they have mitochondria that, are just not functioning well. And they actually they look swollen.

Right. And so like, swollen tissue, because of dysfunction. So the evidence is there, you know, is it proof? Well, you know, I don't have to jump out of an airplane, you know, without a parachute to know what happens.

Yeah. We don't know. Right? We just know. Yeah. And written a couple review articles on, hypothyroidism or, say, hypothyroidism and the rate limiting step is in your cells need energy to bring the thyroid hormones in.

Right. And any condition where low mitochondrial function. You're hypothyroid. Right. Yeah. Which which compounds and perpetuates the problem because actually the pituitary sees the thyroid but the rest the body does not.

And your thyroid is one way to boost mitochondria. But if they're dysfunctional you're beating on, you know, dysfunctional, cell. Right. But, it's it's not that they're just stuck on one paradigm.

The TSR reaches the end all and you're I mentioned the study just came out showing GSR, which is very unreliable. Right. I love this club and preach on that forever.

I'm not a quack. And, you know, you know. Yeah, I remember yeah, I think I was telling me earlier when I was a resident, I was, I read your paper on the summary of thyroid function, and I think you'll be happy because, this paper that came out, actually just exten it and expounding on what you were talking about in the sense that TSH does not necessarily correlate with peripheral, physiological process.

It's really the brain's happy. Right. And it has the ability to take its own thyroid hormone, but the rest of the body is suffering. And so they did a study.

They looked at all the studies in thyroid hormone and did a strong correlation of actually free T3 and free T4 are more indicative of the clinical condition of the client.

The patient was rated really low. So and and it's like or will suppress the PSA and they go to their endocrinologist or their doctor and they'll say oh my God you rate them hyper thyroid and they're in their pulses 54 they just gained 30 pounds.

You can't have a bad yeah. Their their temperature is so low. It's like low like, you know right. Crazy. Everyone just stuck to this algorithm. Right.

It's obvious to you, and it seems obvious to me. And hopefully we can get more people to be more obvious to it. Yeah, hopefully. I just mentioned, as I've been working on tests for 15 years, I got 90% done.

And I can't finish it. But we'll come up with a test to show that, so we kind of talked about the consequences or what a someone healthy person all of a sudden their mitochondria go, let's just say it's from toxins or whatever illness.

What what's the repercussions? So you're right. So, people who are pretty healthy, and they have a lower function. They may not notice it as much to be more subtle.

So excuse me. You know, people who are active, they may notice that they don't recovers quickly between workouts, and they feel a little more sore. And the soreness isn't clear.

They can't, push themselves. They can't do as much, high intensity training. So that's on the other spectrum, of course, on the lower end, we're just, you know, the average, client who doesn't work out too much, they just notice a lack of drive, focus, concentration, neurological, decline.

Physically, they begin to put on, you know, that, a little bit of weight toward the middle, no matter what they do, no matter, decreasing calories, exercising their metabolism starts to slow, right?

And no matter what they do, they can't get it to kick up again. So those are all big clues. And, theory plays a big role in that, but certainly big plays a and mitochondrial are beginning to be inefficient.

Yeah. We gotta yeah. But I find like post chemo which wipes out the mitochondria. I mean, these people just lethargic. They're depressed. They don't know why. Yep.

And they really, need treatment. I feel bad for them. And their doc says, oh, no, you're fine. Don't take anything like, you know. Right. And it's just really effective that a couple patients like that recently and, you just pop their mitochondria and they're like, oh my gosh, you know what happened, right?

And just simple stuff, right. You know, CoQ10, d ribose I mean, there's tons of studies in the cardiology world, about energy recovery until we can get the mitochondria back online.

I think ribose is a really, you like IBS or use some of the supplements, like, I've used both. Yeah. Because of where I am. I'm a little limited. Limited in terms of IVF treatment.

But, I find that even just taking the powders, 3 to 5g a day, you can also do nad subcu, which I don't do that. Yeah. Which which is, Yeah. Is basically take the vial.

What is it, 100 or 200mg per cc point to a day? And, it seems to work really well. Awesome. Yeah. And along with use, also like p, q, q minus q two. Those things, in fact, when we're using five amino one and Q is that also has stopped working.

But we thought, you know, we kind of overcharge the mitochondria. And when they couldn't keep up with the, basic creating process inside the mitochondria, and we'd give those and all of a sudden like, hey, it's we're going to get, you know what? It would make sense. Right.

And so how do you protect the mitochondria or, or do mitochondria protect themselves or, or how does that work? Yeah. Great question. And this is all, part of some, recent research that's come out.

It's pretty fascinating. So we used to think that, and we were, you know, you probably thought like I was, that, pretty much insulted me. Madison sees it.

You know, we just send signals to the organ, and it does what it's supposed to do, and that's it. Right. But now we're understanding that, the mitochondria actually, send signals out, and and they those signals are mediated, through, a class of peptides called mitochondrial derived peptides.

Peptides That Support Mitochondrial Function

So when the mitochondria, in the cell get stressed, it can actually not only send signals to the local community to bolster itself, like create more heat shock proteins, create more components for the electron transport chain to make more energy, to start to absorb more of the oxygen.

So we don't make more free radicals, but even further than that, the studies show it actually send signals out into circulation and into the CNS, the central nervous system.

And so it's not just the mitochondria being told what to do, and they're misfiring. They actually are sending signals out to preserve themselves, preserve the cells, preserve tissue.

So it's a fascinating, a network that we weren't even aware of. And it just drives home the point that you're making. Mitochondria are there. There's a hub.

And if and if we want to optimize, we have to address that. So that's how they protect themselves. And if we can support them, with the right food, you know, PQ CoQ10, which is an awesome antioxidant, for, mitochondrial function.

And now we have the ability to provide the peptides themselves, meaning the mitochondrial peptides that they usually make themselves. We can actually provide them to you to bolster your own function.

So it's wonderful. And so, it's exciting. It's exciting time, to be a patient, I have to say. Yeah, yeah. As long as they don't get shut down. Yeah. Right.

Well, that's that's a scary thing. A it's safe and working, right. You have of get them stopped. Right. Yeah. We found like, as you were saying, that they do a lot more to make energy.

Like they tell the body when there's an infectious, insult and send off all these different things, and they'll go into the danger response and stop making energy and doing all these other things, you know?

Right. And, so it's good. So what type of peptides, help mitochondria. So probably the one if, you know, so if you have, some patients, even doctors who are kind of looking into this, probably the one that I heard about was, called Max C moxie.

It's, derived from the, gene of the mitochondria, the mitochondrial DNA, of which is 37 genes. And, Moxie is shown to really help bolster, basically energy production.

It does lots of stuff. It's wonderful. It can increase its own production when it gets under stress. It helps sensitize a body to insulin. And so, we haven't even discussed that part.

Inflammation and insulin resistance, which is the foundation of chronic disease. So these might have contrary at work to, decrease insulin resistance, increase insulin sensitivity, and use, stop the process of dying off, meaning stopping apoptosis.

Sort of. Excuse me. If the insult and injuring inflammation go too far, they continue to trigger the cell to die. And that can, cause a chain reaction.

So these peptides help to kind of bolster the gates, kind of fight off that drive to to die, and help the cell function better. So, and then, other benefits are, they also help to burn more fat, and moxie and in particular, it's actually been shown, to kind of, have almost the same effect as exercise.

And so, and you're probably familiar with this in longevity and aging. Everyone's talking about Ampk, k the pathway, to, to kind of the pathway to longevity.

And that's one of the reasons why there's a lot of talk about metformin, right. Because it has seems to have, some impact on that. K but I'm not completely convinced from the studies.

And I'm someone who I can't take metformin. My stomach doesn't like it. So, yeah, there are a lot of people who are like that. So, so moxie helps to drive up that Ampk pathway stimulating, another, enzyme, called PGC one alpha.

And, that is the kind of the master regulator of energy, it stimulates a whole bunch of nice pathways for longevity and health, and in particular, makes mitochondria grow.

So if you stimulate that ed k pathway, PGC one alpha goes up, your mitochondria go up, and then you just bolster, cell protection and performance. So yeah, that moxie has been wonderful.

And it's own to increase VO2 in athletes. Increase VO2 max and help increase their dance. So lots of positive benefit with. Yeah. And I, I agree with the Ampk is like the hot thing.

And I've tried so many Ampk stimulators. I you know, I, I rather see like with Motsi, we've had diabetics, all of a sudden they're like, oh my God. My, you know, I've been on diabetic medication now my A1 c went from 7.5 to 5.8.

I've lost 25 pounds. And it's, they're like, oh my gosh, you know, where's this been. You know, nothing works for everyone to see. Like some people respond better, right.

But many, many, many people feel good with it. They got more energy. Brain kind of lights up. Well, what kind of dosing do you typically do with that?

So, moxie, again, depends on, on the client. Generally, if you're first using it somewhere between, basically, 3 to 5, I'm sorry, 5 to 10mg, for about 3 or 4 weeks initially.

And then you go, just, daily after that, you can do it. Actually, a lot people talk about cycling. And so this is another thing with peptides, particularly with the, this is typically used with a regimen with a growth hormone like receptor or peptide.

And, you tend to cycle those off. And so in and what we do is you have people do it for a month, at the higher dose and then, once weekly for maybe 4 or 5 months.

And then come off of it and see how the body goes. Yeah. I think it's always better to, cycle, but I don't know, I doubt it. I tell patients the cycle, they're cycling.

And, yeah, I, I think it's really good. And so what other peptides kind of go along with it? Would you say? So certainly, we like, in the clients like, CJC 1295 with more or less with the combination.

So which is the you can explain that, discrete ECoG stimulates growth hormone. Yes. Yeah. So these are growth hormone, like, peptides that, help to, interact with the, the complex network of the growth hormone environment.

So we used to just say, well, your IGF one's low, you don't have enough growth hormone. Let's just slam the body with growth hormone. Right. And now we're kind of understanding.

Well, that probably wasn't the best way because it's, it's it's a it's a complex system. And each system had its own set of, receptors. And they each have a different impact.

So you may be bolstering, for example, muscle growth in this pathway, but you might be shutting down liver function over here. Because if you're stimulating receptors too much and get regulation of receptors, and that can cause imbalance in other systems.

So the nice thing about these combination peptides is we don't tend to see that. So we don't see the downregulation of the receptors. We see a longer response clinically and more consistent.

And, and it's due to stimulation of multiple pathways in a balanced fashion. So you get all the benefits of growth

hormone, greater, metabolism, muscle growth, better insulin regulation, and particular ability.

And this is kind of the key after mitochondrial function, lower in visceral fat. Now, like you said, weight loss, the weight just kind of comes off. And people don't they go, wow.

And do you think the benefit and insulin resistance is, solely due to the loss in body fat, or do you see that occurring before the, it's again, you have to get thinking the complex system.

So the insulin resistance, most likely is being driven by lots of high intracellular fat, which is creating chronic inflammation inside the cell. That chronic inflammation shuts down the body's ability to respond appropriately, or cells to respond appropriately to insulin.

Fat accumulates, and they themselves secrete lots of hormones, which, again, you and I would probably talk fat is just inert, right?

Testing, Hormones, and Root-Cause Medicine

It's just that just you just carry it around. But actually, no, there's about, I think the last count, there's 26 or 27, hormones from fat and only maybe one of them is good for you.

The others. Right? Yeah. Not not a good ratio, but it's not a good ratio. Right. And so they create inflammation. So so it's not just about lowering the internal resistance.

It's about lowering the intracellular fat which by the way decreases romanization enzymes in the cell which creates more Astrid I'll. Yeah. Yeah. That's it.

That's the association between what kind of getting off track. But it's fascinating. That was the association people were making with, for example, breast cancer and hormones.

We saw all the observation studies showed increase estradiol in breast cancer patients. So therefore estradiol must be the cause. So don't give estrogen to these to to these clinics when actually the estradiol was just an innocent bystander as a product of upregulation of aromatase and chronic inflammation, you see lots of estradiol intracellular late, but it doesn't have anything to do with the cancer as everything.

Yeah. And I don't know, I see this too, where it's like all these, guys who are low SD, who are obese, which they have low testosterone, and they give them the andro gel which aromatase actually upregulate, and they're making more estrogen.

And the astron. Right. I wonder why they keep gaining weight. Right. Yeah. And it's not it's not the hormone. You're not doing them any favors. Right. It's the it's the underlying.

It's a root cause underlying process that we're really addressing. And so that's why addressing mitochondrial dysfunction I think is just going to open up a whole new world. Yeah.

It seems like you look at everything. It's like the core, right. Fix the mitochondria. Right, right. And then everything else will kind of, you know, you go upstream, fix a problem, and everything downstream will just almost kind of take care of itself.

So, so, so to your answer, it's not like, yeah, you're going to lose weight if you do this. And that's going to solve the problem. You have to understand the whole process.

And so yes, we may lower inflammation and lower visceral fat. But for this person it may be because their immune system is just wrapped up. Right. This person may be, they don't have the nutrients to, to support mitochondrial function.

So now we've got to really bolster their mitochondrial function. Yeah, same same outcome, same symptoms, different focus in clinical therapy. Yeah. And let me ask you how do you approach a patient.

Like what typical test do you do. To try to solve this I was just thinking, like you have a global understanding, which I don't see any better, but, is that, you know, to hone down, it's, you know, I love getting tons of labs right up front.

Sometimes it's not practical because, there's cost and all those things. What's your kind of special whatever the, Doctor Rice method of, getting down to the problem, right.

Well, it sounds similar to to what you do. So. Yes, in, in in our approach, and in this, well, you know, functional approach, but actually it's become more of precision medicine, cellular medicine, whatever you want to call it.

Now, we actually look at all as many of your body systems as we can. So yes, we do typical lab work, but we also do, functional diagnostic testing. So we do organic acid testing.

We do, what's called touch testing. Looking at the relationship between the brain, the pituitary, the thyroid, the gonadal adrenal axis, we do and, yeah, that's testing kind of gives you, adrenals and all the metabolites and all that.

And you mentioned organic acid testing. Yeah. So organic acid testing, is a simple test. It's it's a urine test. It looks at about, I believe it's about 85, or somewhere around 90, metabolites, through the process of the urine.

And it breaks down the category so I can get an idea if you have, toxin overload related to yeast or mold. If you don't have enough healthy bacteria. And in terms of gut health, we know that's a big issue.

It's not so much where the, bad stuff or not, if you don't have the healthy bacteria yet to, for example, regulate your immune system because 90% of the immune systems in your gut, you're going to have problems no matter what you did.

It's interesting. It's the gut bacteria cause the problems, but also if you're sick, you end up getting bad gut bacteria. So. Right, right, right. It's a good. Yeah.

Yeah. And it's all connected. And so what's a cause and a marker. Yeah. Yeah absolutely. And so we can see if for example someone it has too much, clostridium bacteria.

Now they're not bad by themselves, but they can significantly disrupt, neurotransmitter production in the brain. Wow. That's pretty important to know.

We can look at oxalate production, lactic acid, and even more importantly, mitochondrial performance. So these none of these tests are 100% none of them are great.

If you paint a picture, right, you get a picture. Absolutely. So to your point, it is nice that you order all those tests because actually, the more perspective you have, the more detailed picture you can create for that client.

So it's worth it to get all those test. Yeah. And it's sometimes hard to convince the patient, hey, spend a little more money, get this right. And because otherwise you can you can go down this path, all of a sudden you get a test and oh my gosh, is this right?

Right. I'm sure your patients have been a lot of different place at least. Oh ours are. And they want the, the answer. And you're not going to do the same old tests over and over and over right now.

And, so I, I think it's great, you know, slightly I'm sure you're reversing these people that, you know, they might not be the sickest. They might be the sickest.

And but the quality of life just gets tremendously better. Absolutely. And I'm sure they come to you as kind of, you

know, I've seen five other providers.

I've been to three different specialists, and they're all telling me the same thing, that I'm fine. Right? Am I allowed to look right? But, doctor, I don't feel fine.

And so to your point, you know, there's a you need a different approach. And so, yeah, it makes a difference. And not just for now. Again, we also looking at the client in terms of, where are you going to be like where your 98.

Yeah. Are are you going to make it to 98 unless you do these things right. Or you might make it to 98, but you're going to be in a nursing home and, you know, with dementia. Yeah.

And we feed you. Yeah. And who wants that for reality? And, you know. Right. That's like one of the number one killers. They say, oh, your cause of death is broken hip or, you know, subsequently, pneumonia.

But what got you there in the last ten years, you know, right. Right. Yeah. Mitochondria also osteoporosis is that they give you meds that stop the breakdown of bones or the good and bad bone on top of, you know, basic.

Right. Or good bone on top of bad bone. Right. Yeah. I don't know, I just go crazy with the with the paradigm now. Yeah. But, let's see. Yeah. Well, well, is there ways to protect the mitochondria?

So. Sure. So, in fact, giving the peptides is, is a great way to do that. Of course, hormones I'm a big fan of. And I know you are, too. In fact, that's what kind of pulled me out of, traditional framework.

Was I, you know, hormones were, I thought that was going to be the magic, for the rest of my life. It still is, but now we're learning a lot more. So, yeah, peptides giving the peptides, like my c.

Actually, there's, there's a couple of others. They haven't been, ready for primetime in terms of human use, but they're getting close. However, tried and true, exercise, exercise, exercise.

Right. I love exercise, it's a religion to me. I exercise every four months for eight minutes. So, I get my shots every day. Well, as long as your in, as long as that exercise period is so intense, you're.

That's fine. Now on my own for four minutes. So, so but yeah, we have peptides to make your body think it's exercising. We have peptides to make your body think it's fasting.

So, I'm better, like, thorough and and injections and I, I think you mentioned, human in, five amino one MQ, some could be hard to come by, but, they're all of similar, you know, they, they boost their mitochondrial function, right?

Right. And they offer different, different pathways to do that. So again, the idea of, you want to address the complexity to optimize the synergism of your body.

And that's what the traditional system tends to minimize. And it's not our fault we're human beings. And we tend to want to simplify things. Yeah, we want to understand.

Right. Yeah. The standard is one drug, one disease. Right? Right. And the biggest breakthrough was, hey, they found if you use two hypertensive medicines at a smaller dose, it works better than one right now. Before we were in, medics like you go up with this drug, the highest dose, that doesn't work.

You start the second, right? No. Start with, you know, they're working on different, you know, pathways. And that's all we're learning is, is key. And all of that is much safer, much more effective and much safer.

And and that's the nice thing about peptides is they don't do one thing where you can just overloaded or it it does multiple things right. So it gets it gets balanced.

Right. Yeah. So, what's kind of your favorite or. Well, let's say when a patient comes in, what do you typically do?

You start patients right off the bat with mitochondrial peptides.

Or do you balance or hormones first or nutrients or what? Or get rid of fungus if you see it, or dysbiosis or what's kind of your pathway so that everyone's different.

But yeah. Yeah. And, and so basically yes to all the above. So if I think it's appropriate to, just based on what the client's telling me, to, start them on something, I will, as long as I don't think it might, be interacting or I need to assess another pathway before I give it.

For example. I love, and I frequently give people, hormones right away. So if you're, especially if you're a woman and you, you know, all the classic hot flashes, night sweats, weight gain, no libido.

And what, my husband touched me any more. All that stuff. Right? Hey, estrogen is a mitochondrial booster. Absolutely, absolutely. Yeah. And you look at all these menopausal women, and a doctor's a doctor.

Yes or no? Because cancer, it's like, okay, you're going to be demented in ten years. You're going to get osteoporosis, you're going to be frail, you're going to.

Right. Oh, it's just stop it. Right. Yeah. And yeah, we forget to look at the other side of the coin. Yeah. Don't take that because of this. But what happens if you don't take it right?

Alzheimer's, dementia, heart attack, stroke, cancer, osteoporosis. Right. So we don't talk to women before menopause about any of these things really.

Or men for that reason. Right. And the studies even show if you don't give progestin not progesterone. And it's actually show me the study that shows increases breast cancer.

And the problem is in the literature they confuse progestin and progesterone. If you want to give someone breast cancer, give them for just in a right.

And if you want to prevent it, give progesterone, you know. Yeah, there's a, I don't know if you're, aware, doctor, doctor Glaser. She's a breast surgeon.

Breast cancer surgeon. I believe in the Midwest, Indiana or Ohio. She actually gives her, breast cancer patients testosterone because it's showing a totally decrease.

Right. She makes my review. Bioidentical hormone debate. No, I haven't seen that. Oh. I'll see. Yeah, it goes through all. Everything from clinical to the, biochemistry and every study had they had, for instance, S3 all versus this diol versus estrogen, progestin versus progesterone and shows that women should not be afraid, bioidentical hormones, of course.

It's like and what's a made up term. And, you know, it's it's crazy. It's it's fine. This that was out 15 years ago. And it's proven true. But they don't say, oh, it's proven true.

They just kind of start doing it right now. Right? And, more and more drugs are coming out that are bioidentical. All right. Right. It's. Yeah, it's it's generally.

Yeah. Like that tight. And so that's the nice thing about peptides is if they work, they work. If they don't work, guess what you don't have. I have to me, I to date, I have not seen anyone have any really bad side effects from peptides because they are natural part of the system.

And so if they can't bolster it then that means that there's something else not working, but it's not going to cause a side effect.

Epigenetics, Personalized Care, and Closing Thoughts

Yeah, it just show me a medication that you can give a thousand times the dose and have no side effects. They can't find a toxic dose. The body would do that with water, right?

Yeah. So if you want to argue it's safer than water, you know you'll die if you take 1001 is right. So in that regard, you know, so if a woman comes in and she's not sleeping and she hasn't had a period for two years, you know, I'm going to put you on progesterone.

And within three days they're sleeping like a baby. They're made better, at even I mean, assess their testosterone yet. My only caveat to thyroid hormone, and I usually give that to just based on symptoms, is I need to understand what's happening with your cortisol.

Because, I've had a few and you probably have two, all the typical, thyroid hormone symptoms, you give them a little bit, and then they say why, you're too tired.

You know that they don't feel good. It's not the thyroid hormone. As the emergency room doctor will tell you, right? Oh, you got tumor cells. You have T3.

They blame that if they, Yeah. And we find with immune dysfunction, they're sensitive to everything. You know, it's even with with the supplement, patients just react.

I tell them, okay, look at the pill for a week. Smell it for a week. Take, and they're much more likely to have like, it is a chronic response, meaning that it has to do a dose.

Like they'll get palpitations. And of course, they blame the thyroid. I, we had one doctor give one microgram, which I'm like, why don't you give anyone one microgram?

It's like it's like you never know. Yeah. It's like, oh my God. You know, it's like. And that's happened to her. Of course she goes, A doctor blames us or blames one of our doctors.

And she had the same reaction to Tokyo ten. Same reaction to like almost, almost everything, you know. Right. But, it's it's interesting. And one study showed that, people that have that look for HHV6, high incidence of that, that they have human herpesvirus six infection, which is the isn't sexually transmitted.

It's people with low immunity get it right. Chronic fatigue syndrome. It's interesting stuff. You know, it's one of those things the more you learn, the more you know, you don't learn. You don't know.

But I wish I almost wish I didn't have to sleep because, I've got a pile of stuff here to read. And, it's just fascinating. If I were to show you that everywhere, yeah, it's it makes medicine bundle it it and actually, I, I thought this was what medicine was going to be like when I went to medical school.

We'll see. We'll see who wins the election. We may have to cut that out, right. Well, yeah, you guys are. We'll see. We'll play it after November 3rd. Two. It happens.

Yeah. Yeah. No, but it's I mean, there's a lot of powers to be that, you know, they want the status quo. They think giving everyone health care. I mean, it's going to make everyone have horrible health care.

And I put out a health care reform plan. And, you know, I thought the thing is, we are like, we think we're, you know, basically the opposite of socialized medicine, where we have, you know, freedom of choice.

But we don't. We are like, you look at the, the countries that are so-called more socialized medicine, you name it, Sweden. These things, they have more choices than we do.

You go to the, pharmacy, you don't have any choice. You know, how much cost the drug costs. You know, choosing between insurance companies is not choice, right?

It's crazy. I think they should open up drugs by them around the world. Right. And just have one, department. Just make sure they're safe and that it is that, And, yeah, it's just it's ridiculous, but a whole nother topic, right?

Yeah, we we probably have to have a couple of shots of whiskey to finish that conversation. Yeah. And we end up spending so much or so much go. I can go on and on, but, just goes to even the person who has the power to sell it to the distributors, you know, and he gets 30% cut back right there, 30% higher to that guy.

Anyways, it needs a lot of reform, but it's tough trying to be, you know, the powers that be. It's it's scary. A lot of people are making a lot of money.

Let's see what, you know, I guess is strategies. We talked about, to improve mitochondrial function, and, and energy production. Anything else that you, you want to talk about that whether you have mitochondria or not, some, little key, pearls for patients or that or doctors on, listening.

Well, you know, and I think a lot of, providers already know this and they sense it. And that's part of their frustration. And they're looking for a different way, is in order for us to really optimize, people's health, meaning taking it from being sick to getting balanced, from going to balance to optimized, which is the other side of the coin, we have to do it in a different way.

So we have to understand, we have to understand food is medicine. We have to understand that, treating the root causes the only way, we have to understand hormones.

We have peptide therapy that can use your body's own natural abilities to to thrive. And so we have to get out of the, the like you said, the one drug, one problem mindset, simplified mindset.

And again, just to just accept the complexity of the of the client. And so to your point is that's why you need to get all those labs done. It's because it's not just because we want to spend the money, because we need to understand the client in their health context.

They have their own unique health puzzle, and it goes together in their own unique way. And we have to understand that. And the only way to do that is to get a good picture.

And so, in my regard, mitochondrial, the function, fitness and hormones, are significant pathways. So most of my clients, just with that alone, get to 70%, 80% of where they want to be.

Yeah. I think balancing the hormones, your thyroid is grown and and and so many things can be helpful. Yes. Well, peptides are a tool in the toolbox. They're damn nice tool.

Very nice tool. But, yeah. Reminds me in terms of labs, I remember I went to the lab myself and the bottom was like, so that doctor that our, And I'm like, yeah, what do you think it was?

I don't know whether he's the worst doctor or the best doctor, I don't know. And I said, I heard he's awesome and the cutest guy to. But, so I was messing around with there.

Yeah, she never knew, but it's like they're not happy because they got to do all these tests. You know? Right. And, but it's good for the patient. It is. And that's that's what all this is about.

It's not about any. It's not about the supplier supplying medication. It's not about the health care system. And then bringing in enough clients to make money with procedures.

It's about the client. It's about that one person. And that should drive all questions, in all approaches. So yeah, again, take, patient focused, you know, an inner one.

That's all it is. One person in this study that is. And have you found I mean, of course, we both read all the studies and all read a study like this thing is the best things.

And sliced bread and I tried I'm like, what's not a good you know, I, I, I can't get it to work, you know. So it's interesting how studies are important, but they can also be manipulated. You know.

Mr.. And another point, is, the, the impact that epigenetics has. Right. And so that's, great point. Good. Good point. Very good. Because, you're right.

I tried it. Right. And it did nothing for me. And can't you try it? And man, I mean, I mean, you you put on muscle, you sleep better. You just feel fantastic.

But why did it work for you and not for me? Does that make it a bad product? If I just do a study with you in it, it's going to look great. If I do the same, study with me and it's going to be negative.

So it's not that the study is bad, it's understanding your epigenetics your genomics. Right. And so yeah. Can you talk about the epigenetics genomics.

Yeah. Yeah. So genomics is really looking at understanding what your library, your DNA library is epigenetics is looking at the factors that, impact how that library is interpreted.

And so, understanding your DNA. So I think most people now understand that, your genes are not your fate just because you have the gene for, insulin resistance or the, BRCA one gene that runs in your family, I don't think most people know this.

I think it's profound. Or the ApoE4, you know. Right, right. And so just because you have that gene doesn't mean you're going to get breast cancer or Alzheimer's dementia.

However, it means that you have to live a particular lifestyle that doesn't activate that gene. Or more importantly, you can tell that gene how to behave.

So that's kind of a new concept, right? Yeah. You can turn on and off and through one study and this was a small set of genes, but like a battalion, another peptide.

Right. Basically activated 147 genes and basically suppressed, like 89 genes, you know. Right. And, and a lot of these, you know, basically the same thing, you know, they stimulate the growth, suppressed, inflammation and all the, you know, all the bad genes.

So. Right, right. And so yeah, it's that it's not bacteria. Huge. Same thing. Oh, huge, huge. And so that that's the again the beauty. We keep coming back to peptides.

That's the beauty of peptides is that the peptides already understand the complex system. Meaning they go in. They know what to do. They know what to do in the liver.

They know what to do in the brain, the heart, the gut, etc.. There's no medication that we can make that can do that. We just don't have the knowledge to do that.

So that's the beauty of the peptides is that they don't understand, what your epigenetics is and actually change the community. Right. So it's not about that one gene even.

It's about how that gene is interacting with all the other genes in that area. Oh, yeah. We're so far behind. Yeah. Yeah. So we look at one gene. How does this.

But you need these genes to be active as well. Right. And we are so far behind and in even the microbiome just way you know, we think how complex that is.

Even more important is poverty is probably the virus, right. All the viruses and the bacteria pages that control the bacteria. It's just like exponential, you know, just opens the door so that that one then one approaches.

You can kind of go, whoa, that's just way too much. We can understand that, right? Or just kind of look at what our bodies have already been doing, right, and just let it do its job.

And so we can do that. And we're closer to that. We're getting closer to understanding all this other stuff. But, that epigenetic understanding your epigenetics can make a difference.

So that's why, for example, the ketogenic diet might work wonders for you, right? Doesn't work for me. In fact, if I go ketogenic for more than a month, I actually actually start putting on weight because I have the genetics.

I have to have a certain amount of carbs to burn. Yeah. Yeah. Right. And for you, you don't. And so it is wonderful for you. But, that's the difference it can make.

And so if I have that genetics and here I am, you know, eating tons of fat and I happen to have April 3 or 4, four, four. What am I doing? I'm not doing myself any good.

Right. Yeah. So understanding your epigenetics, what to eat, why you need it. So it's not just enough to get enough to know that. Yeah, I need selenium for my thyroid.

But what about your glutathione and your hormone production? And how does it work in, in your brain, in your transmit? So, yeah, even in extreme cases like ALS have to have a genetic defect.

Well, we're finding we can shut that gene off, you know. Right. Yeah. So I agree that I think that was one of those profound statements right there, that that we've heard and for people to remember.

Yeah. And it opens the door, to, for, you as a provider, again, you're already doing it. Right. But for providers who are getting into this, you can make a tremendous impact on a person's life. So.

So I used to work in the, I do work in the emergency department, and I was on call, and you probably know how many think you had gotten know medicine, right?

So, yeah, I just I just intubated you and put you in the ICU, and now you're awake three days later. Oh, okay. Great. When I get to go home. Right. I've gotten more thank you's in this part of my career, than I've gotten in the first part of my career.

Yeah, I didn't anesthesia for a bit, and it was like you saved their life ten times, and you go back how you do. Like, I remember you. You're like, yeah, you miss my IV, right?

Yeah. I also prevented your brain from shutting off, and you're having to, but not okay. Yeah, yeah, that's okay. But so yeah. So, it's really rewarding.

And so, you know, the fact that you all are providing peptides and education opportunities for the providers, I think is huge because that's I think that's what people are.

Look, other providers in particular are looking for. So, so I think we're going to restart our training program. And just so people get good training and not just, you know, money oriented.

So. Right. Well, I think it's a great interview. Yeah, I do have, amazing information and again, profound, you know, thoughts. And I really think, yeah, you're right.

We have to get the epigenetic word out. I don't think many, many people know that. But it's such a key. It is it's a it's very important. So, what was great, talking with you and, Yeah.

Anytime you want to talk, just give me a call. I've got, I got lots of ideas. I want to bounce off you so. Oh, no, I'm happy to, I love, talking with you and speaking with you.

And I think thank you so much for sharing your knowledge. Oh, absolutely. Anytime. So the more people we can get on board, the better. All right. Thanks so much, George. All right. Thanks. Have great.