Why Weight Loss, Low Estrogen, and ‘Healthy Aging’ Are Failing Women Transcript

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Introduction and guest background

If you go down to the very basic, where do you women's body finds the energy to do it? And part of it is because of hormones like estrogen. But prior to estrogen, there's also a synthesis of all these hormones starts with the mitochondria.

Mitochondria start all steroid synthesis in your body. They start the first step by converting cholesterol to progesterone. Hey, welcome back to the Integrative Health podcast with Dr.

Jen. Really excited for this episode because we're going to dive into estrogen and mitochondrial health and talk about a cool new molecule. Well, new but old and we'll explain why.

And we are going be talking with He has almost 40 years of experience in the small molecule drug discovery and development in oncology, inflammation, the central nervous system, cardiovascular and metabolic disorders.

He's actually co-inventor of the best-selling drugs Zetia and Vitorin. Yes, those are big pharma drugs. We're going to get into that. Duyar was an American Chemical Society's 2005 National Inventor of the Year and also received the 2004 Heroes of Chemistry Award.

He's co-author of 70 plus publications and presentations and co inventor on 100 plus issued and applied patents. Sundeep has also served as trustee of The University of California Davis Foundation.

Welcome Sundeeb, excited to have you here today to the podcast. Great. Thanks, Jan. It's really a pleasure to join you today and have this conversation.

Thank you for giving me the opportunity. Yes, of course. I'm excited. Now, I am always curious because it's kind of interesting. A lot of functional integrative practitioners started out in conventional medicine, and then we were like, maybe this kind is getting it right, but not all the way.

And then they go into functional medicine. You did that, as the chemist, you went from producing these cholesterol drugs that were big. You know, when I went to all these student conferences and stuff as a medical student, and then you went into the pharmaceutical or the nutraceutical world.

And how is it different? And, how did this happen? That's a great question. I think, by the way, you're one of the first ones to ask me for this transition.

So, thank you. Yeah, I spent majority of my time in the pharma industry. So it's only been the last two to three years that I've stepped into the supplement nutraceutical world.

And part of it is that at this point, what I'd been working on was a very relevant mechanism of action to human health, right? So this is foundational to Human Health, which is the mitochondria.

And now if you think about this, it's the reason life exists on planet Earth. It's The reason that you stay healthy. And so its application is in many, many therapeutic areas because it's therapeutic area agnostic.

But in the pharma world, you live to treat cancer or heart failure, but there's no cross talk, right? So how do you take something that has such a ubiquitous pleiotropic role and silo it into a CNS drug or a heart-failure drug?

because it's not. It's like saying, exercise is only good for cancer. Well, no, exercises good everything, right?

Why mitochondria matter in health

Universally, everybody accepts. So to me, that transition was easy because I had something that I'd been working on for 16 years that really became clear to that it needs to be in as many hands and people as possible.

And the only way to do it is to take it to supplement. The other part is that if you start doing now clinical studies on all these indications, let's assume for a moment you do this, then everything from primary mitochondrial myopathies to secondary mitochondria disease, aging, cancer, I'd be doing clinicals studies for the rest of my life.

Then at the same time, the costs of those studies would be piled onto the patients. So suddenly something that would be perhaps affordable, less expensive will become very expensive.

And so all these parts came together and I said, look, the only way to do it is to really work with functional practitioners to still validate the science but not have to this very clearly defined regulated clinical studies because the part of it that the product is so safe.

Now, often those clinical studies are relevant because the product has a therapeutic window that you have to work within. So you make sure that in certain indications, et cetera, you don't have the side effects that would be contraindicated.

But this is so safe, okay? So I had the luxury of a very safe compound, the potential of wide application. The transition to nutraceutical side was pretty clear.

Yeah, and I think that this is an important point to cover because a lot of people don't understand this. And I get frustrated when people are like, oh, or people, conventional medicine, Karen doctors, I guess you could call them, that they're like oh it's snake oil and, you know, this stuff isn't tested and supplements are awful.

This is just not true. I and think people can be over supplemented. And there are bad supplements out there too, but we also have to understand that it doesn't mean that they're all bad.

And this goes back to pharmaceutical companies, the Flexner Report, all of that. So I think it's great how you explained it, that this would never come to market, or if it would, some of these technologies in the nutraceutical world.

It would be so expensive that no one could afford it. And to the point you raise is that the people, and I work with that community, who are very ingrained in regulated studies, are also looking at a cohort design that has inclusion-exclusion criteria, okay, when they do the clinical studies.

But when the critical studies are done, they don't use that anymore. They give it to everybody. So why is there fair? So suddenly, while they are practicing it, the clinic studies have not fully validated its application to every person, correct?

So, and so to me, the counter argument to the folks who want to do only the randomized control studies, I'm not saying they should be done, but primary thing to my perspective for randomized controlled studies is to understand the safety profile of your drug.

So what you're trying to understand is in a very limited study, understand how patients will tolerate. That's the first biggest readout of random mass control study.

We misconstrue the idea that it's all for efficacy. No, it is also for safety. And because it a new molecule, has no human history, you want to study safety in well-designed study but then imagine what happens when this goes out to the world.

It's now in every population and you start to see all these outcomes and side effects. Yeah, yeah, absolutely. Now, we have mainly female listeners and I see so many females, especially midlife perimenopause.

And I think there's one thing, the mitochondria, that is so important because We could be kind of compensating with bad poor mitochondrial health for a while, but then bam, perimenopause hits and estrogen is going up and down.

I mean, why does this decline of estrogen and progesterone impact the mitochondria? So let me start by saying this. This is very, very relevant. And I think for women's health.

So if I may take a moment just to kind of set the thing. Mitochondria that you have, all of us have mitochondria. The only cell in your body that does not have Matochandra are the red blood cells.

Now we can't nod our head, we cant speak, We can move our fingers. We cannot digest the food. we Can't see things unless the mitochondrion are operating.

and they have their own small little DNA, right? And guess what? All your mitochondria comes from your mother, not from you father, okay? So to tell you, the relevancy of women in this whole existence of life is right there, Okay?

The mitochondrion that makes your body and gives it the energy to function comes to you from mother not your father. Okay. This is what plays a significant role in bioenergetics in women's health.

So if you think about this, that women of childbearing age, okay, so let me step back a moment if you don't mind. The only way to make mitochondria normally in your life, because you gotta make them again and again.

They have a half-life in different cells, typically two weeks, four weeks. But you have to new mitochondrion. And the only to way make new normal mitochondry is through energy demand that your cells have, and primarily it just comes through exercise.

That's pretty well established. Okay. Now, if you think about it, women of childbearing age, when they're pregnant, they don't do as much exercise. Okay, yet they have the energy to raise a whole new being in them.

Correct? Where is that coming from? If you go down to the very basic, where do you, woman's body finds the Energy to do it? And part of it is because of hormones like estrogen.

But prior to estrogen, there's also a synthesis of all these hormones starts with the mitochondria. Mitochondria start all steroid synthesis in your body.

They start the first step by converting cholesterol to progesterone, sorry, pregnenolone. Okay? And it's called pregnenolone because it was first identified in women, pregnant women.

Hence, pregnenolones. So if you think about this, mitochondria play a key role in steroidogenesis and making estrogen. They also play key roles in making other steroids, particularly the one we have identified.

Estrogen, perimenopause, and energy balance

We're the first ones to identify a new steroidal hormone that the mitochondrion make when you exercise. Okay, and that steroid hormone initiates formation of new mitochondria.

Now, interesting story here comes in is that estrogen in of itself can initiate mitochondrial biogenesis through the estrogen-related receptor. And it is exactly the same receptor, this other steroID that the mitochondrion make when you exercise uses.

So in men, in the absence of estrogen, it's exercise. In women, In the absense of exercise, its estrogen. So it plays, It's not a very prolific or potent steroid, but it place a role.

Hence the role of Estrogen, the endocrine system is to provide those kinds of energy. This creates an energy imbalance within the system. Yeah, and a lot of women, they'll be fine.

They'll have energy and then they will hit that perimenopause where an estrogen is fluctuating and they are tired. The look in the mirror. they don't feel like themselves.

And this is why talking about the mitochondria is so important for women. Yes, 100%, 100%. Because remember, it's the energy demand. Because women have lower lean muscle mass than men do, right?

So the metabolic processes that men can do is different for men and women. And that compensatory path comes through the endocrine system. When that gets onto imbalance, the mitochondria are stressed, and when you don't exercise, you make enough of it, so you fall into this idea of You know, fatigue and lethargy and leads to obesity, you know metabolic disorders, leads the cardiovascular issues.

Because at the end of it, it's all the cycle of bioenergetics and your body has an amazing capacity to prioritize its allocation of biomechanics. So it'll protect the critical organs.

It's easy to let your skeletal muscles be tired because it is trying to provide the heart and the organs and brain the bio-energetics it needs. Yeah, and for women, this is very important when it comes to the brain because the brains needs healthy mitochondria and energy too, which is why when women just try to fast 24-7 throughout their cycle, where cycle syncing comes in, you know, we need fuel for our brain.

But can you talk about why brain fog if the mitochondrion is not getting the correct energy, the current love, why they would have brainfog? So the two organs that use the most energy and mitochondria heavy are heart and the brain.

Of course, then comes the kidney and liver and all. And if you think about it, the brains is 2% of your body weight, it uses 20% percent of energy. Now, if I were to say to you that the most energy demand of a brain in a human is when you are sleeping, during your REM sleep.

So it's not when your exercising, it is not you're walking. It's when we're sleeping. Now when our energy cycles are disrupted, your sleep patterns are And this is the time when the brain to REM sleep is laying down processes and memories and other things.

And in the absence of it's not capable of doing it to the extent it needs to. Yeah. So the consequence of that is brain fog, memory things, but also it initiates other systems where you have emotional reactions that are different because it's all manifesting into that and then leads to frustration and all kinds of stuff, right?

So if you think about it, brain consumes a lot of energy and it needs that energy to take you through the sleep cycle. It's not an option, it needs it.

So it goes out to say that when you exercise well, you sleep well. Well sure, because when your exercise you're up to your mitochondrial level, so when go to sleep you have the energy for your brain to process the day, the process your life, to lay down the foundations and you'll sleep better.

Imagine during REM sleep, the brain is using so much energy, you are actually in physical paralysis. Your brain lets go of the rest of your physical body because it is so focused on the brains side of it.

Yeah. And so many women. They just, they have that, oh, I can't remember things enough. Yes, estrogen plays a role, but it's not the whole thing. You know, if your mitochondria are sluggish, you know it goes back to then you're not going to sleep well and you are not gonna retain memory consolidation.

And you aren't going have the glymphatics work as well. It's kind of like the chicken or the egg, right? But so many women just think it's all like, oh, I just need estrogen during perimenopause.

No, not really, because you're going up and down. So if we're focusing on mitochondria, that is going to help and support a lot of Including your estrogen because remember the endocrine system is in a circadian cycle, right?

It needs to balance the circadian system. And as I said, told you that the mitochondria are the ones that initiate steroid synthesis. If your mitochondrion are not there, you're not going to make the estrogen.

Now, I don't have any evidence for this, but perhaps a lot of issues to perimenopause may be mitochondrial related, that your system to give your body, the young body the estrogen endocrine systems it needs.

I don't have any data, so that's not still hypothesis and speculation, but core to our existence and health is the mitochondria. Yeah. Well, I mean, also think it's interesting when I have a kidney patient, a patient that is having failing kidneys or they're in stage two kidney disease, what do I give them?

I gave them a peptide MOTC that helps with mitochondrion. And we know that, like you said, that kidneys are very mitochondrial-dense. And if we fix the mitochondria, we can reverse kidney disease.

I've seen it many times, and there's tons of studies on this, which I think, to your point about leaving the big pharma companies, I mean, if you fix a mitochondrion of all of Americans through lifestyle and pointed supplements, there wouldn't be disease!

I agree with you. Completely agree. It's very frustrating. Also, we do have to realize, you being a chemist and me being in a physician, that some of these things are lifestyle too.

We could give drugs and meds and if someone's not sleeping or not working on the things that goes to good sleep or not exercising that we can't just fix it.

There's no magic pill or supplement, but when you're going through hard times, supplements can support that and our food is not as rich as it used to be and stuff.

We're not drinking, we'll get into green tea in a little bit here, every day, you know, like our ancestors used to. So we live in a toxic world. This is where I always say that supplements support that because we No, you're right.

And to your point, those are nurturing things. Supplements are very good to nurture and prevent. I'm not going to say take a supplement if you have cancer.

That's not the point. But the question is, can you delay cancer by taking supplement? Can you reduce the occurrence of cancer, by take supplement. Because one thing is true, that the most established Health process is exercise and nutrition.

Nobody can debate that. If you have good exercise, and good food, but look, what do we do? We drink apple juice. You shouldn't drink Apple juice, it gives you a bolus of fructose that your body cannot metabolize.

But if you eat an apple, juice your, body absorbs part of the frictose, But the rest of, the fruit toast is very good for your microbiome. Please remember there's another back.

So mitochondria is a bacteria body. Okay. That's how it came into our life through an endosymbiosis over two and a half billion years ago. It has a circular DNA.

it functions less like a. But in the microbiome, we have the bacteria and the whole role of our gut microbiol is to take our food, turn it into fuel for the mitochondrion.

Now it's a very interesting situation that there are two bacteria bodies that control our health. Exercise makes new mitochondria, which is bacteria. Nutrition in your microbiome turns the food you eat into fuel for this mitochondrion, which is a bacteria." Take care of your two bacteria bodies, it'll take care your body.

And it's all related to exercise and nutrition. So you're absolutely correct. This is what we want to do. We are still promoting a lot of clinical studies.

It's evidence-based. One of the things we are very keen on, and this is probably… thing that stayed with me from my pharma life, that we're doing eight studies right now.

We're not just simply telling people, take it. So from frontal lobe dementia to primary mitochondrial myopathy to muscle steatosis to cognition in humans.

Brain fog, sleep, and mitochondrial support

Next, so we are doing these studies, not simply saying, Take it, but so that, we can establish to very in-humans that there is a beneficial outcome. So you're absolutely right, supplements have gotten the bad rap, primarily because they got promoted willy-nilly for everything.

But you are right. If we take supplements and do good studies in collaborations with practitioners such as yourselves, right? And then we can understand how can it help and benefit.

And my final point to everybody is that, look, if exercise can help you, then anything that supplements mitochondrial function will help because that's exactly what exercise does.

Yeah, yeah, absolutely. Yeah. So we should all definitely be moving our bodies every day to help that mitochondria. Now, how does mitochondrial play a role with bone density as we see this come up a lot, you know, midlife and aging?

So the body is fascinating. So when we did a study on this, what we were able to show that mitochondria processes promote osteocyte differentiation to osteoclasts.

Remember, when you run, you create more muscle. The body immediately recognizes that it needs more bone to hold on to this heavy muscle, the bodies fascinating it.

does things that it needs to do. Now, in women, postmenopause, your lean muscle is less and you're losing it faster. So the body is saying, I don't have the muscle to carry, so why do I need the bone?

So if you look at its cause and consequence, and what we can show very clearly that if your exercise and your lift weights and lean-muscle mass goes up, you bone density goes out.

And epidemiologically, if look women in developing countries that have a lot of physical activity, They don't have the degree of osteoporosis we have in our Western society.

If you demand the body something, it'll give it to you. Then all you have to do is give the resources, right? So if you exercise, eat good food. I say to people, exercise and getting a dozen donuts is not the answer, Right.

Well, yeah, and we could talk about all the GLP-1 stuff right now. Yeah, like eat a bunch and then just go on the shot, then you won't have appetite and you wont eat for a while and lose all your muscle mass.

But also, just to tell you, this published data, not ours, others, published that almost 50% of your weight loss through GLP-1 is your lean muscle. These people will never grow them back.

They turn to be 75 years old, they won't be able to get off a chair. Yeah, and, you know, the muscle is so important and movement and working out. And, I have patients on GLP ones, but there's non-negotiables, eating protein.

That's different. Yeah. But it's definitely very scary when we look at what's going to be the next decade everyone on a GLP-1 and yeah maybe they won't but I mean and here's the thing you can push through that hunger but what I'm seeing in conventional medicine is people are just on super therapeutic doses and they're not even eating which isn't good either and then they are not eating cholesterol which we just talked about earlier you need cholesterol to make your hormones and That's not good.

And we do know, though, if we decrease inflammation, then we're going to have less chronic disease. 100%. And being obese and having visceral fat fuels inflammation.

It's like a nasty cycle in the body. So really, this is where I'm seeing why all these GLP ones are having all of these beautiful studies about decreased risk and heart attack and stroke.

But there's other ways you can do that, which would be talking out and supporting your mitochondria and actually being diligent with your food. And then it requires patience.

You've got to be disciplined. It's not going to happen in three weeks. But also I think there is a role for GLP-1s under supervision in clinical situations where you do not have the time to wait because they are in a clear clinical obese situation.

So under medical supervision, but what is happening now, it has become vanity. And to me that transition where you can go to a compounding pharmacy and just get your own and take an injection, that's what worries me, right?

Because those people should be doing exercise, good nutrition, and taking the right supplements. Supplements are absolutely beneficial. They should take the practitioners such as yourselves to say, how can we design a process for your body?

And it's all end of one study. None of us are an average of anything, right? So practitioners, such yourself can very easy look at those patients and say look, this is how we will look you, we'll make progress, make changes, but clearly there will be an ask of you to participate with exercise and nutrition.

Well, I think also, like you said, patience, and we live in a dopamine driven world where, you know, if your company does a lot of social media stuff, then you have to captivate someone within three seconds or they will scroll past.

Exactly. I mean, three seconds and it's like, we all need a dopamine reset. And this is why it so crazy is, and I tell people the loudest voices out there and the most obnoxious, like it usually not good information.

Sometimes it is. I'm like trying to re-ramp what I am doing in 2026 for my social media and i'm just going to do some silly skits and increase what people see so then they can get to the good stuff and listen to a podcast.

But it crazy that people not hold their attention for a long time. And this is robbing you, you know, because if you have dopamine issues, then you are not going to be motivated enough to stay at the gym or workout every day or, just see the progress long term.

So I think that obviously screens have been horrible, but I have patients ask me, should I read on a Kindle or whatever? I'm like, no, And just sit there and read it and force yourself to sit.

There and. Read it for a half an hour, start out at five minutes. I don't care, but it's, it' the convenience it. It's getting it, the instant gratification.

And I think it is really hurting us all. Um, and it it affecting our mitochondria because we're not. And that's why, because they are the sentinels of your health.

Anything and everything you do, whether it's exposed to blue light of a screen, to bad food, it all hits the mitochondria. They will respond to the inputs you put into your body.

Exercise, bone density, and GLP-1 concerns

And if you do good things, they will be with you. They will keep you healthy. If you bad things. I mean, I go to the gym and I see all the young kids, suddenly they do a set of exercise and they're in front of their iPhones or androids, you know, watching this flashy boom, boom.

And that's not good. Just put down a nice music, okay, as you exercise. That's it. Because it's now enabling your brain. It's really providing the thing.

So if you really need something else to do besides exercise, listen to good music. Right? That, that, wonderful. But no, everybody's instantly, you know, weights are down and the iPhones are up.

I know, I feel like I'm one of those that does that or sometimes I listen to the Bible recap and listening to scripture, sometimes listening music, but sometimes replying to messages because when I am home with my kids I try to just be with them and not.

So I think it's hard because sometimes we can be judgy but this is why close relationships with friends and families is so important because then you can call them out like, hey, are you just doing that to catch up?

Are you addicted? What's going on? But there's times I'm just saying that, look, there is no ideal situation. All I am saying is be aware and conscious about what you're doing.

Yeah. Absolutely. Be thoughtful about this and often also take time for yourselves. We, as you said, we're so much in a rush. we don't sit back and say, Hey, this is, okay to just, you know, just chill out.

Oh yeah. I'm a type type, um, a recovering type A and yeah, I am too. Yeah, really forced myself because it's not healthy and that's gonna create inflammation.

Well, What are some supplements that we can do to support our mitochondria? Because if there was something that that, we could take that's been around for a while, I mean, what would we want to take because if this is the key to aging and longevity?

Absolutely. And the thing is, so now I would say that, full disclaimer, I have a product on the market. So for all your audience, please know that there's a conflict of what I'm going to say.

Please keep that in mind. But the things is that we figured out how exercise promotes new mitochondria through the steroid. Then we found a natural product.

that mimics the steroid and that sterile natural product is in green tea. And we pulled it out and we have made it to pure pharmaceutical grade because see, just because you can extract from green, tea doesn't make everything in Green Tea healthy for you all the time.

Yes, you should drink green Tea, but now we're talking about addressing a specific condition. Right? So I say to people that if you have a headache, I'm not going to ask you to go to the bark of a willow tree, right?

Because you're trying to deal with a But, so in this situation, this is a balance between a supplement and a pharmaceutical approach, because the focus is to say, help people in defined conditions, right?

And so what we have done is taken this, we've understood the dose, and we defined the purity. And we now have put it on the market under a company called Blue Oak Nutraceutical.

It's a natural product coming out of green tea. Its dose is important. Just think about this. is that it supplements your exercise need for the body. Because we all have an energy deficit.

We have energy exercise deficit, right? So what I'm trying to say is, even if you need to exercise, do a thing, you can do it. So it is something that supplements that need.

Okay, so it helps you create new mitochondria. And then if you think about a lot of the other supplements that people take, like you mentioned, mitochondrial supplements, in conjunction with that, what you're doing is you are generating the mitochondrion so that the supplements you give are better utilized by the system.

Because if have mitochondrian deficit, you can make the metachondria you have function better, but does not take you to having more mitochondry. Our peak mitochondrial level is at about age 20, 21. After that, you're losing about 10, 15% every decade.

That's aging. And then if you have stress, if have diet, your mitochondria levels go down even more. If the only way to replenish it is good exercise, which we are constantly in deficit of, imagine there's a down slope.

So if there's a way to supplement that, particularly in situations of postmenopause, perimenopausal, where you have an increased deficit of mitochondria, then it would enhance the supplements that you take to support the mitochondrion.

So that's the whole genesis of what it is. So what we decided to do is put that out as a supplement because it's so safe. It's been in human diet for thousands of years.

But the key here is just like exercise, dose is important. If you take too much of it, it stops working, okay? It is not going to hurt you, but it starts working.

Its like an exercise. There is a limit to your exercise you know, you cannot exercise two hours every day. You got to exercise and you got take a break.

you gotta let the system rebalance itself. So that's the same thing with the supplement. We figured out what is the right dosing, what's right dose, and that what we really are promoting right now.

Yeah. Well, so when we talk about your product, how does it differ from like green tea extract, EGCG, which is in a lot of mitochondrial supplements. So I'm a chemist, as you mentioned, right?

So, I look at the structure function of systems. EGCG does not do what epicatechin does. It does make the steroid, it does promote mitochondrial biogenesis.

As a matter of fact, we looked at a lot of other flavonols like catechin that's in green tea. We looked that quercetin. none of them do what epicatechin does.

This property is unique to epitatechin because it is closest in structure to the steroid I mentioned. So it's the structure-function relationship, right?

So if the structures does not come close to a natural molecule, functionally it will not do it what you want it to do. So EGCG would, and what we have found is that things like catechin and others that are very closely related to epicatechin will actually inhibit the function of epicaticin.

It is almost like saying, I just exercise and I got home and drank a whole glass of apple juice. Okay, so it's the same thing, right? So catechins, I've been doing it for now 17 years and really looked at this from all sides, from safety function, structure function.

Its consequences on clinical outcome, biomarker outcome. Other physiological readouts, but also looking at systemic responses because when you have a certain condition, It's not just one thing, it has a systemic response, right?

So we have looked at a lot of these studies, quite a few we've published, and quite few are ongoing.

Supplements, green tea epicatechin, and dosing

Now, a lotta supplements we can get in food, you mentioned the right dose is important, because we cannot get some natural sources like in cacao, we talked about a little bit in green tea and berries possibly, but how much would you have to eat to get the benefits for the mitochondria?

So, well, so you, we typically think you need only about 100 milligrams a day, okay? Now, consistency is an issue. So depending on the green tea, where you get, see green, tea we go for a very specific species of green.

Okay. When you go out to buy green from your local store, it has, its green team, right? Ours is a specific, species a green we look for. Also, when you process things, epicatechin is reasonably unstable.

So if you processed it differently, the amount of epitatechin you're finally ingesting changes. I'll give you an example. Mars had a study on cocavia in hard conditions with Pfizer and did not meet the statistical outcome, and perhaps because their samples of cocovia had varied amounts of Epicatechins.

Also, epicatechin, if you don't do it right, it'll polymerize. It will oxidize, so if your extract it the wrong way, you will destroy it. If you do not store it in the right way you'll destroy.

What we have figured out is how to formulate that. We have stability for two years. So we've done a lot of the background study to say that in conditions where you are looking for a clinical outcome, that you at least need to have a well controlled input of your supplement.

right? Because that way at least you know that that part of the equation is a reliable part, what you're giving. Now you can pulse the outcome patient to patient through your lookalike.

So you as a practitioner, you would say day zero is this and day 30 is And each person will respond to their phenotype, correct? And then you will start to see it because the body, so, you know, working with a great colleague of mine, Bob Navio, who coins us the word salugenesis, we have an inherent capacity to heal ourselves.

We just are missing the resources to do it. And if you give me the resources, it will heat itself, but it decides the priority of healing processes. For example, we studied Becker patients with heart failure.

Now, in these patients, the muscle dystrophy happened first, and the heart came next. But when we treated them with our product, their heart responded first.

And that tells you that the body protects the critical organs when it is short of energy. But when you give it the energy, it will affect the clinical organ before.

Because you may have dystrophic muscle, but if your heart fails, who cares, right? Yeah, I mean, that makes sense, right? This is why when I worked in the hospital, the patients with chronic kidney disease, you know, chronic heart disease.

I means, they felt poor energy. They don't have energy, it would be weird if they had failing organs and lots of energy but it's like the energy… So, if you…

It was interesting, did a podcast with the doctor and he's, like, here's the mirror test for if your mitochondria are not functioning properly. look in the mirror and say, do I have energy?

And if you don't, then you have mitochondrial dysfunction. And what's funny, because I look back when I was in medical school and not sleeping and have lots of stress and I the age I was.

Yeah, and I feel better now in my 40s than I did in 20s because I had an autoimmune disease back then and my gut health was, you know, I'd all these things trashing my mitochondria.

And this is the scary thing. that we don't talk about mitochondrial dysfunction enough when it comes to- Or at all. Or- And I'm sure people listening, either they're suffering from heart disease or kidney disease, or their parent is, they have dementia.

Has anyone, has any conventional doctor talked to you about your mitochondria? Now- I can guarantee you, no. Yeah, and sometimes like with my patients, I'm not like saying, hey, let's talk about the mitochondria.

I am telling them to do the things that are supporting their mitochondrion. But there is an understanding of energetics. There's an understand of how the Mitochondria are relevant to you.

Six percent, this is published data, 76% of the FDA approved drugs are toxic to the Oh, and what about surgery? Propanolol is toxic to the mitochondria.

It's funny because I had to get a lipoma removed on my back and it was pretty big. I think I shared the video on Instagram if anyone wants to go there.

I was like, you are not putting me under, I'm not going under. And the surgeon, who's a friend because I don't trust doctors, which is funny, he did it just under local and yeah, it felt a little tug and stuff.

Would it have been easier being knocked out? Yes, but I didn't want my mitochondria to be trashed for like three to four weeks. Like, i don' have time for that.

My patients wouldn't me to have brain fog, right? So it's interesting too, because when you look at surgery, I would love to know what you think about this.

You know, when an old lady breaks their hip, which that shouldn't be happening, we should be protecting these women with hormones and let's not go there.

But then they have to have surgery. They have Versed, they propofol, all these induction agents, and their mitochondria are kind of trash and they're losing muscle mass.

because they can't work out and then they never really recover and they go to a nursing home. I mean, there's studies on this. Hip fracture in elderly women is pretty much…

See, my mom, she was fine and she broke her hip and that was the end. She didn't do that? I'm sorry. No, but what I am trying to say is that disuse atrophy.

You lose muscle mass because you're not moving. Remember, intubation, Okay, these elderly patient, it's very hard to take them off the ventilators because their diaphragm muscles are getting weaker because the body says, if you're not going to use this muscle, I'm not gonna populate that with energy.

And so you are so correct that in elderly, the whole idea and loss of metabolism, loss or creation of lean muscle et cetera, all is energy dependent. No, and this is why one of the things that we have created is a public benefit corporation.

So our company is public-benefit corporation because the idea is we want to make sure that people who really cannot afford are helped also. Oh, that's sweet.

That's amazing. All we request is that the clinician just says, this patient needs help. That's it. We don't look for any other reason because our promotion and our plan is always through clinicians.

I mean, we cannot stop people from buying it, of course, but our thing is to clinicians and we want to work with groups. You know, were looking at studying in autism spectrum disorder in children.

I mean, because it may not cure anything, but if it helps you deal with it better, gives you the quality of life better. At least that's a start. Yeah, and that is interesting.

You know, I had them on the podcast before, a red light helmet, you know for pans, pandas. That's what one of my sons has from a mold injury, which mold wrecks your mitochondria.

Clinical research, safety, and product details

But the redlight helps mitochondrion, so I think it all goes back to mitochondry. So I know your product. Can you share the name and how to use it with the audience?

Because I'm sure they're all curious. Absolutely. So the product is Mitocatalyst E. It's under Blue Oak Nutraceutical. Please go to our website, blueoakenx.com.

There's lots of information, publications, ask us questions, reach out to us to finding it. Typically for adults, we say it's two sachets a day. So total of 100 milligrams, 50 milligrams twice a, day each box comes for one 30 day supply kind of stuff.

And then we also recommend that please, it a good start, but always, always pay attention to your nutrition at the same time. Please pay attention to your other supplements.

And if you're really looking for some specific conditions, always please be in touch with your practitioner and your clinician because having a third person do an objective assessment is always a good thing.

So we come at it from that point and ask us questions, reach out to us. We'd happy to talk to your clinicians, anybody. The good part about this is that it is a very safe product.

So that's our whole story and it's backed by a lot of research and mechanisms and manufacturing controls and everything. Yeah. And the reason is that the mitochondria is so critical to life.

I mean, just think about this, that every oxygen using life on planet Earth, including plants, have mitochondrion. It's the one thing we share with everything, is the Mitochondria.

Because it's energy, that's it. Imagine, you know, the only thing sun gives us is light and heat energy. That's, it without that, there would be nothing on planet earth.

So energy we all believe is so essential to our human health. And the two things, nutrition supports your gut microbiome, myocatalyst supports, your mitochondria.

If you keep the nutrition and the mitochondrion in sync, You should be healthier. I love that. I mean, the mitochondria, it's our little powerhouse. We have to fuel it.

You have do upkeep to it, you don't let it factory. If I gave you statistics, like you have 100 million billion of these. And by the way, one thing I will tell you that mitochondria make ATP.

That's the only product they make for cellular energy is ATP, they can make billions of ATC. So your total body weight is the amount of ATP your mitochondrial make every day, 150, 160 pounds of my ATP if I were to extract that.

In a lab, as a chemist, the way the mitochondria do ATP, I could not do that reaction. I couldn't make one. Because they take two highly negatively charged molecules and just join them together.

It's like taking two south poles of a magnet and then just go boom! I don't have enough energy in my chemistry flask to do the reaction for one molecule and the Mitochondria makes billions of it per cell every day.

Just imagine, so this is God's molecule. It's pretty cool. Pretty cool, isn't it? Pretty Cool. Amazing. Well, thank you so much, Sandeep. it's been really cool I hope that the listeners like that we kind of got a little more technical with this.

So next time you're at a family function or a work party, you can just start talking about mitochondria and throw some facts out there. Yeah, and I want you guys to check out the links about the studies because we really value studies and research, but also there might not be a double-blind placebo-controlled study for every single thing that is great that will help us because this is a different way of doing things.

So thank you so much, Sundeep. I really appreciate your time today. Thank you so much. It was really a pleasure speaking with you and thanks to your audience for listening in and please take care.

As I said, good nutrition and take of your mitochondria and it should have beneficial outcome for you. No questions. Thank so you much, really.