Introduction to fasting and longevity

Here's the issue of Viotamax. Votamaxx is not, scientifically, mathematically, the most important or critical or powerful directive of longevity. It's muscle.

Very clearly. Because what's been manipulated in… Has the wellness industry oversold this whole intermittent fasting? You can't eat and fast. Intermittent fasting is not fasting, it's time-restricted eating.

Fasting is NOT a time frame, but a biological condition. Dr. John is a board certified surgeon, longevity medicine physician and co-founder of the Longevity Lab.

He believes longevity starts with getting the fundamentals right. Today, we explore metabolism, fasting, muscle, hormones, and what actually moves the needle.

How do we know that we're actually fasting or hit that zone that need to hit? The most critical and accessible biomarker to define that biologic condition that I'm talking about are ketones.

So let me ask you this, when you're at that fasted state, is your body in ketosis? Understanding ketone biology is fascinating. It should be. And this is what I've been studying for the last five years in my practice is.

But what about people that are putting these amino acids, these perfect aminos for their fast? That's not a fast. Let me tell you why. Welcome to another episode of A Healthy Point of View podcast, your top rated show, where we bring experts from all over the world to talk about health, wellness, beauty, and mindset.

Today's topic, we're going to be talking about a few different things. We're gonna be talkin' about metabolic health. we gonna talking be about fasting.

Are we even doing the fasting correctly? We hear all this hype in the longevity space. Well, I brought you an expert. He's a surgeon with many years of experience.

We have Dr. John chef. Hey, let's do it. Let's go. Pleasure to have you here on a healthy point of view podcast. You know, you, um, You're killing it, man.

Your all over social media, educating, holding other professionals accountable, putting, uh, people on the spotlight, just to get straight into it A major, it's the New England Journal of Medicine.

They did a trial that an eight hour eating window didn't significantly outperform calorie restrictions alone for weight loss. Let me ask you this, has the wellness industry oversold this whole intermittent fasting thing?

Yeah, I think let's simplify it down to one thing and one think only. Fasting and eating are opposite. You can't eat and fast. So intermittent fasting is not fasting, it's time-restricted eating.

It's a form of eating, have clients say, oh doc, i'm doing intermittent and fasting. I have a 12 hour eating window. No, that's just called normal eating and no fast happening there.

Fasting is not a time frame. It's a biological condition. That's how we have to reframe and understand really fundamentally when you talk about benefits of fast because the noise is out there and what came as a shock to me not being on social media a year ago.

is people use the word fasting interchangeably with time-restricted eating. It's very confusing, right? If I'm just out trying to live my best life, get healthy, I am hearing fasting, fasting and fasting.

Intermittent fasting vs true fasting

And associating that with a time restricted eating? Is there a timeframe for fasting? Like you said, it's a biological thing. So how do we test this? How do know that we're actually fasting or hit that zone that need to hit?

Believe it or not, it's the simplest thing on planet Earth, and it is about to get even simpler. By definition, the most critical inaccessible biomarker to define that biologic condition that I'm talking about are ketones.

Now, we've heard all about ketogenic diet, ketosis, so we have to sort of separate out what we're talking. But ketone biology, The conditions that have to be met for your body to produce ketones and real important here.

I know we can drink ketone now. That's a big thing. And there's maybe a role we could talk about. But when I'm talking about keton production, it's endogenous ketons.

Your body producing ketos. In that biomarker, now we have something called a CKM. It's continuous ketome monitor, just like a continuous glucose monitor.

OK, you slap it on the arm. Slap it there. And now we have a live tracing. Even six months ago, before I landed on this thing, you're still sticking your finger.

The keto crowd typically use urine dipsticks, which are qualitative, not quantitative. You need quantitative, the number. How much in millimoles, ketones is your body producing per liter of fluid?

So let me ask you this, when you're at that fasted state, is your body in ketosis? It should be. And this is what I've been studying for the last five years in my practice is how you sort of you break down the intensity of ketone production or the degree of key tone production.

We've always known that we deal in ranges. So point five to one point, five millimoles per liter. is considered nutritional ketosis. So that's a level of natural ketone production that appears to be able to sustain over time by limiting carbohydrates, largely.

We'll get right to the meat and potatoes. Ketosis, the biologic process of your body producing ketones. Can we run through just real quick? I won't get too dirty here.

how it comes about in the human body. It starts with mobilization of free fatty acids. So your fat cells, adipocytes, sit there with a bunch of fat in them.

Other than visceral fat, peripheral fat subcutaneous fat the stuff you see in Pinch, those are just storage facilities and they hold fatty acid. Fatty acids are built up into triglycerides.

That's how they live there. to go through your body and become energy ATP. We all know about ATP, right? Okay. It has to first get broken down in the fat cell, get out of the cell into the bloodstream, go around the body, and land at a site like a muscle cell where it can be taken up into muscle.

And then go to the process of beta oxidation to ATP that's the abbreviated version. Okay? Now what's fascinating is, glucose metabolism, which we'll get into, metabolic health, all about glucose and insulin, right?

Hopefully we've gotten to that point. Glucose metabolism. Remember, glucose, especially in muscle, it's already on board. It doesn't have to go through all that process.

So I bring this up because this is why there is a delay in energy when you talk about free fatty acids. They gotta go to different sites at first, then they have be metabolized.

Gluco is already readily available. Its always in our bloodstream. And it goes into those cells. But that process of generating ATP, depending on the process, of the actual glucose molecule, is simple.

It's a multi-step process. Imagine a 16-carbon palmitic acid that's living in a fat cell. That's an 82- to 84- step process to become ATP. Okay. So it's very complex, but here's how it works.

Generally speaking, those free fatty acids get in the bloodstream, they go in, and they're being used for fuel. Okay? The more energy demand that exists, I'll go through the conditions that have to be met.

But the beta oxidation, the process where fat in a cell, like a muscle cell gets turned into ATP. When that system, we'll say it gets overloaded, it get backed up.

That signals the liver to start converting the excess free fatty acids into ketone bodies. Okay. Do you see why it's important just to understand that framing because the conditions that have to be met for your body to generate enough ketones to show up in your bloodstream?

Glucose levels have to be normalized as stable. They cannot be above a threshold that stimulates insulin. So the second piece is insulin response. We have normalize insulin, insulin is not a bad thing.

It's a powerful anabolic tool as you know, but insulin and excess all the time becomes very problematic for metabolism. That has to normalized. then your mobilization of free fatty acids has to be optimized.

You have to pranking out free-fatty acids from adipocytes into the bloodstream, right? Okay. Then the beta oxidation system has be overwhelmed. And there has to be enough oxygen in the system, which is the problem with anaerobic training when you're trying to achieve ketosis, because it puts a demand, energy demand that can't be met.

Right. So my point is, the number of check marks you have to make, we could test for all those items and say, oh, But if you have ketones in your blood, every other condition has been met.

So it's so simple and so elegant. But that production of ketone, endogenous ketons, is both an energy source and a signaling molecule that we know. Understanding ketome biology is fascinating.

That's where the secret is. When you fast, typically about how many hours does it take to get to what you would say is a good healthy fast? So I define it by the degree of ketosis.

I can share with you some of my own practice. And everyone would be a little bit different, I would assume. Well, no, this is the beauty, right? We wanna standardize, we wanna normalize.

So again, nutritional ketosis, 0.5 to 1.50.

Ketones, ketosis, and how to measure fasting

Target ketoses, where we actually start seeing biologic change based on preclinical data, will talk about that too, is about 2.55. Now, here's what's fascinating.

OK, if you look at the scientific evidence today, the the population based studies that look it fasting duration, eliminating calories. And let's define fasting real quick.

It's water. I'm fine with caffeine sources like black coffee. some form of caffeine those are all fine dirty fast is it's not fasting you're eating anything that involves eating fasting mimicking diets and we can unpack that also not fasting but but what about like people that are putting these amino acids these perfect aminos for the fast That's not a fast, and let me tell you why.

Bone broth. Well, those are radically different. Let's say perfect aminos versus bone broth, because I'm going to tell, you first of all, I am pretty staunch on ripping the Band-Aid.

Stay clean, water, caffeine. electrolytes, that's fine, okay? Zero calorie, non-nutritive drinks, fine. But as soon as

you introduce real, really important here, like essential amino acids, BCAAs, what's unique about those that differs them from bone broth?

It's the presence of leucine. And fun fact about leuces, so leucein is amino acid, right? Right. It is actually the principal anabolic amino The fun fact about leucine is it actually has a more stem more potent direct stimulus on mTOR.

The growth pathway entire growth regulator in the human body. Leucin is a. More potent stimulus than insulin. Okay. And and leucein. Is also a, more. Potent stimulus of insulin secretion right then glucose.

So leucine is the anabolic amino acids. Very potent, very powerful. And a lot of people talk about it in the context of anabolic resistance that we see as we age.

But you have to understand, just in strictest terms, what do we say condition number two that has to be met to achieve ketosis, period, is negligible normalization of insulin.

I have followed plenty of ketone curves where people are consuming essential amino acids and flipping in and out of Ketosis. You are getting an insulin response with that.

So above all else, don't take essential, amino acid. That's, that's against the whole purpose. And here's the, here is what I want to tell you, Simon.

It's like you said, we were talking about this, right? In my world, data drives decisions. a medical decision without information. And yet we talk about fasting as a, medical fasting, we're talking about as therapeutic intervention that we've never applied data to.

What do you say? You get told, oh, you do 48 hour fast. Why? What happens at 48 hours? Let me go back to what I was saying. In the literature, the evidence that have today, In population level averages, to achieve a ketone level, serum ketol level 2.5, on average takes three days of zero calorie, water only fasting.

My clients achieve, and myself achieve level of 2,5 about 12 hours into a fast. Think about that. OK. So like I said, you see how it's not time dependent.

You're creating a biologic condition. That condition is evidenced by ketone production. Do you work out when fasting? So I modify training substantially, and there's two aspects to that you never want to be doing high intensity stuff for two reasons.

One, if you're operating on ketones, You're not going to feel great. I know there will be people out there that argue that point, but peak power output.

So heavy resistance PR days. When you're training in high intensity, you are crossing that aerobic, anaerobic threshold. You do VO2 max testing and stuff, right?

So your body, by definition, in the anaeroic, crossing the aerobics threshold, does not have enough oxygen to support beta-oxidation. But one of two things happens.

Your body goes hard to come up with carbohydrates, starts actually making gluconeogenesis happens, but it takes time. So there's a gap where if you're trying to train and you are in ketosis, it's going to be pretty harsh, pretty ineffective.

You know, like in the bodybuilding days back in my 20s, people would always talk about you got to do fasted cardio. Yes. Is there is there such thing as real?

Because we're talking about real fasting, right? Not not food scheduling. Time restricted. Yeah. You know, is. There's something that's actually considered real fasted cardio?

Yeah, and absolutely. And so this goes back to your how to how do I train? So. I'm not against resistance training during a fast, but I tell my clients myself included 50 percent, 50% time, fifty percent intensity.

That's great. You want to go move a little weight, that's your thing. Be my guest. But where the biggest bang for your buck is, is low intensity, we'll call cardio.

Some people call it walking, go on a treadmill. Would it be more like a zone two training? Zone two, lower end zone two is how I would frame it. And why does that matter?

Because this is what's cool. If you're monitoring continuous ketone levels, remember ketones are now your principal fuel. Your body's used to using glucose, which is massively available.

But the way I structure my fats, The prefast, how do you get into ketosis that quick in 12 hours? Well, you intentionally wipe out your glycogen stores.

How do do that? Extremely high intensity resistance plus cardio metabolic training. So you're very structured and regimented and intentional about, let me get all the glycation off board.

Because that's condition one that. Oh, so. So before you start your fast. How are you going? You train. That's my hardest. And that way of the week would be a pre fast day.

Wow. so that typically lower hole and then some cardio metabolic finisher. Right. right. wow. But again. To me, I'll tell you, like we didn't say this, but like I live in a world.

I really I talk about precision performance, longevity medicine. Precision requires data. Performance requires getting every system optimized. OK, now you've got these you got the growth people and you know who they are.

They're packing protein. Yeah, they got their perfect aminos. During the gym lift and heavy. Well, that's part of longevity. But the other part about longevity is repair and recovery.

Right? Yeah. So if you've looked at it, I mean, if we get real nerdy and say mTOR drives growth, AMPK, A-M-P-K drives repair and recovery. Is that reasonable?

So got to look at what are your mechanisms to optimize both? And then how do you integrate these strategies? Growth without repair is called cancer. Repair recovery without growth is called frailty.

Break your hip and die. So neither one works. But what I don't hear anyone out there talking about is integrating these four components, growth, repair, strategically over a timeframe based on your age, based your performance.

You see, that's where it gets really fun. What does that look like though? Can you give us an example and break that down? How we trigger growth and repair?

Or how we control it? or how do you mean? how how you actually integrate both into your regimen because you know some people are just always consistently looking at growth, growth lifting heavy, lifting, heavy.

You know and they don't really focus on that repair poor. Exactly and I was that guy probably in your days you were that guys like training six days a week right and and We have to look at the age-related changes or shifts that do occur by observation and should occur.

It stands to reason. I mean, you know how cells replicate, right? It's just basic science. The more times it does, it replicates, and the more more quickly it replicates.

So growth, growth growth. What's the problem? Well, you're literally you are recycling 23 chromosomes every time you got to duplicate the whole thing.

The system is so fascinating, but it's just simple math. the longer you keep doing that, the more likely errors are to occur. Right. Cancer, what do we call errors accelerate biological aging?

So my supposition and what I've spent the last year, five years proving out and shout out to anybody in the audience that owns a big academic lab. Let me work with you because I got I'm limited.

How ketosis works in the body

I more in person, but. the strategic incorporation of growth and repair. Think if you could do that every day over a week's time, over month, and then if your in your 30s, we strategize towards growth heavy.

If you're in your 50s, we're starting to look at a modified growth repair cycle. If your in 70s we need to be allowing accounting for more repair than growth.

Does that make sense? That's concept, I know that probably sounds pie in the sky, but we can actually do that down to the minute if we understand the key concept I live in is biologic orchestration.

How do we use all our knowledge? This is longevity medicine. It's not all the hocus pocus. it's, not the $15,000 washouts. Yeah. Its understanding biology and actually controlling it very predictably to leverage these, these pathways.

We know growth is easy. Everybody knows growth. Number one, most potent gross stimulus we have in the human body, everything else equal aggressive overload resistance training.

You agree, right? No drug, no nothing that we have today. No hormone, nothing compares. And this is for the people out there. Real talk. Nothing compares to resistance.

Sorry, Dave Asprey. Know there's not a pill. 20 minutes a week. Doesn't do it. You got to look at just get raw data that the actual biochemistry the the mechanistic data That exists is resistance training progressive overload.

That is the strongest growth signal We have when you look into our activation and that resistance Training what what type of it'll be there's all these fancy technologies out there as well too that you'll even see Cardiologists have it, you know because it helps a lot even with the vascular health Um, is there any technology that you recommend people to utilize for that resistance training or is that something that they could do on their own?

Well, so, well, there is one technology. That actually defies logic and gravity, if you will, but that up till maybe five years ago. So there's a technology, that's called high intensity focused electromagnetic therapy.

Have you high film? Now, there's a device called in sculpt. Oh, yeah. Well, that I know. Yes, I have. OK. So then, you know, so that is high film energy, high intensity focus, electromagnetic energy that actually delivers 400 percent or 100 percent super maximal contraction.

Right. Proven in animal models. to actually activate muscle satellite cells, which are stem cells or specific to muscle. approximate about 33% influx of MSCs after three 30-minute treatments.

That's nuts. You know what the general exercise phys data says about 30% MSC? That is the threshold for hyperplasia growth. It would take 12 to 16 weeks, depending on what study you read, in highly trained athletes doing a progressive overload intervention.

That's a biohack. Emsculpt is a Biohac. I don't have a dog in the fight, but that's cool. Yeah, honestly when we first got it, you know, when I want to lean up and get my apps like pretty shredded, it would take me probably a good couple of months, not rushing it.

Right. You know? Once I got the EMSCULP NEO, we got new technologies. This thing is incredible. I was questioning it. You know, it's like, this is really, you know.

And my abs got so shredded, at 40, literally an eight pack where I told myself, oh, shit, where else can I put this thing? I started throwing it everywhere.

Yeah, I said I'm doing the Kim Kardashian. That's slept that thing on my ass. So now I am doing that. We have their other technology to the BLT. This was for brain, the axiom.

Oh, right. Yeah. Well, that's actually the, I mean, not to go too far off the rails, but that the origin of hyphen energy was in TMS. But anyway, so you say that when you talk about that, growth signal, I would say yes, there's one biohack that's actually scientifically proven.

That's hyphen energy. But outside of that is resistance training, progressive overload. And this is where kind of the nuts and bolts come apart because one of Well, hypertrophy, this is a really important distinction.

Hypertrophy that is increasing the size of muscle, not hyperplasia, and not increasing cells. But hypertrophies is about pre-failure training. You've heard the term near failure and we can get into that if we want.

That's where that threshold for hypertrophy exists. So it doesn't matter high weight, low weight. It's about training to pre failure. That is a true statement.

But the biggest miss we see when we talk about longevity stats in terms of reducing all cause mortality, the most potent end effect. to actually live longer and better is muscle power followed by muscle strength, followed my muscle size or muscle mass.

And it's in that order for a reason. So we put that stimulus in. That's our max stimulus. But then we look at all the dials that fall below that max mTOR activation.

Those are hormone optimization. Nutritional health, we actually use insulin to help stimulate growth. We use that through nutrition. Bodybuilders use it.

IGF-1 is another signal. Those are powerful mediators, right? So you have I look at it as like, think of the cockpit of a plane. You have those big switches.

That's mTOR and AMP-K. But then you have a series of switches that we can use to optimize growth. So imagine if we are locked in on growth, we're pushing all those switches, and then we shift gears.

And this is in real time. What is the most potent activator of AMP K? It's calorie restriction and fasting. Let me ask you for the training. Have you heard of technology, the VASPER?

You'll even see some cardiologists and stuff have it at their office, but they do a lot of the trading. I don't know too much about it, but I've seen a lot of physicians in the longevity space and they're always at the conferences.

But I was going to ask you if that has any kind of with what you're talking about technologies. I mean, well, I'll say this, just looking at it. OK, this is the dilemma.

Let's call it what it is. We'll call cardio training. I'm gonna just break it down to the base or endurance-based training, zone two, like you mentioned, that's aerobic training and then peak performance training we call hit, call sprint training called Norwegian 4×4.

They're all mechanisms to optimize VO2 max, agreed? Here's the issue of VO to max. Contrary to what some people have tried to espouse, VO 2 max is not scientifically, mathematically is the most important or critical or powerful directive of longevity, longer duration, and improved health span.

It's muscle, very clearly. Because what's been manipulated in with, again, when people trying to justify the fact that they like to ride a bike, is you look at certain CRF data, cardiorespiratory fitness data and massage it into If anyone out there has heard someone famous who's bald talk about VO2 max and 450% reduction in all-cause mortality,

right?

That's just manipulating numbers to tell a story. When you look at top quartile, bottom quartiles of VO 2 max versus skeletal muscle indices, the difference is very striking.

It's about 80% reduction. Now, would you say VO2 max is still important? A trillion percent. But what do we get out of cardio? This is really important because if we understand we said this, we're going to talk about metabolic health.

Metabolic health, insulin sensitivity, metabolic flexibility, those are all synonymous terms. That's at the core. That is health and longevity because we know what the opposite of that is.

We call it type two diabetes. What is the what is all cause mortality risk in a type 2 diabetic relative to the general population? It's 350 to 400% higher.

I would say that's a problem. There's only one condition or disease that directly impacts in an exponential level, the four leading causes of death in the United States today.

That's diabetes. You can't say that about, people are like, well, heart disease is still the number one cause of death in the United States today. That's a true statement, that's an observation.

But the question has to be, what's the leading cause cardiovascular disease? And that diabetes. Diabetes, right? Yeah, it's right. What's leading causes of dementia?

Diabilities. Yeah. So leading caused of stroke, diabetes, cancer, Diabetes.

Training, muscle, and fasting performance

Yeah, so fix that. So my point is this very clearly metabolic health is what we should all be fixated on in the only direct linear relationship we have to improve metabolic Health is muscle.

How would you define metabolic health? So we use a number of parameters, but I think at its core, I would be focused on fasting insulin and then metabolic flexibility, which is really important to understand this because metabolic flexible is not about a keto diet.

Metabolic flexibility by definition is the ability of a cell to cycle between fuel resources based on condition. So the problem with keto diets in that whole keto world, not only do you see a lot of dyslipidemias, but they're very effective fat utilizers.

Give them a carbohydrate, see what happens. It goes off the Richter scale, right? Because they've actually so severely suppressed. And I welcome the feedback, a well-lived keto crowd can go nuts on me.

There is a role in certain very limited conditions, like some movement disorders. But in general, there's a downside to lifelong keto. Your body becomes less effective at metabolizing and utilizing carbohydrates for fuel.

Metabolic flexibility is the ability to do both. The scenario is this. When you're at rest, when we're sitting here talking, we are burning 70% fat as our principal fuel Now, someone slams the door, we jump up, We got to go.

Fire alarm goes off. You're instantly using carbohydrates. And as soon as that stimulus leaves, the fire alarm, goes. Off your back to fat. That's metabolic flexibility.

How many people that actually get on the keto diet do you think really are putting themselves in ketosis? Well, that's another I feel like, you know, knowing what I know.

I. Feel like the majority of the people. They say they're on a keto. Diet. There more on like a low carb diet. Correct.

Well, there are strict definitions, like medical definitions of what is a low carb and what does a keto.

Keto is low, low-carb diet by definition. How many people would I think? Well the million dollar question is slap a ketone monitor on and tell you. So again, average nutritional ketosis,.5 to 1.5 like I said.

That has some health benefits, but they're very different than the health. Benefits we see the optimizing messages at high grade levels of ketosis. This comes full circle to what we're talking about fasting.

So my goal is to get you into as high a ketone production as possible, as quickly as. That tackles probably two of the three major health benefits. And we touched on it previously talking about stem cells, stem cell activation, right?

One of most powerful mechanisms we have to engage base, and this is all preclinical, by the way. I'm not going to make up any stories. This is Muri models, mouse is the most common we've seen.

But activating these pathways that stimulate, especially HSCs, hematopoietic stem cells, can actually have a powerful benefit in immunosuppressed cancer therapy patients.

That's where ketosis has a huge benefit, okay? But you gotta understand the nuance of how those ketones operate. We, that system's pretty clear, the ketons are not just energy, but they're also actually a signaling molecule.

there is another pathway, it's suppression of IGF one and protein kinase a that that whole pathway that seems to me that, that is probably more time dependent.

In other words, we don't really see enough suppression. I haven't been able to prove that doing a short accelerated fast generates any impact on that idea form PK, but it most certainly does on ketone production.

How often do you fast? So, Now, today, fasting, by the way, the end game is it's a tool. So there's, I think, several reasons to use that tool, it is metabolic health, its body recompositioning, and then its longevity benefits, autophagy, clearance of senescent cells.

My biggest issue with all the talk out there, social media land, is people be like, well, in 16 hours, you're in autofagie. No. The best, real world data point we have to correlate to autophagy.

I got to make this super clear so no one freaks out. We have very clear mechanistic pathway data. we've defined that very clearly in what core pathways are activated to stimulate autofagie.

those pathways are shared with one thing and one think only, which is ketone production. So we'll say it's analogous as an available biomarker. If you don't own a really expensive lab, I would recommend using ketones as a surrogate marker, but I'm not saying that it is one in the same.

However, And this is one of my shout out to anybody who owns a lab. What I wanna test is, if we get to a certain threshold of ketone production, can we establish a direct correlate to autophagy?

That's the holy grail in my practice, we're not there. But what we have to date, We have all the ketones data we need. Slap a patch on your arm and it pumps it out.

And so what is very clear though, in terms of the metabolic health and body recomb pathways that I said, The higher the intensity of ketosis, 2.5 or above, and the longer that is maintained, what we would surrogate area under the curve, defines ultimate body recompositioning, fat consumption with muscle preservation.

Now who's that is where it gets wild. I'll show you. We use a technology in my practice called shape scale. If you're doing the weight loss body recomp, you got to get one of these things.

Shape scale is an infrared camera based technology. Stike you or do you have a second, you know, Stikie, I

remember you stood on like a stand and it spun you around.

Yeah, yeah. They're like the 3D. I had the the fifth 3d. OK, so it's like that. That's then it. It's. Like two generations ahead of that So what we look at in my practice, when we're talking about metabolic health, body recomp, I use in-body bioimpedance.

I used DEXA once a year, then bio impedance day to day, and then shape scale. So we are getting body comp data, but we also getting the body metric data.

Right? They should tell the same story. If not, we got to kind of look. And that's kind how I always standardize technologies. That never rely on one data point.

It always has feedback. Yes, a question about metabolic health. How do we define I think fasting insulin and oral glucose tolerance test is because again, so what you're assessing, okay, because you can see you could be fooled by an extremely low fasting.

Insulin was someone who's actually very glucose intolerant. You give them a glucose challenge. And it's off the charts, and they can't produce enough insulin to manage that glucose challenge.

Do you see what I mean? So there's two ends of the spectrum. Again, metabolic flexibility, remember, is both fat for fuel and carbohydrates. I think that's where I even kind of went off-the-rails.

Keto space and all this kind of stuff. Suppress, suppress, press. You got all the noise with CGMs. Don't let it spike. People get so wrapped. I agree with the people who say the glucose spike isn't bad.

That's a true statement. Glucose spikes that go high and low 50 times a day. that is bad, that's called glycemic variability. So if you're trying to sell a product or a treatment guide, you want to take the extreme positions.

In reality, There is no evidence that higher glucose spikes are healthy. Is that fair? OK. So why chase it? But there is plenty of evidence, that high glucose strikes result in an increased insulin threshold and demand, plummet the glucose, make you hungry.

We know all that. That's called glycemic variability. My point is, so if there's no benefit What's the downside to managing that better? It's not glucose spikes are bad, but glucose management is good.

And we do that through movement around meals. We do it through optimized, uh, calorie and carbohydrate consumption. Carbs aren't bad. They're fuel. Right.

So I know this is we, we're going to multiple paths. But you know, this all, We started a conversation all around fasting, and we still haven't covered everything related to fasting.

So, you mentioned earlier about there's these different programs out there that mimic fasting? One of the ones that I've seen at these conferences is this Prolonged Diet.

Now, to begin with, I don't think eating prepackaged processed food is the way to go. And I'll let you as the person with the scientific scientific background advise on that.

But is that pro long diet putting you into any fasted state? Yes, 100 percent. Yes. How do I know? My policy in my world is I will never ask you to do something I haven't done myself.

OK, I've done FMD. I have done pro on specifically. My outright critique of Prolon is just what you said. Okay, so we're trying to get healthy by eating ultra-processed pre-packaged foods, kind of as a conflict of interest.

But more importantly is what are those pre packaged foods? So my experience with Prolone, as someone who tracks ketones, understands that biology very high level, is doing a ProLon fast for me, I never exceeded a

nutritional ketosis level.

Now again, already told you I can naturally get into ketoses in a matter of hours, high grade ketose is two and a half or above. I think it was a 0.7 or 0,9 threshold.

So my challenge there is, I don't want to discount the metabolic and global health benefits of ketosis. That is, I think ketogenic dieting and stuff. Typically, the way most Americans view keto diets, if you actually tested them, they're living in that 0.5 to 1.50 range.

Part of the problem is they are eating a lot of ultra-processed carbohydrates. They're low carb, it's not actually good, not low good carb. It's low crap carb which changes that dynamic.

My experience with FMD didn't get me any closer to the promised land. I would tell people, one, I do live in a world where efficiency matters. When you talk about fasting and dieting and all these kinds of things, to me, efficiency, least amount of resources to accomplish a task, what you're competing with in calorie restriction, like you said, the JAMA article, anything that's restrictive or changing your lifestyle and all these kinds of things.

Time becomes a mind, you know what, right? I agree. Why do people fall off? Because the mind is powerful. Your mind's been conditioned. I mean, how many people come to you?

You'd be amazed how people came to me. So surgery, when we do a surgery you can't eat after midnight. Eight hours. You know how may people tell me they're dying?

They're starving. Yeah, even when you need someone to fast for blood work. They come in. Oh, I can do that. Don't they? Yeah. And then you do the bloodwork and they are like, where's the food?

Where's food. It's not even been… That's crazy. It is crazy, but you have to acknowledge that that is part of the human condition that we've created, right?

We live in this world that's just dopamine saturated. Food has a powerful dopaminergic effect, okay? So my point is very simple. I know the health benefits, the critical health benefit, which is metabolic flexibility, body recomp and autophagy.

I know that's at the end of a successful fast. My mindset is this, I got to do whatever I possibly can do as a physician, use all my tools to help someone get to that end point.

So in my mind, the longer that endpoint away, that's the number one thing I have to compete with. So why does it matter to me to plow through and do a 32 hour fast?

And what does that look like? Just to be clear, I eat dinner at 6 PM Monday night. I don't eat again until Wednesday morning, roughly 32 hours. OK, so say that again for the listeners.

So. 32 hour to 36 hour fast you you your last meal would be at 6 p.m. We're going to say Monday night is to be clear. When you stop eating is not when you start fasting, you started fasting usually four to five hours after your body starts to shift into that physiology.

Growth vs repair and the role of muscle

Right? So that's my point. You're fast. Your fasted state is 11 or 12 p.m.. So you eat at six p m Monday. The next time you would eat would be Wednesday morning.

Wednesday Morning. OK, so that you're getting basically the full 24 plus the eight is correct. Yeah. So you have you know, overnight here in a full overnight through your fasting day.

Yep. Okay. Yes. You're actually not eating for about 48 hours because your last meal was Yeah you could well

yeah well again it's 38 something we could do out the math but yeah when you talk about the important thing to understand is just again fast that I like that though man the way that you've structured it because it kind of makes it a heck of a lot easier because You eat that last meal, you go to sleep.

So now you don't have to worry about it because you're sleeping. You just gotta work through that one day. And then the other, the end of it, your sleeping, yeah.

What's really cool, this is what you love, is when you actually have the ketone data, when actually you have these curves, Where you see really that optimal performance, where you start really shifting into true metabolic flexibility, what's wild is that curve keeps going up as you sleep.

So for the people out there, they're like, I gotta burn the fat, and anybody out, anybody that's listening, how many times have you had people kind of, think I'm in fat burning mode?

Just what you said, well I intermittent fast, that how I get into fat-burning mode. Let me slap a key tone monitor on you and tell you if you're in fact, because let me tell if.

You have no serum ketones, you are not in fat burning mode. OK, now you can be oxidizing fat, but you not consuming fat a quantity. But the problem I see so many myself included is the data is right there.

It's just waiting for you. But very few people outside of the keto community understand because people have their mindset around. They hear keto and they think a certain type of person, they hear carnivore, think that that's not what this is about.

Understanding ketone biology is where real health matters. You know, I want to personally do this what you're doing. I wanna see what it does, you know?

I've done the whole, restricted eating, how you call it, time-restricted. Because they say, oh, well, we've got to let your gut reset itself and you need to do intermittent fasting.

So I've done that I have done the ketogenic diet. I wasn't a fan because for me to get myself into ketosis, I was eating all these fat bombs and I like eating nonstop fat throughout the day.

And I'm catching myself creating all this stuff. My wife and what the hell am I doing here? I've ate more avocados than what I can even think of when I was on the ketogenic diet.

In your smoothies, in your… Everywhere, man. I just take MCT oil. Bulletproof MCTO. Everything you can think. But I could tell you one thing, when i was in the Ketogenic Diet, Man, I was like very sharp as attack.

Yeah, yeah, you know, it's like like when those ketones are Your neurons and your brain are just like fired off. You're just sharp. It's an energy level, too How do you feel when you do your fasting?

I feel I feel locked in. And this is another thing I preach to my clients because data can be anxiety provoking or data could be highly informative. But the most important thing is always taking the subjective and the objective.

How do I fill? What's my experience? Being able to pair that against a number. This is what's going on in my body. It becomes really cool. So now I could pretty well tell you when my serum ketones are 2.5. because it's what you, it feels like clean energy.

I feel, you know, I don't need to take a nap. And I'm not overselling anything here. You know what, like, clean ketone production, and there is an element to which you can mimic that with exogenous ketones.

There are very few versions of exogeneous ketons on the market that actually meaningfully impact your blood ketomes, but the ones that do, You take some of that insane feeling.

Like you said, I'm locked in, but the challenge for anybody that's honest is if I am in a moderate high grade ketosis and you ask me to do a PR on the bench press, it's not going to happen.

You lose that peak. So people that advocate for that, train with those guys and say, they train different, which is okay. It's no bad. But my question again, goes back to this though.

I want the best of all worlds. That's my, that's, my life vision. I wanna live the. Best life possible when I'm having fun. When I have fun, when i'm working, I wanted to work.

Right. We want, want everything out of it. So what if we could get everything. Out of growth and everything, out a repair and then we actually, actually control it, which is very easy to do.

Cause I got these, these key dials that I can regulate. And that was one of the things that. You talk about these dials, how, you know, everything should be, but I'll let you just get into it, into the whole dial.

Well, so understand this. So three years ago, I gave a keynote, OK, and I was talking about the switches. I'm talking bout insulin. These pathways, right?

And you hit me. None of these are, you hear this conversation, levers, switches, right? These are like very binary activities. I turn a switch on, the lights come on.

That's not how biology works. Biology works in harmony. There is insulin and glucagon. It's not insulin, then glucagon, everything exists in some level of flux, right?

And that's what we're talking about with fuel utilization. Metabolic flexibility is just a fuel conversation, but it is a very dynamic process. That's, what I want to stress to people.

And to me, the best visual is dials, because in fact, you can turn up the sound on one stereo, turn up the sound on the other stereo, and it's a mess, right?

It's noise. Same is true in the body. If you're trying to activate a growth pathway and activate or repair pathways simultaneously, it is not going to work well.

It has to be harmonious. But understanding where that interplay occurs and how we can leverage different components, that to me is that dial system. You have these macro dials.

I mean, turning up AMPK, which you can do strategically, That's increasing your threshold to shift into that. Again, we're using ketones as an easy biomarker to represent.

OK, so I can increase my threshold. So I've got that sound up just a little bit and then come down to those micro dials and just fine tune it. Right. You know, when you look at the metabolic pathways, they kind of look like dials.

That's it. They do. But but people have gotten so I think I blame social media for this because social medias binary. Right? Yeah. Is it controversy cells?

It's a yes or no. This or that. It is not people like you're like, oh, and I learned this inadvertently through social. Media. I've never forget some guy reaching out.

He's like I'm so terrified of him toward the growth pathway. So terrified, do everything to keep it off. This is the people talking about rapamycin. You want to turn off growth pathway.

Think about that. That's illogical. It makes no sense. No, what you want do is moderate it. Turn it down. You're a DJ. I'm not a deejay, so I am going to mess this up.

But you're shifting back and forth, right? It's a balance. It is a harmony. Not this herky-jerky switch on, switch off,

everything has to be in concert.

So I look at it fundamentally as growth repair. Those are the core mechanisms of the human body. Everything ties to that. How you eat ties to the balance of energy balance is really what drives human health.

My point is just what longevity medicine is is not biohacking. If you want to call bio hacking, the bio hack is understanding those dials and how to precisely moderate them in harmony.

That's bio-hackin. Now, if there's something out there, sauna, great biohack, we have data for days. But now you start going off the rails and start throwing in some of these like headbands or something crazy.

Now you're just paying money for what? And by the way, you and I both know this, but if the foundation isn't set, this is the peptide conversation. The foundation is in set.

You're literally, what are peptides to you? Well, peptids are, they're signal signals. Have you ever tried to get a FM frequency through the eye of a storm?

Right. Does it work? You got to have that foundation. So listen, Americans are walking around. Americans. Are walking. Around their their bodies or hurricanes.

Oh, you think now you. Think I'm going to inject something. Yeah, but people, they don't want to hear that. That's the problem. I know. No, it is the.

Problem. And it's. The problem that they're being preyed upon by. Peptide hustlers, fitness influencers, do peptides work? There's potential therapeutic benefit to a lot.

But but imagine how they would work if the foundation is set right. Exactly. You know, so even if they are working, imagine the results you get. Yeah.

If you clean it up. I mean, it's again, again. Throw throw something into the middle of a tornado. See where it lands. Right. And we're walking around fasting insulin at 15, hemoglobin A1C of 12, you know.

Apo B of 190. Yeah. You think a signal is going to get through? I'm just trying to simplify it down because, yes, I get it. People are appealing to naivety, appealing that that pie in the sky mentality like, oh, i don't have to worry about any of this.

I m just going inject something. Have you heard of like sloop is an example, exercise, exercising peptide. Like that's OK. Let's work something like estrogen or something.

Yeah. But let's think about this. You've never exercised a day in your life. Can you in good conscience and rational thought tell me you actually believe a pill is going to is gonna do it and people pay for it?

But the harsh truth is and it's not a bad thing is if if the foundation is not set, you know, I talk to people, my clinic is all about optimization. There's no scenario where you go from unhealthy to optimize.

You go from unhealthy to healthy to optimized. So this is where, guess what? My fasting protocol looks very different for someone walking in who has an elevated fasting insulin, significant visceral fat burden, waist to hip circumference.

So we use just very clear cut black and white objective metrics because that person that's coming in severely metabolically unhealthy, yeah, fasting has a role for them too.

It's playing a very difference role. In this case, you're talking about rebooting the system. you can't do that, we gotta work towards healthy. And I can define that clinically, but way before we start introducing peptides to optimize.

I think that's true. It's almost like what you said earlier about the person coming in to get surgery, right?

Metabolic health, VO2 max, and insulin resistance

Like you really should work on yourself before you even get the surgery. Right, get yourself in a good- In a perfect world. Get yourself into a position.

Well, that what I did in my surgical practice, I got so frustrated with You know, Mrs. Jones, we do this surgery and be honest, radiographically perfect, meaning like the x-rays, everything's in place.

Everything's out. Guess what? A year from now, this is Jones is still suffering or better yet. Mrs Jones hardware just broke down and now she's back for surgery.

Number two. My issue is this. Is me as a surgeon healed with steel. That was our motto, right? You're not healing. I mean, with all due respect to your, we, but no better than this.

We know better. That we know the direct link between obesity, diabetes, everything from metabolic dysfunction, disease corner, Everything is playing a role in that gets back to the same conversation.

Surgery is another, it's a bigger signal, But it is a signal you're putting it into a freaking, you know, classified hurricane. And we would always, this is terrible, but as surgeons, we'd always say poor protoplasm.

That was the thing we said. How much negative effects do you think a lot of these toxins were exposed to have on our overall metabolic health or just cellular health in general?

In the context of things like microplastics, BPAs. Yeah. Any of the dyes in the highly processed foods, any of that stuff? The clearest signal we have, let's take UPFs, ulcer processed food.

The clear signal you have is not the seed oils. Seed oils by themselves do not cause systemic inflammation. But you want to know what does? Sugar. Plain and simple.

The clearest signal when you look at all the data that exists in the UPF space, clear signal is added sugar. Added sugar is killing people, added sugars are poison and people will get on me.

Well, it's dose dependent. I agree. So look at what the average American consumes and added sugar a year. And they're literally three to 400 times above the standard recommended dose.

So in American culture, sugar acts as a poison, the capacity we consume it. That's the UPF issue. What I've seen in observation and in my clinical practice, I don't want to completely wipe out the role of, again, toxic exposures, the things that we are being exposed to every day.

Those are real. The signal is weak at a population level. We see correlative data. There is no clear, and I would challenge anybody to correct me on this, there is not clear causal link between these exposures and human health conditions.

Does that make sense? We it in a preclinical setting, expose a cell to something at high doses, great. we see that in animal models, again. Dump dump 48 coke cans worth of Splenda into a mouse and lo and behold, it might get leukemia that make it a toxin.

I don't know. But what I'll stress is look at it from a different angle. What I think we're totally getting wrong right now is the. Health is, the ability of the human body to actually deal with, there's this whole logic that says, oh, well, centuries ago, these things didn't exist, so our bodies haven't evolved to deal There's no proof of that.

In fact, I think there's actually evidence to the contrary, because we have three inborn systems that when they're optimized, they are very powerful agents to clear toxins.

What are those? Liver, kidney, skin, and sweat. Right. Sauna regularly, get rid of even things like heavy metals. There are people even going so far in the TPE space to try to artificially inflate toxin exposure data to justify certain procedures in longevity space.

Freaking sauna and fast. When you're liver, by the way, the most potent mechanism we have to optimize liver metabolism and toxin clearance is fasting.

It's a clear relationship. Fasting helps you enhance those detox pathways. Correct. And then sauna again wins everywhere. You know, one of the things is like, you got to think that the lifestyle that most Americans are living, they're not exercising.

They're, not sweating. they are in an air-conditioned facility. It is not even that they aren't exercising, it is sedentary. Yeah, They are just sitting all day behind a desk or whatever.

then the way they're eating, right? So of course they got a high toxic load. You're not even allowing your body to do what it's supposed to naturally to get rid of the toxins.

And this goes back to what you were talking about. If you wanna get ready those toxins, so let's focus on your metabolic health to begin with, and start doing some of these things and get your to function the ways it needs to.

My concern in that line of thinking that's being espoused, is several fold, but one of my major concerns is it plays into, I'm gonna go off the rails here.

It plays in to the lack of accountability, victim mindset, lack resilience that has become the core of modern day America. Because if I am helpless and people are just throwing these microplastics at me, what do I do?

Get off your ass. Go train, go exercise, build quality lean muscle, sleep, sauna, move, and fast. And by the way, none of that costs more than $5. Now I also agree, it's hard.

Whole food diets, yes, I would advocate for that. But I'm also a realist. I live in the real world. Five businesses, two young kids, just hustle and grind.

And so I have to also acknowledge that that's most of us living in the world. So how do you live in that and manage? Those are the things, the core foundational things.

Focus on sleep. Nutrition becomes important, but I'm not gonna die on any other hill than that get rid of added sugar. And then, oh, by the way, you want the ultimate biohack move before and after meals.

Yeah. And last I checked, that's free for short. Think about that. I love doing that after I eat, go out there, controls that glycemic spike, get out of that insulin spike.

It's just balanced. But but that that the part. that sort of learned helplessness piece, that is kind of the concern I have there. We just, the science today is not clear on are these health hazards, do they actually impact on health outcomes or are they not optimal?

I mean, sure, in perfect world, go live on an island, grow your own produce, those kinds of things, great. What type of fats do you focus on in your nutritional programs?

absolutely omega-3s. Omega- 3s so the healthy fats, right? That is by far and away the most, that's where I really want to derive the majority of my healthy fats.

If you look at saturated, unsaturated, and then you have trans fats, obviously we're staying away from trans fat. I would assume. That cat's out of the bag.

Yeah. And we- That's your ultra processed foods and all that crap. Well really, I mean I think some people don't

understand this, but trans-fats have, They haven't been outlawed.

It's not possible because they're a byproduct of certain processing pathways. But trans fats existed 10, 15 years ago. I mean, that was everything we were cooking at McDonald's was trans fat, all these things.

The polyhydrogenated really in reality that's been minimized. Where do we get trans fat from is from, especially from red meat. So there are trans fats that exist naturally occurring.

And so what's the concern around red meet? Am I saying it's bad? No, I eat a ton of red me, but you need to be aware that there is a cancer risk associated from high quantities because there IS inflammatory effects.

So break it down. Saturated fats, are they bad? No. Do they increase cholesterol, specifically LDL? Yes, that's a scientific fact. It's not something we're going to argue.

saying anything about cholesterol, I'm just stating a fact. So mono-incentory effects, by far and away, that's your avocados. I eat avacados like they're going out style.

Yeah. Um, and I cook everything in extra virgin olive oil, um, in avocado oil for high heat. You use butter at all, ghee? Yeah, absolutely. Yes. Ghee clarified butter, as you hear it called.

Great form of saturated fat so or saturated fats bad. No, not at all moderating those saturated. Fats. I think is advisable and being aware of the impact on your global health.

Right? So I would, I strongly emphasize mano. but I do eat red meat. Try to do about two to three servings a week. That's kind of right on that threshold.

Oily fish is a go-to. Just your salmons. Whitefish is good, but remember lean fish like tuna. Tuna is probably one of the leanest protein sources we have.

being aware of what you're putting into your body and using balance is good. But remember, it's not really an ultra-processed food issue. It's simply an awareness issue of What you are consuming.

To address the point head on, seed oils are not associated when they're used, they are not associated with increased inflammatory markers, systemically.

That's very misleading information. What is all the talk, right? There's a lot of talk. You see all of the big biohacking influencers stay away from the seed oils and now every Seagull packaging company has gone out of their way to make sure there's no seed oil and any food.

So what's your input on that? But what really matters is the dynamic interplay between omega-3s and omega 6s in the human body. What is true is that at least the Western diet, American diet is severely deficient in omega 3s.

That, to me, is the major longevity issue, because Omega-3s carry considerable health benefit. They are anti-inflammatory. What we've tried to do is say Omega 6s, mostly seed oils, are pro-flammatory, that simply is not well supported in the literature.

Seed oils are, so this idea of seed oil are driving inflammation. That's in the context of UPFs. But what I say, the principal driver of inflammation in human body is glucose dysregulation.

That data is so clear. And by the way, you want to reverse engineer it? Take added sugar out of your diet and see what happens to your fasting insulin, your hemoglobin deficiency, and your CRP.

Anybody out there go do that test on yourself and you don't tell me how it turns out. So it's the environment with which they're existing. I agree that's a problem, but we are.

Undereating omega threes. So a hundred percent. I think everybody should be taking omega three supplement. Okay. Just we're under eating period. Now, if you lived somewhere in Alaska and ate salmon, that's all you ate in your diet.

That's fair. But so what we should really be looking at is three to six ratios in the balance to increasing the omega-3 presence because of their health benefits.

Right. We're demonizing omega sixes and presenting them as health detriments. There's not enough data to support that right now. It's it's a way to You said it.

So it"s a ways to generate clicks. I could say seed oils are killing people and probably get a million views Do you agree?

Fasting, autophagy, and body recomposition

Yeah So, you know as you're talking about, the sugar, You know the glucose spike and How that's really one of the main reasons of you know, all this all of this inflammation in the body etc I remember this was almost 20 years ago on 60 minutes The new longevity drug was met for me.

Mm-hmm. Yeah. How do you feel about that today? It's interesting because For a while, my stance was, GLPs replace metformin. Metformine doesn't have a role.

But met formin, for the longest time, was the only thing we had. And here's a really important nuance. Go back to the dial scene. Guess what pathway met forming acts through?

It's AMPK. Meth formine actually up regulates AMPk. It starts to turn that dial up. Do you know what else does that? Dihydroberberine. You've heard of berberine.

Yeah. So interestingly, head to head berberein versus metformin ber berein actually as a nutraceutical outperformed they have studies on that. So at first I said, well, metformin is just dirty, which it can be at high doses.

You worry about lactic acidosis is the biggest complication. And there are some muscle side effects. But when you look at the science of met formin and how it activates AMPK, it's actually very complementary to berberine.

So part of the fasting protocol is What I said, I want to get the threshold, turn that volume up so it's just a quick tweak, tweak tweak and we're into ketosis.

That is a powerful mechanism. So metformin, when you compare it head-to-head to a GLP, it doesn't touch it. PCOS is great example that we've now changed to PMOS, thankfully, but that's a metabolic process.

But what's the fundamental issue happening there? It's insulin resistance. For the longest time, the standard of care was met formin. The standard care today, at least in my practice, is trisepatite.

It's a metabolic disease to target the principle. But that foreman can actually be complementary. Now, the idea, I want to say something very plainly.

This gets back to what I said about biological orchestration. It is actually knowing all the pathways and utilizing them strategically. Would I put someone on metformin every day for the rest of their life?

No. What do you put? Someone on a GOP microdose for. The rest. Of their. Life. There's there I think there is I. Think there's benefit. I, think, there, is benefit to forever forever.

Right now. How do I use you? You take the GOP's yourself? I do strategically. So I used GOPs in my practice, predominantly as a tool, and I could really break down how I us it.

But generally speaking, one jail please pay a huge role in. My fasting protocols. Makes it a lot easier to pass and say that for sure. It's not rocket science.

But remember though, we're also using, it's a very powerful biologic tool. And what I'm looking forward to, but we've seen the data for Retatrutide. What I am looking to is seeing that drug on the market in action, because I know the effects of glucagon.

And retrotide is glucagon, plain and simple. So that's more to come, I think, where we can really implement it across the board. But even as it stands, for me, GLPs are a tool that powerfully enhance a fasting protocol.

They optimize insulin sensitivity, which is at the core of ketosis, and they quiet food noise. This is no secret. Why do people fail in a fast? Yeah. We always said that, that their brain saying, I'm starving, you got to eat, got eat.

That mental aspect of it, my end point is getting you through a fast because I know that's where the health benefits lie. I get the people will talk about mental toughness and these are things, oh, the guys that are like, Oh, just got a suffer more to be better.

That doesn't really work well, especially for someone who's struggling. I can literally reverse diabetes through a high-grade fasting protocol. Everybody can annihilate me on that comment, too.

But the problem that stands in my way is people getting through the fasting You know what, I've done the GOP ones multiple times and the last one I did, um, uh, did retouching time and, fantastic, you know, that thing is amazing the way it worked.

And I know that there's more to come out of that before it hits the marketplace. I don't think it's hit the market place yet. It's just compounded stuff.

Hopefully next year. Yeah. But, you know, I've been very hesitant to run it long term, any of it, just in my head, do I really want to consistently be taking this injection every single week?

So I'm in between. And then I got my wife in my ear and she's like, come on, let's just stay on it. Stay on. It's I don't know if that's a good idea. I think we got to kind of let things reset.

You know, I. Think like let say just purely science and medicine. We don' have long term data or sustained GOP use. Now, the first GOI hit the market in 2005. we've got two decades of safety data for long-term use in diabetics at pretty high doses.

But has anyone been on a GLP for a lifetime? No, it's not even a possibility. So there's gray area there and I can't, I would not put my license behind saying, oh yeah, go ahead, do it.

It's totally safe. The safety signals are there. Again, we haven't seen, where we see the concerning, the side effect profile and also the risk profile is clearly long-term use more than two years at high doses, what diabetics are exposed to.

So we sort of have that information and we have then now this whole wellness movement and the, the longevity micro dosing protocols. And that just, they don't have science behind them one way or the other.

So I think that's important to make people understand that. But here's the here is my thought process around specifically around trisepidine and We're at a true tide.

I think, well, we don't have enough long-term data, but what we do have, We have an update with triseptide that actually shows using CRP specifically.

So systemic inflammatory marker reduction in excess of predicted. Okay. In other words, it appears that trizeptides specifically is enhancing in it has an anti-inflammatory effect.

beyond just what you would expect from improving insulin sensitivity and body weight reduction. So there's a signal there. And I think I take that really serious.

Man, let me tell you, I had on the podcast Dr. Christian Asari. He's Harvard trained pain management doctor. That's his first line treatment for his pain patient.

he says that it has worked better than anything else that he has. Years of doing, you know, and five years ago I would have wrote, I wouldn't have been like, You're full of it.

He'd just hustle in some. I don't, that doesn't come as a shock to me. Yeah. Could I could buy that. And I'll tell you personal experience with trisapatite.

Again, maybe it's placebo. Um, this is just me, my aches and pains. Like a pretty really bad low lumbar spine disease and all that kind of stuff. My everyday, and I'm getting old, can't prevent that.

But my everyday aches and pains seem better. What I note, because I track my data, once a month I get a full lab panel. It's got a data nerd. When my fasting insulin is very low, less than two, I associate that with improved mobility and less, again, sort of that joint chronic pain.

No, please understand. I'm not making any claims. But when you say that, I am not surprised. Yeah, you're reducing inflammation of the body. You look around and you look at, again, and I can characterize and tell you someone severely inflamed just by their waist circumference, their body comp data.

you don't necessarily even need their biomarkers to put put a bead on. I mean, this if someone's got a visceral fat index, I use bioimpedance greater than 10. They're going to have a CRP that's significantly elevated.

Right? You know, it's a phenotype and it is driven by our lifestyle. Americans are under muscled, under moving and over fueled. Are you using anything like Tessamorelin for high visual?

Huge advocate, huge advocate. Yeah, again, these are the key elements. These are The Dalles. I mean, beautiful thing about Tessemorelin, you know, growth hormone, sacretagogue.

Everybody tries to play the game like, well, Samorlin helps you sleep better and tessameralin helps with visceral fat. No, they don't. They just increase growth hormone just at varying levels.

Tessamarolin is the gold standard by far. So I'm a huge advocate for that. And yeah, I mean, does it have a direct impact on visceral fat? Yes. Do I use it?

Again, when we're going through a fasting protocol, high-grade body recomp, Get every dial tuned. Why would you leave that on the table? And the benefit obviously is, yes, growth hormone directionally reduces visceral fat and indirectly improves muscle health and muscle growth through IGF-1.

So I think of growth hormone is a powerful market. Now, it's important because you're going to have the people out there say IGF-1, accelerated aging, so on and so forth.

That's if you just any of these things we're talking about, and this goes back to your, should I be on GLP-I for life? The only reason I say probably not is because just philosophically, I'm opposed to the idea that you just turn on all the switches and see what happens.

Everything should, I mean, think of that harmonious relationship between growth and repair. That's as simple as I can get. We want to be constantly maneuvering in that balance.

And so I think there's a role for all these various therapeutics, but we should be using them directionally Versus you hear about what's your stack. People list off 10 things.

Mike, do you have any clue what are you aiming for here? You got growth, you got repair, You just got chaos. The whole kitchen sink, man. But we know this, especially with peptide science and peptides therapeutics.

That is a very precise precise, very controllable, but precise scientific effort. The kitchen sink, I see these things. I'm like, guys, even if these pathways were synergistic, which doesn't have any evidence that they are in human biology, You're throwing noise at somebody.

You've got pathways zing in this way. And that it, I see these guys, man, these guy sit in these podcasts and, and they sound, if I'm just listening, like, that's really intriguing.

Wait a second. That's not how this works. Right. But that, you know, the part that gets me is, is when I say a lot of these clinic owners. and doctors bring in a patient and they throw everything at them right from the start.

And you have something go the wrong way, you don't know what the hell's causing it. You gotta be very careful. Again, what we said earlier, if the foundation's not set, I'm gonna say universal statement to the people that are doing that, your hustling people for money.

Yeah, 100%. Because there's no way you can in good conscience say, 50 supplements, 30 injections, all that kind of stuff. You have no idea what's going to work, what it's not.

There's no strategy. And the person's… Yeah, right. So let me ask you, we're talking about data, the different diagnostics.

Supplements, peptides, and longevity hype

You just said that you love tracking all of your data. We have everything from doing the RMR, VO2 max, fasting insulin, looking at your A1C, body composition analysis, continuous glucose monitor, all this stuff.

If you had to say, based off your professional experience, what is the number one marker out there that's giving people false confidence. What is that?

Oh, man, I was hoping the other direction. That's a question. This is all about metabolic health. We said metabolic helps the core. I think hemoglobin A1C is falsely reassuring for way too many people.

Okay. A normal hemaglobin a1c, the normal range doesn't mean a whole heck of a lot as a data point. Now, over time, it has influence, but there are numerous scenarios where even again, you can just have biological differences in an individual, where hemoglobin A1c, that's 5.7, 5.8, with a consistently normal fasting insulin, a stable oral glucose tolerance test, you paint the whole picture, hemglobin C is misleading in a negative direction.

But I'm way more concerned about the people walking around with the hemaglobulin A 1c of 5 5 and the fasting in 12. Right? Right. You're waiting on a number that lags a decade or more.

And you're, you know, unfortunately doctors are telling patients, no, your good. I, I know one's good until I see a hemoglobin A1C fasting insulin and fasting glucose.

That's a good starting point for a metabolic assessment. Okay. Like that. Now you talk about the shiny objects, the expensive shiny object out there. The ones I don't have.

You're today, you're Brian Johnson, right? You have $2 million. What is a shiny out that's not getting a penny out of your $1 million? Hmm. AKA the most overrated bow hack supplement, right?

The one that's got all the noise, but no benefit. I throw cold plunge in there because it doesn't have really longevity benefits, but it's cheap. Um, I have real concerns.

Uh, and I'll say this bounce. I wrote concerns about what's going on in the plasma and STEM cell space. No,

they're separate, there's a lot of overlap.

What I mean by that is, Everything from plasmapheresis, TPE, whether or not you're doing a full plasma exchange, the cost of it, and then the perceived versus real benefit.

That juxtaposed with stem cell in my world has become almost analogous to peptides. Stem cell accounts for everything under the sun now. Exosomes, people call stem cells, autologous, allogeneic.

It's become a big hustle as I see it. Is there a role for stem cell? Yes. Let me ask you something about this because I think this is, you know, me being in the functional medicine space, And I'm going to say functional medicine space, not longevity space.

Okay. Right. Yeah. Because right now you're seeing like a big mix of everybody, right? You're getting the integrative medicine doctors, you getting to quote unquote functional, medicine, doctors that are fellowship trained through like IFM, uh, a four M et cetera.

And then you get in all of the tree huggers in the midst of it too. That are just like, Hey, come put this frog venom in your neck, the enthusiast. So.

In the world of functional medicine, where some of these doctors in the functional medicines space are not just working with the healthy person for longevity purposes, they're working some very sick patients, cancer, autoimmune, Lyme disease, et cetera.

When it comes to some these modalities that you're talking about, like TPE, Ibu, or using some stem cell derived products, I want you to talk, as a professional, the difference between doing these type of treatments for longevity purposes versus well shit, I can't even get out of this wheelchair, you know?

Because there's a big difference. I was one of the guys who was just like kind of fed into it and then I went and got the EBL2 done. And after I did it, it didn't feel good for a couple months actually.

You know, and I started thinking to myself, my wife was like, the hell that I, you know, right. It's nothing wrong with it. Right. You know? It says, I don't think I would ever do that again unless I'm like sick.

Like I need it, yeah. Well, thank you in your position for saying that out loud because I got a lot of friends and stuff and you know My business partner who's the chief medical officer dr.

Christopher Davis very smart. He's a interventional cardiologist by training and he has a longevity clinic and He works with very sick patients and your him and I were talking about it He was like, it's like yeah, you don't like he offers TPE and also Ibu and Like the Ibu, he has it in a closet because initially he was using it and he's working with a lot of these other functional medicine doctors.

But he says, Sam, don't get me wrong, it has its benefits, but he said it's like when you worked as a firefighter paramedic, you always knew about life over limb, right?

Right. Let them lose a limb if you're going to save their life. Right? The side effects of what was happening on just your healthy patients that are doing it for longevity, it just didn't make sense.

Right. I agree. So like I want people to understand that a lot of the things that we're talking about here today, like even with like toxins in your body and stuff.

Listen, if you were a firefighter and you're getting exposed to carcinogens and. You might have a way higher toxic load. Yeah, you know what? You might need to do some more aggressive things.

Taking binders and chelation. Yeah. You know, Asians and stuff like that. But you. Know, when you're a healthy individual and we're talking about longevity, that you want to just have a better quality of life and live more years.

Right. Like going to these aggressive routes like this. I think it's borderline kind of crazy. They I. Think that's well put. It's a great it. Is a. Great way to frame it, because we see so much in the longevity space.

that certain therapeutics have real clinical benefit. TPE has real, clinical, benefit- Well, you said in the hospital. In something called ITP, right?

Idiopathic Thrombocytopenic Purpura, where your body is having an autoimmune reaction, so you need to clear gamma globulins, IgGs, IGMs. That's what Tpe exists for.

It is a clinical. The I guess what I'm concerned if not critical about is people are taking therapies that are well supported and actually have a real purpose.

putting a ridiculous price tag on and conflating a benefit for someone who's severely ill into an optimizing tool, which that part is, it's hard for me to look at that.

And once again, I come back to, you're going to sell it to someone whose, full well is not healthy. And call it an optimizing tool. Well, right there you have a problem.

We just got done saying, if you're unhealthy, you need to get healthy first. You need build a foundation. Then these tools. But where these two have zero supporting evidence for use in humans are in these optimizing protocol so now we're doing things you know the arguments made about tpe i mean the plastic tubing it's plastic like what are we actually doing and looking to achieve i talked to a colleague not long ago is basically taking the the pre-screening toxin test in and again Stimulating so you're youre pulling your pulling toxins into the bloodstream to hyper inflate the result to justify a proceed that's crazy.

That's not it's like good medicine that going off the rails and so it is hard to know. It's just hard to know if benefit actually exists there. I'll give you another great example.

You've heard of SS-31, right? Yeah, mitochondrial. Mitochondrial peptides. So for cardiolipin deficiencies, a Barth disease, an actual disease process is developed as a targeted therapy.

It got some kind of FDA clearance recently. Yeah. For Barths, again, for a mitochondria disease. Right. Now people are talking about it. In the context of an otherwise healthy individual, someone without that disease, we're talking about is an optimizing tool.

Well, there's a big gap in the data. There is some interesting, very small and tiny little study looking at older individuals with high dose SS 31. but it was a transient effect.

But now you got the people talking about, oh, so I'm just going to stack SS 31 with a little MOTC and one amino. And that's not how this works. The greatest gap that exists, first and foremost, is taking an unhealthy person and selling them expensive optimizing tools without a foundation being present that have only been proven in really sick people.

That is so many leaps away from quality directional medicine that that's where I have real concerns. And then I don't think we really get the full picture.

I mean, I've seen some posts on social media, people showing like extensive blood clots in tubing and talking about how they got the toxins out. That's a clot.

It's not, oh wow, it's so good, that it out of the body. That's not so in that that's, you know, I laugh at that because that, that shit's really not inside of your body.

You know? You didn't have to recognize the patient properly throughout the proceeds. Yeah, right. I did. If that big thick clot was really in your You'd probably be dead weight.

Not probably. You would be calling fire and rescue for some CPR. Right. Well, I mean, listen, i'll say it what it is. I saw a recent post from Next Health, very, you know, they're pushing the envelope of longevity and wellness.

And the claim was made that, oh, we're doing it the right way. We're testing all these biomarkers and we are analyzing all our data. If they're doing that, great.

I'd love to see that protocol that they have. Love for Nextelf, this platform. Please share with us what biomarkers you're analyzing pre and post treatment.

Share with what that NetBio marker changes and what you are demonstrating because what we need is objectivity in the space. We need to assess these tools and determine are they effective for their use that we're applying them to.

But we can't just make these leaps. And I just always find it interesting.

Foundation first: basics, mindset, and closing advice

I'm not making accusations, but it's interesting to me that the most expensive therapeutics in the longevity space are the ones with no human data. and no clear indication or benefit.

You notice that? Because like I said, it's pretty cheap to optimize your protein intake and, and fast, pretty close to free. But what's charged in the big box are region, region therapies with the exosomes space, systemic exisomes.

For what reason? Again, another form of signals being thrown into the eye of the storm. I mean, that that really begs the question. What are you trying to know?

I'm looking at that foundation to meet that Foundation. And I always go with with four things. The first thing is I was some people biohacking starts with no.

You have to understand what you have say no to No drinking this no eating that that's in my opinion. That's 90% of the job agree right and then sleep extremely important Nutrition and exercise totally and in all reality if you do all three of those might not even need the rest of The fancy stuff we might or probably Right.

I mean, it's a question, but then that does get into the question though, because they'll get it. Listen, this is how I make my money selling you. But I keep it real.

You know, that's why I appreciate, you know what, one of the things with me and the reason why launched a podcast and everything else, I grew up in the inner city.

When I got into you, the functional medicine space on my days off from the fire department, working with Dr. Willis, he was one the founding partners of a company called Senate genetics.

They're the pioneers and hormone optimization and everything else. So when I would go draw blood for the patients, these were the who's who globally. I'd go to you know, I had about 350 patients here in South Florida.

All of them mega millionaires had to go their multimillion dollar homes every three months. Did that for eight years. So I got to a certain point, it's like, man, I see how these people are taking control of their health, but why is it only available to the wealthy, you know?

And in all reality, i started to really realize that taking care of your health wasn't all this fancy, expensive stuff. And this is my goal here is to make sure that the masses can take control over their own health and understanding the things that are out there.

A lot of stuff like what we talked about today, the fasting, heck, You know, I've never done a fast like what you've developed and I'm going to be a test subject of it.

I'll work with you, kind of figure out what I need to do. But I am excited about these type of tools that everyone can utilize and implement where it doesn't have to.

Be this crazy, you know. Ten, fifteen thousand dollar, plasma, therapeutic exchange therapy. So if you can sum up as we're getting towards the end of the podcast here, if you could just sum up in just a few steps for the person who's just like thinking about this fasting, you can sum it up.

In a. Few steps, what this fastin looks like just to make it easy for someone to say, You know what? This is for me. Let me see how I could take the next step from here.

If you give us just. A few. Steps of how you. Can sum that up to first. I'll say it in the ideal context, but I frame it at least by design what we're trying to accomplish.

I'm a why guy, I gotta know why I am doing something. Me not eating, what's it getting me? In all cases, the duration and intensity is based on the starting health of the individual.

So we look at strict parameters, like I said, visceral fat, fasting insulin, waist-hip circumference, we wanna know what is the baseline metabolism. So someone would say pre-diabetic, doing a 36 hour fast won't even scratch the surface of what they need because really fundamentally their liver is diseased at that point.

But in all cases, fasting is broken into four or distinct phases. Glycogen depletion, metabolic transition, insulin normalizing, we begin to mobilize fat.

then the actual ketosis phase, and then refeeding. So glycogen depletion. Glycogene is all that, that fast fuel you have on board that stands in the way that's driving an insulin response to some degree at all times.

Best way to get consumed glykogen is being very intentional about physical activity. And this is where higher intensity resistance and cardiovascular activities.

If I'm doing it 50 minutes in a gym, lifting my legs, squats, you know, all the compound movements, heavy, get rid of the glycogen and really important, don't replace it.

Get rid the Glycogene in the gym, zero carb after. that starts that metabolic transition. So immediately after that gym session, and as you move through the day, you're not given any signal for insulin.

That's considering that you are working out first thing in the morning? Ideally, if it were in a perfect world, I wouldn't want to work out before 10, but if you work early, it's easy because you wipe it then.

But yeah, trying to do it in first half of the days is ideal. And then again, stop eating at six o'clock. So now, now you've gone from a passive metabolic transition to a forced and I'm not putting that last meal.

You're, you're really fat and protein, low calories and proteins. Yeah. Like, like it could be a salad with a four ounces of salmon is great. Just something light.

Okay. Um, Now, metabolic transition is occurring overnight into your ketone phase. Now here's what's cool. The most powerful mechanisms we have to drive ketosis in our body are movement, intentional movement as we said.

So light resistance training is fine. High intensity resistance or high intensity cardio pushing you into anaerobic threshold, that kicks the system off.

Okay, but that light intensity, and then sauna. Sauna is the most powerful tool we have. Right now I'm looking at the hybrid sauna, regular sauna? Yeah, so what we had for sure, what I've done all the study on so far is high heat sauna dry finish.

What's interesting is there may be some advantage talking to a couple colleagues of now they have hybrid saunas,

high heat and infrared in the same sauna, because infrared is a very energetic source, right?

The heat is one piece of it, but the light source of the photodynamic component is really powerful. So I'm curious to see, bribes because it creates an exitory phase or excited for you.

What 185 is where I'm at. I mean, stay below 212, but even 175, all the studies have been done at 175. Okay. But what you see is literally an accelerated ketone production because you're creating a perceived energy demand.

Yeah. The body with no wear and tear. So movement and sauna, I tell people, take the time you would have been eating and put it towards movement in sauna.

What about a vibration plate? I, in fact, this guy I follow on Instagram has looked specifically using indirect calorimetry at all these things. He did one, and I want to quote him right, with a Vibration Plate and it changed essentially nothing about the calorie consumption.

So for that says I know vibration, I don't know enough about it, but I think people think of it as at least as an energy demand and doesn't appear to have any benefit.

I see the vibration. But I do it every single morning. OK, when I started utilizing it. Never used it before. That was when it started using the Emsculp Neo.

Because EMSculpt Neo, one of the things that they tell you to do is lymphatic. Yeah. So I go for the lymphatogenesis benefit, that's about. And I don't think there's anything wrong as far as what I'm looking at during a fast is how do I create a steady state energy demand that doesn't exceed the ketone threshold?

Because bear in mind too, the other thing is for people to understand is when you're following continuous ketones, you'll see your level going up and then it'll drop with activity.

Why is it dropping? It's not because you are not producing ketons. It is because your body is using the key tones for fuel. The stage one was getting rid of glucose.

We don' have that reserve fuel So you see that. But those are the keys during your fast. And then the last piece of the puzzle is a refeed. How you refee is actually biologically critical from some of mechanistic data we have, but also then just from a practical standpoint.

By the way, you could talk about ISCs, intestinal stem cells. You look at the impact of actual ketones, BHP, beta-hydroxybutyrate in the blood, one of most potent stimulus of intestinals stem cell.

So again, that's not time, it's intensity. You see what I mean? Things that we're talking about here are these widely known hallmarks of aging. Um, last question here.

I got to interrupt you real quick. Refeed with bone broth, only bone. That's the, that's because two reasons. One, no leucine. So it won't stimulate insulin response actually allows you to continue in a mild, moderate ketosis.

You get more fat consumption out of the deal. Um. But two, it's very activating for intestinal epithelium. begins to wake the gut back up, even from a 36 hour fast.

If you go to whole food, your toilet's gonna regret it. So bone broth, wait two hours, then introduce protein, fat and protein carbohydrates later in the day.

So what I was going to ask you was what's your input throughout this process utilizing some of these products? Like there's a product out there, Kinetics, I think it's called.

It's like a ketone drink. Oh, right. Yeah. No, that's really important. So. I'm very anti exogenous ketones during a fast. because they directly compete with ketone production.

So on your marker, you'll see the number going up. Now, some people have interpreted data a certain way that I just respectfully don't agree with. And that is to say, yes, ketones by themselves serve as a signal.

And that's been proven actually pretty well. Whether the ketones are coming from your body or from an outside source, the signal is the single. But we're trying to accomplish two other things that don't align with that signal, which is autophagy and body recomp.

Right. Because really metabolically, we are trying to put a demand on your body to use fat effectively. So taking in ketones, you wouldn't have the lipolysis effect of of burning fat.

If you did that, it's it. We don't know this. There may be a modest inhibition from from ketone production. Everything exists in in a continuum, right?

Okay. So dumping more ketones in the system may strongly say this may backlog the. From from the your own endowed, especially with what we're trying to achieve.

Like I know a lot of those ketome products. Let's say you if you're going to go run a marathon and that's I swear, by the way, I I use ketons. Very, very heavily during a fasting protocol.

So we said this fasting, protocol for me, just to be clear, once a week for six weeks, we do this protocol, for example, based on what our starting point is in goals, those things.

During that, I become laser focused on fuel or non fasting days. So I actually use a lot of exogenous ketones and glucose to fuel training sessions when I'm going through this whole protocol.

That makes sense, yeah. Because imagine week over week, what's happening is your glycogen capacity is lowering. There's not enough time between fasts, this is why we do it week-over-week, to fully replenish glycation stores.

Right, right. You see, so it's very strategic. And in those cases, I use And yes, there are better and worse products. I can tell you that I've tested most of them out there and I will just make this statement about it.

And I'm not endorsing any products, but the more expensive ones are the ones that do drive your ketone levels higher. The cheaper they are, Again, again, typically are one three butan dial products.

They just don't have a meaningful effect on because I'm tracking them. Yeah, I think it's called kinetics that one of the ones that's out there, something like that.

Now, let's just say this Delta G, they have what they delta G's a workhorse. That is the one that will drive you. And I don't know. These guys have one.

You need a prescription. A doctor actually has to. They have a regular one, that they sell to the regular consumer. But they. Have one where you need.

The prescription, and it's kind of like almost like borderline a syrup, you know? OK. It's like a really, real powerful one to get me careful with it.

Well, listen, I'm always down because I didn't like a human test subject. I do everything the name of it. Yeah. And they promote that that one specifically for like people that are running marathons and whatnot.

Right. No key ketones. In by the way, this is something that's poorly understood. The way I use ketone's from a performance aspect is as an energy buffer.

Right. Because glycogen still is our principal source for anaerobic metabolism. So power output type two B fibers fast, right? That's glycation. That what those fibers operate on.

Yeah. But in effect, what they're operating on is glucose. So I want to actually buffer my glycogen glucose stores for those power output, those fast twitch.

And I use ketones as a way, exogenous ketone, as way to give a nice, clean, non-insulinogenic steady state fuel for training. Okay. So those two ways, the type one fibers that can use both fuel sources, my thought process, and it appears to be the case when I look at training records, is that you're giving those a balanced clean fuel of ketones.

But unlike a true ketogenic diet, where you literally don't have glycogen on board, I want that glucose glycation. Cool. Doug, we have a little fun here.

Grab this. Take the sleeve off. Pick a random card out of there. OK, that's one of my great podcasters that I like to follow. Steven Barlet with a diary of a CEO.

I love him, too. So you got to read the other side of that card aloud and answer it. What is the unobvious thing that you struggle with? The unobvious thing I think I struggle with is self doubt.

We, we, especially in, where in business, wherein in these powerful roles, influential rules, impact people and. I question myself and some of it's, I think, healthy.

That's the way you stay grounded. We talked about that. But sometimes it can be detrimental, right? You need enough self-confidence to make the decisions when you need to and execute to the level that impacts lives.

You also need humility. I've always struggled with that balance. And I tend to err on the side of Maybe I did that wrong. Maybe, maybe I shouldn't have done it that way.

I'm learning to look at life, say, I want to make a decision here. And the only way I am going to know if it is good or bad, really, you can do all the risk assessments you want, but the way you know, if that decision was right or wrong, is looking back 20 years from now.

Steve Jobs said it, man. You can only connect the dots looking backwards, not forward. Everybody wants, everybody wants the plan. Everyone wants a strategy.

The map laid out. Doesn't exist. Cool. Hey, if someone listening or viewing the podcast really resonates with today's message, what is that last thing you can leave them off with?

Focus on the foundation. Focus. On the basics. You nailed it. I totally agree with with your basics Instead of getting caught up in all the hype that maybe I spend a lot of money and I get this amazing transformation.

Work on the basics. The basics will be there every time. And being grounded in the fundamentals allows you to optimize. It gives you all of the tools in And without a doubt, the one thing that matters beyond anything else on this planet, it's move more and move, more intentionally.

That's it. Move, move. Awesome. And if people want to find you, what can they find? Instagram for sure, um, at john chef at dr. John chef on tick tock.

We have a YouTube channel, dr john Chef. Um, and our website, our practice website which folks is getting completely overhauled right now. Uh, longevity lab wellness.com Denver, Colorado.

So much we'll have all the links down below. Awesome. Doc. It was a pleasure having you on the podcast. This was very informative. We went all in on fasting protocols, man, your fasting protocol.

And then you're going to tell some of your stories as you go. Oh, I'm doing it. OK, absolutely. All right. Appreciate your brother. Guys, you heard it, the foundation is everything.

You just learned something new today. It's not your typical food restriction, time management, stuff that we're so used to, this intermittent fasting.

This is different. If you know any friends, family members that say they fast, share this podcast with them. they're gonna get a good kick out of it. They're going to learn something new.

This is the way that we can help each other take control of our health. Make sure you subscribe, like, share, do all that other fun stuff and we'll see you today.