Podcast Intro and Guest Background

What constitutes breaking a fast? There are two major nutrients that will kick us out. Sugar or simple carbohydrates. But the other one is protein. The ketogenic diet can also get you into ketosis, but it will not get into autophagy.

In terms of weight loss, it is almost exclusively fat. And so we are very muscle-sparing. Vascular adiposity is the one that buries you young. on day six, you're going to crave clean food.

All I want is a green smoothie and a salad. Welcome to the TBD Fit podcast on Dr. Talks. I'm your host, Daniel Keeley, and I will be guiding you through this wellness journey in terms of optimizing health and longevity, where we unpack the science, the dos, dos and everything in between.

Come join us. Look forward to seeing you inside. Welcome back to another episode of the TBD Fit Podcast, where we uncover the science and strategies that help us live longer, stronger, healthier.

And today's show is going to be no different. I'm your host, Daniel Keeley. longevity nutrition, if you will, the fasting mimicking diet. And I couldn't think of a better guest to help explore this other than Renee Fitton, who came to me highly revered.

So Renee is a registered dietitian and an expert in fasting protocols, nutrition science, and cellular health. She has guided countless individuals through the Fasting Mimicking Diet, helped them understand not only how it works, but how we can improve metabolic health, promote longevity, and support the body's natural repair mechanisms.

Super excited to have you as a guest today. Thank you so much for joining us. Thanks you for having me. I hope that we get to excite a few of your listeners with something they haven't heard before.

Fasting has been around forever, but a lot of people don't realize you can get some of those benefits while you eat real food. That's usually something fun and new, then we'll probably get into something else interesting while we're at it.

Surprise for the end, stay tuned. So ultimately, I love starting actually each episode with the origin story of our guest. What has led you to do what you do today?

Man, I mean, it's funny because the longer time goes on, the more my origin story builds. So it gets longer and longer, but I'm going to keep it relatively short.

But I really started in the world of science just as a very interested, kind of nerdy girl who loved everything about the human body. And I thought I wanted to be a physician working in an emergency room.

I did Doctors Without Borders, went to South Africa, Nicaragua, did all of these really incredible experiences and I learned so much and i i continue to love that space but one of the things that really jumped out at me especially when i was traveling to these remote destinations with a giant backpack of medications I was like man we're leaving these people with medications that they're not going to be able to get again later until we come back you know and what can we leave them with that will they'll be beable to use when we are gone and that's really where like the concept of lifestyle medicine and especially nutrition really started to seep into everything that I was doing.

And it just really, you know, once I started within the road of nutrition, I didn't stop. I just found it so interesting and especially as a big problem solver.

It's, in my opinion, the toughest problem to solve because we still don't know any of the answers really. We're

constantly guessing and trying and looking at the literature and the research and all of that contradicting information that's out there.

You know, it's something that I find incredibly interesting and confusing, which are two things that are kind of fun to bring together. So I ended up getting my master's degree in nutrition.

I was very lucky to study under the leading longevity researcher in the world today, Dr. Valter Longo, who is my mentor. and then co-founded a nutrition tech company and was helping individuals find the best nutrition protocols and foods and restaurants and all these wonderful things through the comfort of their phone.

And then from there, once that was off and running and good, I came back to the world of Dr.

Defining Fasting and Fasting Mimicking

Valter Longo and the science behind fasting, mimicking and longevity and really wanted to help grow the education and um knowledge to to the community of this incredible solution that is just so deeply I think one misunderstood um not really well widespread yet to date and really wanted to do that so I've been doing that over the last three years.

That's wonderful though. So let's start with defining FMD, I guess, fasting mimicking diet. How does it maybe differ from a lot of people saying, you know, that I do intermittent fasting, which often enough is just time restricted feeding, but let us define it.

Let us differentiate it Yeah, so I mean, the term fasting, I like to think of fasting actually as an umbrella term, which people are always surprised by because they think, okay, well, fasting is just not eating.

That's our dictionary definition of Fasting. But there is so much more to it than that. And it is not just based off of the amount of time that we fast, but also how we Fast.

So what are you including, not including. Those are the two big kind of ways that we would define and differentiate between the kinds of fasts. So first, let's just talk about the time or length of time that fast and there's really kind of a major cutoff point that defines whether it is an intermittent fast or what we generally consider shorter fast, and these longer fast that call prolonged fast.

And that cutoff time is about two days. And people are always surprised when I say two day as the cut off point, because when we think of intermittent fasting or the shorter fast, we usually think 16 hours, maybe 18 hours.

Max 20 hours not 48. But the important reason is that around 48 hour mark or over 48-hour mark, that's where there is a really big shift and a big transition in what our body is doing and how our bodies is leveraging the fast for our health.

So I'll explain what that is in a moment, but that's a really important differentiator. Intermittent fasting certainly still has some incredible benefits in that you can, once you hit around even the 12-hour mark of fasting, you could start shifting to using fat for energy instead of just using sugar for the energy.

So you're burning fat to fuel. So it's great for weight loss and it can be helpful to just decrease your total calories. So a lot of people will use that for, for a weight-loss.

But also again, even for metabolic flexibility, individuals sometimes with type 2 diabetes or pre-diabetes are using that because again you're switching that fuel source.

Those shorter fasts have benefit, but we kind of lump them into mostly that metabolic benefit. Now, when we hit that two-day mark, that's when, we start triggering something called autophagy, this deep, deep cellular cleanup where we're essentially doing a spring cleaning and those prolonged fasts are really, really beneficial.

So I always like to differentiate between intermittent fasting and prolonged fasting. They are not one and the same and they do have different benefits.

The Prolonged will give you all of the benefits of intermittent fasting plus the deep cellular cleanup that we'll talk about. I'm sure what those benefits can be.

And then really quickly, the other differentiator between fasts are whether you're eating or you are not eating, essentially, but even are you having water or not.

So there's dry fasting where you don't even have to consume any water. There's water fasting, where only have water, and then there is fasting mimicking, when you can start adding in nutrition, food, real food.

I'm talking things even like chocolate, nuts, you know, vegetables, full meals, breakfast, lunch, dinner and snacks, But your body believes that you in a fasted state.

Yes, very big umbrella term. When is too long too, long? So you said, you know, the deep cleaning occurs after the 48 hour mark. When, is it perhaps detrimental if at all?

Obviously you can only go so long without eating in general, but where is there like a sweet spot that you find or is their target goal when you work with patients or based upon the organizations you worked with in terms of guidance?

Yeah, so it, one, it depends on the individual. It also depends your reserves. it Depends on how often you are engaging in these protocols, right? So big believer in personalization, but as a general rule of thumb, I don't recommend anything over like max 10 days, But I think at the safest place honestly is five.

And that's because with the five day, you're able to start turning on that deep cellular cleanup on day three. And then you remain in that cleanup space for about three days, so day three, four, and five.

Fasting is still a stress on the body. It is what we call a hermetic stress or a positive stress, but it is a stressful nonetheless. So the longer you live in it, even though you are letting your body continue to remain this cleanup state, you're also letting you body remain a stressed state.

I think generally the five day mark is ideal and you really only then have to do it maybe three to four times a year. I Think you can add maybe one or two more days, especially if you have, you know, maybe larger weight loss goals or things like that, that you might get a little extra bang for your buck, but going significantly longer than that.

It may have detrimental impacts. Okay. Any timing out of curiosity? So my philosophy is I try to live in conjunction with the cycles of the light, so sun and the moon, and then seasonally.

So is it better to clean house at variable times of year in conjunctions with any sort of circadian rhythmicity? Great question. And I'm a big believer in circadian rhythms and nutrition and eating in alignment with that way as well.

When we look at these longer fasts, though, there's less of that kind of circadian matching that you need to do because you're going for a five-day period.

So regardless, you are going to kind be going through over a 24-hour period, I do still recommend that individuals who are engaging, especially in fasting, mimicking protocols where you are still consuming nutrition to consume the food over the 12-hour period of the daylight, right?

And so when you wake up to when go to sleep, preferably limiting your consumption of food at least three hours before bed. Ideally, that aligns with the way the sun rises and sets, but that doesn't always work for everybody, and that's okay too, preferably.

But in terms of seasonality, no. And in fact, we do recommend that individuals do it quarterly, so once per season.

is ideal. So there's not necessarily like a seasonality, but I would still recommend that individuals follow circadian daily timing of the food that they are consuming if they're doing a fasting mimicking protocol.

Okay, so I want to get into the fasting-mimicking protocols in a minute. But first, let's establish the boundaries within fasting. You mentioned dry water, etc.

What constitutes breaking a fast? It depends who you ask, but if we go into the true root cellular definition of fasting, which in my opinion is the real definition, the way that you break a fast is by triggering your body's growth pathways.

So what do I mean by that? Our body is either in repair rejuvenation mode or it's in growth mode. When it is in grow mode, we are in a non-faceted state.

We are getting enough nutrition that our body says, oh we have the building blocks to grow. And when we do not have enough of those nutrients, then our bodies says okay we don't have building block to growth, so instead we're going to focus on repairing and re-juvinating.

The building blocks that kick us out of a fast, that put us in this unfasted state that tell our body to grow, there are two major nutrients that will kick out.

And one is one that I think a lot of people are familiar with, which is going to be sugar or simple carbohydrates.

What Breaks a Fast and Nutrient Signaling

But the other one is protein, and people are always surprised by that, especially because a lot of people taking essential amino acids when they're in fasted states, right?

But importantly, at the true cellular definition of a fast, the one that determines whether or not your body is going to actually turn on that deep cellular cleanup and autophagy pathways, those are going be blocked when your has protein because protein understandably is maybe the best building block, it is the most growth-inducing nutrient.

So, if you do not want to trigger your fasted pathways, or if want you to stay in a fast-ed state, you really want a limit sugar, but you also want limit protein, especially animal proteins, as they're high in the amino acids that will kick you out.

So consumption of sugar, obviously there's a caloric component to that, breaks the fast. So carbohydrate and protein breaks a fat. Even the essential aminos, when people are taking that during their fast, it breaks fast before we get on to the fat, is there a spectrum of what that means in terms of benefits?

So I know you mentioned like true cellular cleaning because the body will induce autophagy kind of cycling throughout. There's a muscle protein building and then degradation.

And then you mention, you know, growth phase versus repair phase. So, I think of that like in term of mTOR versus AMPK and trying to usher in those two signals, depending on what we're trying achieve for the metabolic adaptation.

I love that you're pointing at me. That means we are on the right tracks. You nailed it, you nailed that 100%, yes. And those are, again, like they're kind of competing, right?

So AMPK goes up when mTOR goes down, and so that is exactly, those actually what we call nutrient sensing pathways. They are what I like to think of as the alarm bells on the cellular surface.

saying food is here or food not here. And so mTOR is one of those nutrient sensing pathways. It's always looking out for those simple sugars and protein, actually, and when present, will activate and say, okay, cool, time to grow.

Because I'm sure then we'll speak to that in a moment in terms of the FMD and how you're using food to still kind of, I guess, support this fasting concept to make fasting, making diet.

So in term of fat, then are you suggestive of if any kind fat will not break a fast? So, you know, we do recommend primarily monounsaturated fatty acids in fasting-mimicking protocols and just generally unsaturating fatty acid as well throughout the protocol, but in general, fat is going to have the least impact.

Now, anything in too high of a quantity could kick you out of fast. So it's not like fat as a total freebie either. But it has a higher threshold, for example.

Even with protein and sugar, by the way, you can have a little bit of those things in a fasting mimicking protocol, but the threshold is so much lower before the alarm bells are raised and you're out a fast, So you can't have as much of them.

But with fat, you have a much higher threshold. So we generally see in fasting-mimicking protocols that there is about like 45% of total calories coming from fat.

I should mention, because not all carbs are made equally, there's also quite a bit of fiber in the protocol as well. And that has been able to bypass a lot of those nutrient-sensing pathways as Okay, before we go to exactly that threshold and defining then, you know, that caloric number, what else in terms of, people are always drinking things, right?

So coffee, coffee then with butter, I'm assuming if coffee doesn't break the fast with, butter certainly is not going to theoretically, so what in term of hydration is allowable or not?

Yeah, obviously water, your green light on water for sure. Sparkling water as long as, we are always a little bit cautious with even artificial sweeteners and things like that because our nutrient sensing pathways, there's three major ones, but there is a lot more than that too.

The three main ones are mTOR, PKA, and IGF-1. So those are those alarm bells that may turn on or off depending on what you consume. Interestingly, I love that you brought up coffee because In mice models, we've actually seen that excessive amounts of caffeine actually can trigger PKA, one of those major nutrient-sensing pathways.

It is relatively high amounts before that Pka is really turned on, but it does give us some caution that anything that is metabolically active has the potential to potentially activate some of these nutrient-sensing pathways and could potentially impact our ability to get into autophagy.

It could trigger mTOR, it could PKA, because we are still, I would say, relatively early on in our exploration of all of the nutrient sensing pathways, and what turned them on and don't turn them off, Think about all of the supplements in the world that we could consider studying.

I mean, the list is endless. What we end up recommending is that people really try and limit as much of these artificial sweeteners, additives, supplements, peptides, et cetera, that you may incorporate that sure, it won't spike your blood sugar, sure it wont drop your ketones, but until we know for certain what it's going to do to those nutrient sensing pathways, its better just to exclude.

So that's why we also recommend to limit coffee throughout fasting mimicking protocols to about two, maybe three cups a day. Just because excessive may trigger those nutrients sensing pathway and we just don't really want to go there.

Within my patients, I suggest to limit that in terms of a week's worth of timeline. Anything artificial to me, it doesn't equate with natural. I always say if nature made it, its okay.

If man made, stay away. In terms then of the supplements, peptides, you said certain things to avoid because we're not certain yet. Do you know any that you are certain of like vitamin D?

So for a lot of those, you'll see, for example, in Dr. Valter Longo's protocol, he actually includes a multivitamin. So there is a little bit of pretty much everything, including vitamin D, magnesium, a lotta these things that people are incorporating into their everyday protocols, whether it be for sleep, or GI health, energy, what have you.

between you and I, if this wasn't a podcast that was being sent to thousands of people, I would say yes, that vitamin D and magnesium and some of these single nutrient supplements are probably fine, especially if there's something that you really need to support you with.

some of your daily activities. So sleep being a big one. I don't want somebody to go through a five-day fasting mimicking protocol and have awful sleep for that period of time.

You take magnesium, for example, as a sleep aid or melatonin as sleep and if you don' have that you're not going to sleep, I would rather you take it.

Um, so that is my personal preference, but if were to ask Dr. Valter Longo, he would say, No, you should exclude all of those things and just stick to what has been fully studied.

And the only thing that has studied to date, there are now 40 clinical trials and they're all leveraging the same fasting mimicking protocol and exact nutrient profile that is defined within Dr.

Valter Longo's patents and research. Okay, because I wanted to belabor that only in the sense of when you look at phase one and the cytochrome P40 enzymes and going through phase 1 into phase 2 detoxification and you have obviously the large bulk of that chloronidation, then you'll have sulfation and glutathione conjugation acetylation, amino acid conjugations, methylation.

So these are very nutrient-dependent. B vitamins, the full sweet glutathione in phase two, methionine, cysteine magnesium, as you mentioned. Glutathion, again, obviously the whole suite of B Vitamins, then you have C, glycine taurine choline.

So these are very, very nutrient dependent when you are fasting and you're doing only a water fast. Sometimes we become conditionally deficient and if there's bottlenecks in our biology, which we largely see within a nutrigenomic test, what we're doing with all our patients.

I almost suggest integrating that or at least accounting for that in terms of the foundation when I am. going through any sort of extended fasting period.

So when you're, before moving on to the FMD, are you supportive of that? Or in terms of, let's say, I mean, someone's doing water, is there anything else before going into the FMD that you are suggesting like electrolytes or obviously the full suite of vitamins and minerals to ensure that now the body can upregulate these pathways?

FMD Protocol, Calories, and Personalization

For sure. So there's a reason why I'm a huge proponent of fasting mimicking over water only fasting. And that is because of all of the additional nutrients that your body is being given to support it through this detoxification, right?

There's some really cool research that was done, granted, in mice models, but it's the only study that I've been able to find so far that actually compares water-only fasting for a long period of time to fasting-mimicking, where you're adding in the nutrition.

The water only fasting certainly did have benefits. In the population that studied here, it was IBD. inflammatory bowel disease where there is huge degradation of the gut lining.

They were able to show benefit with water-only fasting, which was expected, but then when they looked at fasting mimicking, they saw even greater benefit, even better regeneration of that gut-lining.

And that's because your body is still getting a lot of the nutrition that it needs while it's going through this repair and cleanup, right? It's interesting in whether or not that applies to every condition.

I will not say so. And whether it even applies in humans, I won't say. So that just what this one study showed. But it is interesting to see that when we add in some nutrition, there may be added benefit to your fast.

So for individuals who are big water fasters, absolutely, I will be a big proponent for adding electrolytes. Of course, you have to be careful with what electrolyte you choose because there's a lot of them that add in sugar into their electrolyse.

So you want it to just be super, super clean electrolyt. But adding those electrolytes is very, very beneficial, especially because what a lot of people don't realize when they're doing water-only fasting is that one of the most common side effects of water only fasting, is dehydration.

A lot people get dehydrated because you're not eating and a lots of your hydration comes from food. You're just getting distracted and you're like, well, I don't need to think about eating.

You also oftentimes don' t think of drinking water either. Your body is going through, again, a lot of detoxification. It's using a lots of hydration.

All of this comes back to adding in electrolytes as being an additional benefit to that and sometimes even helps people remember to drink their water.

I hope that answers that question. I will mention, because you kind of started your question with a lot of the detoxification pathways and cleanup pathways, and if you have a lots of work to do in terms of detoxication, for example, you may not want to start with the five-day fast.

as your first step because it is, it works and it worked really well and that can lead to, you know, just a lot of breakdown and products that could be really uncomfortable and sometimes even dangerous if you're just doing too much all at once.

So, work with a healthcare practitioner and make sure that you are taking it slowly if Yeah, and I like you to be more specific in terms of when we do the nutrigenomic testing, I can see depending on someone's APOE allele and variant where 10A might be better for them or 812 or 16A.

And those are just kind of the, again, going back to this IM facet or time restricted feeding, which I find more appropriate. In terms then of now the FMD, so it doesn't sound like it's breaking it fast.

So let's define the caloric load here and more importantly, what I want to understand is because we all have a very different starting point just like you said is I get so many personalized questions in terms of supplements and stacks and peptides and when you mentioned previously you know adding in nutrition you found within the study that patients or people or mice would heal faster IBD, IBS again because, we're nutritionally deficient this is what happens you become conditionally deficiency and some of these nutrients that push and support these pathways when My stance has largely changed over the last decade, but needless to say is that when you layer in peptides, to me that accelerates recovery and repair even faster.

But we digress. As long as they don't trigger mTOR growth hormones, stuff like that, because a lot of them do. So you just have to be cautious there. Yeah, I'm referencing more some of these thymic peptides, not these grilled hormones, cretogogs.

So certainly, yes, there is a time and place for each of that, but where medicine is evolving, we're super excited because our patients are healing sometimes in half the time.

Now, the FMDO case. One is we established that fasting, especially extended, isn't right for everyone at the right time, I don't like the term adrenal fatigue.

I like more kind of the hypoadrenal function where resources are low, you're already depleted, now you are pushing out more stress, more cortisol, and more catabolism.

So timing matters, not only in the context of a day, but in a context largely in your lifestyle picture, where you were on your healing crisis or healing curve.

When someone is deciding to do the FMD, where do they start? Especially, let's say they are metabolically unhealthy. We have an obesity epidemic, so let us not sugar coat that pun intended.

Does that severe amount of restriction versus someone who is, quote unquote, metabolical healthier, do that consume the same amount, right? So where you make these decisions depending on where someone was at in their metabolic profile as well.

Yeah, so what is really interesting, and I always like to remind people, when we look at fasting mimicking, what we're trying to mimic is a water-only fast, right?

And with water only fasting, you do not really change it from person to person. It's just water, only from, person-to-person. And it kind of makes sense.

There's a couple of things that I want to note in terms of how the body responds, depending on who you are. One that's really interesting is that because we're really letting our body be the incredible scientist doctor that it is when we go into these fasts, we are really let it do the work.

It knows just intrinsically where to spend its time and energy. So what we've been able to see, even in healthy individuals, when they do a fasting-mimicking protocol.

Let's say you have one relatively healthy individual that just is a little bit higher in their A1C or their fasting glucose, right? And then you another person, that glucose level is totally fine, but their blood pressure is little higher.

What we see is that the individual who has high blood throughout the course of their fasting protocol, that will decrease, but their blood sugar isn't going to drop to unsafe levels.

And whereas the person who has issues with their sugar management, That will improve, But their pressure won't drop down to an unsafe level. Because our body has all of these wonderful safeguards where it's going prevent us from getting into too big of a problem, especially if we're not fasting for more than five days, right?

Which is a reasonable amount of time to fast. the body is really going to be able to tailor and it has the safeguards. So that is, I think, one really important piece to note in terms of the personalization is that our body's doing a lot of personalisation.

With fasting mimicking, there is one additional layer of personallisation that we see based off of individual's weight and that's with something called the glycerol beverage or the L-drink if you're looking specifically at the l-nutri-kits that come out.

But the glycerol is used to provide just a little bit of additional energy based off of somebody's weight. And that's mostly being added for muscle protection in individuals of higher weight, but it also helps with energy, with satiation, even hydration.

So there is some small amount of personalization that happens in fasting mimicking, But it is almost so minor that I think that we really should consider it as equivalent to water-only fasting where we see very limited personalization.

And then the last note that I will make is that in individuals that are metabolically unhealthy, especially individuals who are struggling with obesity or overweight, what we will see in those individuals is they have already more storage and nutrients already present in their body to leverage and use, right?

And so if they Delta in what they need and what They have in the kit, for example, their body is going to provide a lot of the rest of that too. And so they also typically will see an even larger change in weight loss.

So when I have somebody that has, you know, 100 pounds to lose, they're losing weight a Lot faster on these protocols and somebody who has you Know, maybe 10 pounds To lose so it also again is it's kind of naturally personalizing the protocol to what the individual needs.

Okay, so the addition of that glycerol, you said, this is not protein, what is the distribution of fat, protein and carbohydrate in the FMD kit that you guys provide?

It's about 45-45-10. So 45 fat, 45 carbohydrate, which people are always surprised by, and then 10% protein. You get about 1,100 calories on the first day, then you get 750-800 from days two through five.

But importantly, it's about more than just even the macro balance and the total calories. It's also about the micronutrients and very specific amino acids that we see.

So for example, like our branch chain amino acid are going to be more impactful and will kick you out of a fast typically quicker than some of the other amino assets.

That's kind of why we also see that animal proteins typically higher in some these more growth promoting amino acids are going to have a larger impact of kicking you out of a fast and why a fasting mimicking protocol is entirely plant-based.

The protein is primarily coming from things like nuts and seeds, for example. And if someone is struggling, they're intolerant of carbohydrates, either on low FODMAP, there's SIBO, you name it, some sort of food sensitivities.

You mentioned not long ago, the personalization component. These kits, it sounds like it's pre-packaged in some regard, I would presume. Does that mean that image is not right for them at the right time?

Not to say that fasting FMD is right from there, but these kits particularly, how much variance is there within that? So there are different kits. For example, Prolon, they have four different kids, right?

One of the kits has a little less inulin, which is a prebiotic fiber that individuals that are on low FODMAP diets typically are going to try and limit and avoid.

And even people who have SIBO or IBS, typically will see a lot of gassiness if they're having high inuline diets. Now, for example, the NextGen kit, it's the organic kit.

That one has less inulin. So yes, you probably would want to choose a specific kit based off of that. You may also just not want, as you mentioned, to start with this.

you may want maybe to go through a very strict FODMAP protocol for three months and get your gut a little bit more in check and then later down the line.

partake in these protocols. We have a lot of our practitioners that are leveraging fasting mimicking in IBS, in SIBO, et cetera, but it has to be done very, very carefully.

So I typically will do that kind of once the gut issues, the dysbiosis has been resolved.

Ketosis, Autophagy, and Biomarkers

Yeah, there's an order of operation. Okay. In terms of your process, so it's a five day process. Five day FMD, starts with 1,100 calories, then you regress or it goes down to 700 calories for the rest of the duration or goes in perpetuity.

Nope. It just, once you hit about 750, it stays there. So you don't have to keep dropping, which is a nice treat. But you know, I'm not going to lie. Is it, is it a breeze?

No, It's not. Day two and or day three is usually pretty tough. but what the good news is, Is that usually come day four and five, your body has really gotten accustomed to the experience and it usually is pretty smooth sailing from there And the benefits are absolutely worth it for that period of five days where you are restricting your intake for those days.

Let me expand upon that. And obviously this is end of one and how I have accustomed to existing and perhaps thriving. But needless to say, I'm also in April 3-4.

I do well with longer periods of fasting. Recently, this was last week, just went two days without eating. And no intent, it was just I was working long hours.

And to be honest, I felt great on that third day. I had an invitation to an event and so there was food and I decided to break the fast for nothing else other than that.

The problem is in our modern lifestyle where food is prevalent and we largely went extinct because of food scarcity or disease. It's a different environment, right?

And so. It's hard for people because they are not accustomed to eating and not necessarily because of satiety or appetite signals, but rather due to societal signals.

Oh, it's just nine, 12 and six and it is time to eat because that's what we do. I always encourage people to say, honor your appetite, your intuition.

perhaps honor the fact if you're not hungry, your body's trying to repair, it's kind of overcome. And so it is not that difficult. The problem is just how we set up our environment to make it difficult and then beyond it, I think when you said, you know, days three is maybe that inflection point.

I will agree because I've done Extended Fasts up to five days and actually day four and five, feel super clear, super sharp, full of energy actually. I'm doing the water fast.

I am integrating the micronutrients and the minerals, the electrolytes. This is actually without food for five days without a problem. This is a better mousetrap, pun intended, because you are accounting for some of those things rather than just doing the, let's say, water plus minerals slash electrolytes.

What else? I think maybe, you know, some those micronutrients, multivitamins, as you said, even though a lot of them are fat soluble, that you need a little bit of fat for consumption, so we'll use a carrier oil.

But do you feel like this is… demonstrated better efficacy. And if so, what markers are you looking at? As an example, yes, there's a metabolic profile that can be run, but stem cell proliferation, HRV or sympathetic versus parasympathetic tone.

Are you guys looking these specific things in terms of how that's effective over the duration of one to five days? Yes. So for example, we'd actually just published, maybe two months ago, a study on autophagy, for the deep cellular cleanup.

It's really tough to measure autofagie, but the breadth of the research that's out there on fasting mimicking is just growing exponentially. Of course, We've got all of basic biomarkers, But now we're getting into the fun stuff, like measuring stuff that are really hard to And we've been able to show that with fasting mimicking, as expected with water-only fasting, that it is statistically significantly increased on days three, four, and five.

And what we also see, what's cool, is that on day six, once you resume regular eating, It does decrease, of course, compared to what it was on days three, four, five, but it is still elevated, not statistically significantly elevated.

It is that concept of what I like to think of as the dimmer switch of it gradually increasing and then gradually decreasing over time. Even once you resume regular nutrition, your body is doing the final cleanup as you get back into things.

So I think that that answer is maybe one of the many questions. I thinks it's important to note, though, that there really isn't a lot of research comparing water-only fasting, for example, five days, to fasting mimicking for five day, and we cannot compare apples to apples until we really do that type of work.

So instead, we have to compare apples to oranges and say, okay, so there's this research that's done water-only fasting for three days and this is what a five-day fasting-mimicking diet has shown.

And, you know, and generally speaking we see relatively equivalent across the board. Everything, as I kind of mentioned with that IBD study, that is one study one condition In mice, you know, we need a lot more of this in humans and we needed to study it across all of the different condition types and need to look at all the bio markers because what might improve better with water only fasting might not improve as well with fasting mimicking and vice versa.

I think we really just need the data to tell us and I hesitate to make too many assumptions without having that information. And at what point do we deplete our glucose stores to where we're now transitioning into ketosis in terms of fasting and during the FMD?

Yeah so generally what we see in water only fasting is that around the 12 hour mark the transition begins. Now everybody is a little bit different into how long it takes before you're fully into optimized ketosis but for a lot of people that can happen as early as the 24 hour Mark approximately but it may take a bit longer and it again is it dependent on the individuals.

and your ketones will gradually increase. It's just kind of like this relatively standard gradually increasing curve from around that 12-hour mark, and it will gradual increase, but as many, I'm sure, of your listeners have tested their ketone, it's now relatively easy to do.

You'll see like from one person to another, its very varied in how quickly those increase now. With fasting mimicking, what's really interesting that we see is that, we will see a gradual, but yes, slower increase in ketones.

And what we also see, is when we eat, for example, one of the soups, that our ketones will drop a little bit. And what we see is that it kind of has, instead of this linear graph that goes just increasing over time with water-only fasting, we kind see kind like going up a bit down, going a up little down.

So a more of a gradual increase with periodic drops. Now, you're typically going to get, well, your definitely gonna get into some level of functional ketosis with fasting mimicking, but it is not the primary goal to optimize maximal ketoses.

I love that you mentioned when you are doing your fasts that on day three, four, five you start getting this clarity, this alertness, increased energy, all of these wonderful things that I call, and that many people call keto euphoria.

A lot of that is from the increase in ketones, that we also see in fasting mimicking too, around that same time. Again, you are still entering into the ketosis, but you're also activating autophagy, which is really like super critical and not to belabor this point too much.

But for example, the ketogenic diet can also get you into ketosis, but it will not get into autophagy because you're consuming far too many protein to allow for autrophagies to happen.

So I want to really remind people that autofagie and cellular cleanup is uniquely different than ketoses. And both are going to happened in both water only fasting and fasting mimicking.

They don't both need to happen at the exact same amount for for example autophagy to have it. Does that make

sense? Yeah, absolutely So in your kids, let's highlight that so it looks like I was just going through so there's soups.

There's nuts I don' know if there there are vegetables that are being sent or any sort of pre-packaged meals. So there is now a fully organic line of vegetable soup that is already ready to go so they're packaged into these like kind of vacuum sealed containers.

You open and you just pour out actually designed by a Michelin rated chef vegetable soup and it's pretty darn good. That is going to be lunch and dinner and there's usually anywhere from five to eight different flavors that you're going get over the course of five days.

So you get a little bit of variety in that. You get snacks like nut and seed crackers that have kale in them, you got olives. And even for my olive haters out there, because those are always polarizing, these are very, very good.

I, even as an olive hater, fell in love with olives after this. There is also, as you mentioned, a nut bar that's typically used. A lot of people use it for breakfast.

Some people actually use before bed because they just like more of this solid food before They close out for the night. But that's kind of the general concept, but all plant-based nutrition.

If you look at the ingredients, it's really cool because you're going to read things like tomato, beans. The list is maybe like max 10 ingredients and it is all things that you know what it.

No preservatives? No, preservative, no artificial ingredients. Nothing like that. Can someone replicate this on their own? Hypothetically, yes. In fact, I'm not going to tell people, don't go Google.

You can go, Google, it's out there for sure. I do urge some level of caution because none of those have been studied. All of the 45 clinical trials that I have mentioned, and I've only probably touched on maybe one or two of them, but there's all of this research.

It stems from Balter Longo's five-day fasting mimicking protocol, it's very, very particular with the specific ingredients that are used. If you deviate, there is the risk that you add something that will no longer live within the framework of the fasting-mimicking protocol.

And so there's just some level of risk to it. But is it possible? Absolutely. In fact, even in Valter's book, if you read it, it's called The Longevity Diet, there is a page that kind of breaks down his recommendation of what you would include or not include if were to make it yourself.

Okay. So, um, they buy the kit. They do it one to five days. The question was going to be, how do we refeed? Cause I suppose that's probably equally, if not more critical, but then, in terms of you said lunch and dinner, can this be breakfast and lunch, right?

You start at 9 AM, you finish at 3 PM and then you're fasting until the, what, I guess, fasting mimicking. so in, terms, of this is just reducing the calories, But in term of timing, throughout the course of the day, how much is that a differentiator?

I know you mentioned like a little bike before bed or something, the bar, but how does that play into it? It's highly up to whatever feels the best for you.

We've not done any research in terms of timing. All of the research that has been done has no requirement on how and when individuals eat them. So hypothetically, if you wanted to have it all in one sitting, you could, although we generally recommend that you split it up a little bit just for the ease of doing so.

If you are an OMAD eater or a one meal a day eater, or if you already are intermittent and faster and you typically don't have dinner, yes, continue, do it in the way that is comfortable for you and shrink or expand that eating

window around what works for your.

So that's, I think that was the primary question, right? Yeah, and then in terms of transitioning out of the fast. Yes. So the refeeding is certainly important.

The nice thing about fasting mimicking is that you're not going from just water only into refeeding.

Refeeding, Weight Loss, and Muscle Preservation

And so there is like, it's kind of like an easier step down because you've been consuming nutrition, your body has still been digesting food over the course of that five day period.

It's not as stark of a change, but we still do recommend that individuals gradually transition to more solid foods. Certainly, keeping whole plant based foods at least for the first half of the day is going to be really helpful.

I can tell you that high amounts of added sugar, really heavy meals, even excessive amounts like tropical fruits can be a lot for your body to handle after you've been in this protocol.

So really, it's just about taking it a little bit easier and it is with kind of what I think most of us define as a generally healthy diet. With the fasting mimicking, I do recommend also, at least for the first half of the day, limiting animal proteins and then leaving those for later half the of day.

Also, of course, like limiting refined ingredients across the board, so whether it be refined grains, etc. Most of the time people are going to complete their five-day and on day six, you're going crave clean food.

It's surprising to many people because maybe on Day 3, Day 4, your dreaming of a burger, the pizza, whatever the heck else it is that's out there that is your go-to.

And then come day 6 you are thinking, oh well I had been planning to go have XYZ thing that I was craving on a few days ago, and I don't even want that anymore.

All I want is a green smoothie and a salad. And it's really interesting to see how your body adapts. So also listen to your buddy in that way as well, but just keeping it clean.

Yeah, I think less of what we crave more. So it's the food that we feed our bacteria, which feed us and which begin to crave some of these healthier ingredients.

And we realign our taste receptors. Then we craved less hyper palatable foods and we need less that to elicit a similar stimulus. Once you kind of redefine the paradigm of healthy nutrition, what you guys are doing, Certainly, the microbiome change is unanimous.

We see now that people begin to make healthier choices because the food that's feeding on the kale and the nuts and seeds is kind of Mediterranean, given especially a vulture's background.

um is helping nourish a healthy microbial diversity. Beyond that though, I'm curious how much you do it relevant to the demographics in terms of nutrition and you coming back especially from um nutrition in personalizing nutrition.

The layer one I always say in term of Nutrition because at what should I eat? What should i eat in that? You go to these conferences, you know, Mediterranean is very healthy.

I am always inclined to say eat what your ancestors ate. That's the microbiome that you're going to evolve with that typically are going do much better.

So I don't have an Asian patient or the orient consuming Mediterranean rich foods. Not to say that that's bad, just suggesting is certain foods inherent or endemic to their demographic, they're typically going you do better with

versus.

myself or a partner or otherwise. So I'm not sure how much you guys are doing in that. I know this is kind of all encompassing and then this may be one layer deeper, but just curious your thoughts there.

I think my thoughts on that is that I would love to see more research really starting to peel that apart because I'm in alignment with that. I, I. Think that it makes sense.

Um, but I haven't, haven' yet seen a lot, uh, really like digging into, um, the differences. What we do see, of course, is you take somebody from Asia where they have a diet and then you bring them to the United States and all of a sudden their health just completely plummets.

But I haven't yet really seen a lot of research that's looking at, okay, you took somebody in Asia and you brought Mediterranean diet, and see how it compares to maybe a more culturally endemic diet to where So I would love to see that.

Are you familiar with anything that has like really, really come out? So my focus has been the microbiome nearly for the last decade. And so obviously nutrition is instruction and food that kale fuels a very different microbial diversity, then so does meat, and so sugar, I mean, not to say that that's right, right?

But that is the question that often is we want to, we look at nutrition as a huge lever in longevity. And for me, it's highly personalized, but yet you go to the grocery store and you get the same 10 vegetables, the 10 fruit.

But yet when you travel, that diversity grows very, very quickly. And we realize in our monoculture that perhaps what we're doing isn't setting us up for success.

Right. So that falls short in terms of now repleting what I You know, our missing microbes, if you will. And you see that transgeneration, what's happening with our ancestors and then now to the indigenous tribes.

We're losing such valuable genetic material in terms of our bacteria by a factor of 150 to one. I mean, so we're more almost bacterial DNA than we are human, but by large factor.

There is a lot of post-biotics and metabolites that confer a degree of immunity that we are only scratching the surface. So while we decoded the bacterial genome, we have done little in terms of understanding the interplay and the postbiotics and now the fungal microbiome.

And so food is instruction. At the end of the day, I say it's going to heal you, it is going hurt you. It's no longer benign. My suggestion is always eat what your ancestors ate, eat locally.

Eat organic if you can naturally, we have to make the distinction US poison or a little bit less poison. And then above all else, timing. I was curious that I addressed that initially because within Sachin Panda's work, it was very eloquently demonstrating that timing mattered more than quality and quantity.

That reframed how I practiced. It's interesting because that flies in the face of, if look at our Mediterranean counterparts, you go to Italy, Spain, dinner starts at seven, eight, nine o'clock at night.

Right? Yeah. So what are they doing differently? Well, it's very light. Movement is medicine. Stress is accounted for. The days start perhaps sometimes later.

And so while I'm not necessarily supportive of doing anything after sunset, they've evolved to do that. That's more societal rather than necessarily optimal.

But in terms of looking at like the largest meal is, you know, middle of the day, stress to me perhaps is the biggest lever and it's the elephant in the room, which cripples the entire system.

Not only internally, externally as well, drivers, like you said, so you take the individual out of their traditional environment and you see cardiovascular risk increase.

You see autoimmunity, metabolic risk factors, cancer, et cetera. So nutrition is a huge driver to that, which we're trying to underscore today. And I appreciate what you've been able to bring to the table here, pun intended.

Any kind of last takeaways, insight to leave our audience with? Oh man, there's so much. The world of nutrition is like a huge, oftentimes seemingly overwhelming beast of a topic.

But I think what is really cool about what you're doing and what your sharing is that it doesn't always have to be so complicated. It can be as simple as eat locally whole plant-based foods.

There are some things that I think pretty much everybody can agree upon, and whatever you can do to take small steps into those directions I thinks is anchor into what we do know and don't get too overwhelmed and stressed by all of the conflicting noise and voices outside.

A couple last questions in terms of obviously when you're restricting calories, usually that's attributable to weight loss. I always say I'm not in the business of weight-loss, I am in business fat loss, obviously now everyone taking vitamin G or GLP-1s, how much weight or better still, fat loss, if you guys have that data, is expected.

And then muscle loss because in our very now protein-centric culture, when you look at these blue zones, it's not a game of nutrition or protein. To me, the biggest threat was community and movement, but needless to say, so weight loss versus fat-loss and protein sparing effect on the FMB.

Yes, so super, super important and thank you for bringing this up because it has been shown time and time again because we do a lot of DEXA scans in our research.

So what they consider generally the gold standard of body composition and they see that in terms of weight loss, it is almost exclusively fat and so we are very muscle-sparing and this is important because of course muscle is Important but the reason why we see this with fasting mimicking is because we Are providing essentially I like to think of it like a little red flag to the bull right instead of your body saying well We have no protein and we don't really have nutrients.

I guess we're gonna have to go to to muscle We are giving all of this nutrition for it to be to Go over there instead to over to our muscle so We see a lot of muscle protection with fasting mimicking.

We also see lot fat loss. This does depend on the individual. In generally healthy individuals that don't have a way to lose, we will see less. For example, in our population of individuals with type 2 diabetes that do have weight to loose, just one cycle of the fasting-mimicking protocol, that's five days, once a month for a period of six months showed a 22-pound average weight loss, so It can be relatively significant with relatively low lift.

I would say, just based off of my experience, most people are losing somewhere between five to 10 pounds on their first cycle. Some of that is, of course, water weight, some of is going to come back, but a lot of it is true fat loss.

It's also especially focused in the trunk region or belly fat, and it is also very much targeting visceral fat. So we see that again in those DEXA scams that we do.

It is the right kind of weight loss, not the bad kind. Yeah, that's what we underscore within our patient population, our clinic. While a small portion of what do is weight loss, I always say that the visceral adiposity is the one that buries you young.

So that is critical to move the needle there. I appreciate the positive reinforcement in terms of this benefit, in term of the metabolic adaptation. Initially, a lot of it yet can be attributable to water and glycogen depletion.

So certainly to hear a protein-sparing effect is key because obviously muscle is one of the biggest organs of longevity. We understand its impact on healthy immune function and that to me is the protection of aging.

This has been very insightful. You've definitely provided us food for thought, unintended again, but ultimately that it's really about cellular health and the epitome of practicing precision-based medicine.

anti-aging medicine or certainly longevity and adding quality to our years. I think being conscious about resetting and intentionally repairing is key, especially in our modern lifestyle where we're constantly on the go and food is something we do in between activities.

taking a break, detoxifying appropriately. Obviously our body does that best, but needless to say being very intentional in how we can do that. And so to me, it's like in a modern age, I typically now say pain is a choice, obesity is choice.

And also living healthfully is a choice, right? So the good part with your research and your group and what you guys are doing, I think this is something that I want to integrate within our community as a team here.

I like doing like according to Ayurveda, I know you said quarterly. I love doing fall and spring at a minimum, these detox cleanses. So I don't know if there is like a special coupon code or anything we can offer our listeners or not, but I would love to do that for everyone listening to, to this kind of challenge together.

It is much easier than you imagine. especially when you're doing it with, with people that support and encourage each other. My thought process is we evolved, we never evolved with food 24 seven prevalence.

So, um, I'm constantly going through these feasts and famine cycles. And I know I understand that's end of one. I am not suggesting this is right for everybody, but that is what I encourage people to think about is something, how did we evolve over the course of humanity, right?

So going to these periods of, lower calories present likely will do us benefit. So this has been awesome. Thank you so much for your time. Where can people find you, track you?

Learn more. For sure. Well, you're welcome to find me on Instagram. Honestly, it's the fastest, best place to me, Fitton Nutrition. That's F-I-T-t-o-n nutrition.

You can also find my online. I have fittonnutrition dot com. If you are interested in doing the fasting mimicking protocols, I recommend that you check out one of two companies that are doing this right now.

One is Prolon, that's P-R-O-L- O-N. They are at prolonlife.com. And then the other one is L-Nutra Health. That's L dash N-U-T-R-A health dot com. The L Nutra health organization does, you know, they add in additional support and guidance and dietitians and all the extra bells and whistles.

So better for individuals who maybe have medical conditions that they want additional supports with. Whereas ProLon is you get the product, the kit, and you kind of take it and run with it.

Whatever seems like the better fit for you, there's two different avenues. Perfect. And in terms of cost, actually, we didn't mention that. Is there a rough ballpark, what it costs for the five days?

Yes. Well, We are going to make sure that you guys get a code for all of your listeners. So we'll make that sure you get, I believe, like 20% off. The typical price point is going be anywhere, depending on which kits you got on the Prolon side, between about $199 to $299 for five day.

Longevity Habits, Travel, and Closing Thoughts

There are also one-day kits and things like that, so I'm not going to go into those details, but with the additional 20% off, you get a nice little benefit there.

I think that the kids can get honestly as low as like 160 or something. With the the programmatic approach with the L-Nutra Health, they're typically ranging anywhere from about $249 to $299, maybe up to 350 a month.

So it's quite honestly similar to what you see, but you get a little bit of additional support. Again. really flexible and I will note just in terms of pricing, seeing as we're on the topic, that over the course of these five days you are not purchasing any other food, you're not going out for dinner.

So a lot of people end up actually saving money because if we think about how much money we are spending these days on food it can get a little astronomical.

Some people actually save money over these 5 days. More importantly, you're cleaning yourself at a cellular level and that to me is priceless. But I understand the medicine has a price.

Needless to say, this is not bad, especially because everything is accounted for, controlled and obviously we can help you guys guide you through that process.

I'll make sure Renee makes herself available too. So I'm always available. Come find me. Awesome. Okay, so this has been wonderful. Thank you again so much for your time.

I love ending every episode with one last question. If you could have a superpower, any superpower what would it be? Oh my goodness. This is a tough one.

I want something that is going to be really, really powerful, not just to me, but to other people too. So I feel like I would want that could automatically de-escalate a situation.

Like I think it could stop wars. That's what I'm thinking. I'm curious if that goes into your personal history, not that this becomes an episode of your story or psychology, but how much of that is attributable to maybe, because pain drives purpose.

I always say that. So I was just curious when people answer, cause usually comes from a specific experience, lens, goal, outlook. Well, you are finding me at a very interesting part of my life, actually, where I'm doing a lot of self-work and a lots of introspection and lot a stuff.

So I think that the answer that I have today is probably very different than what it would have been if you would've asked me this, maybe six months ago where probably woulda said something like, I'd love to read people's minds.

But yeah, no, now things have evolved. Definitely, is what I guess I am saying. Well, maybe this is the bonus. I know we're way over your time. If you have a little more time, if you want to allude to what you're doing, I think in terms of longevity, that's what this latest trend has been, right?

A lot of introspection, a lot disconnecting to reconnecting, to re-identify, repurpose. What have you found successful? Any sort of tips, tactics, tools?

What was the impetus to transform? Yeah, I mean, as with probably a lot of people, the impetus to transform was just kind of like hitting a wall and being like, man, i'm not happy with the way that I'm managing relationships, that handling my stress, and appreciating life.

I don't feel like I am living fully joyfully. So all of those things really kind of hit me all at once and I really started to explore ways to change that.

So many things have really made a difference. I will say one of the biggest ones that has been really helpful lately has, and this took a long time to figure out, presence, which if anybody's interested, reading The Untethered Soul is a really interesting book.

I would also recommend while you're reading it, because it's a tough book to read, but I think if you also pair it with

action items. There's a lot of really cool paired with the reading actual activity books that help you put it into practice because I think that's the hardest part, but awareness.

Awareness has been a really big part. Separating yourself from body, your emotions, you're stress and realizing that your consciousness is separate from all of those things.

That has be incredibly impactful. It sounds a little woo-woo, so, so life-changing. So I would say that's one big one. Gratitude journaling has been a really big for me.

Every morning, spending time doing that has really been big, big game changer. Honestly, I could spend days, we could spent a whole other hour talking about all of the things that have changed over the last little while that made a big difference.

But I think those are the two big ones. I know we mentioned offline, if you're open to sharing, and you mentioned your nomadic. So how have you been able to do that?

I think most people are. First, you have to recognize the awareness component. It's ultimately like taking stock. How do you enjoy living day to day? What's your reason to wake every morning?

what's you life's mission or purpose? And sometimes it's just incrementally like share a smile with someone, a hug. you know, a new experience, but you mentioned now that you're kind of maybe traveling a little bit more, more nomadic on both coasts.

How do you make that transition? Is it, cause usually it's difficult unless your work is remote and maybe that's more permissible. I don't know. But how, how were you able to kind just decide, okay, enough is enough or make a change?

I think for me it was I love change. I'm weird in that way. Love variety and something unique and different and experiencing as much as I can experience.

So that's really what prompted I was starting to feel very stagnant being in one place at one time. Now what's interesting is that since I have become nomadic, I've also really learned to appreciate being grounded and being in one place and having time where you're really stable as well.

So I'm glad that I had done this because I am now very appreciative of both ways of living and I think I certainly I know I still have much more to learn on really what that perfect balance looks like and how to juggle those things.

But I will say for anybody that has an interest in the nomadic lifestyle, it is certainly a challenge, especially in health and wellness and maintaining healthy habits and getting good sleep and doing all of those things.

It's actually something that I've become very passionate about and going to be spending more time talking about and sharing is how to balance travel and changing time zones and moving around and longevity and some of the things that, you know, sometimes we feel like we can only do in the comforts of our home.

But there are a lot of tips and tricks that I have for maintaining those things on the road. Anyone specifically that you're open to share? Oh, I mean, there's so many.

I would say traveling with a sleep kit, which you generally make yourself. But depending on how you sleep, some people are really, really sensitive to light and things like that.

So at bare minimum, earplugs and a face mask, but in some cases, even traveling, with like a little bit of tape to cover up lights in the hotel rooms and places like.

then also I travel actually with my own pillowcase and all like I really I have like a full sleep kit to make sure that once when I do get to sleep I sleep well.

There's also some really interesting rather novel but interesting ways to do pressure points on your body to help re-accustom yourself to a new time zone.

So I've been playing around with that a lot. Also in just playing with sleep and napping when you arrive into new times zones so that you can really quickly get your new body into the new circadian rhythm of the place that your at.

which can be very disorienting to your body. So a lot of that comes into play. Obviously, tips and tricks to get in exercise and fitness. I'm a big believer, especially if you're traveling within Europe and the United States, ClassPass is a game changer because you can do classes all over the world.

Aspen, you name it. And there's classes all over the place with class pass. So you have no excuse not to do it, even if you're the kind of person that needs to book something to motivate you to get going.

But of course, I also travel with resistance bands and stuff like that. Again, like you could keep me talking about this for days on end. Those are just two small avenues of longevity.

Of course community still has to play into it and community can be hard when you travel. The list goes on, but we could spend days. We'll have to do around to them.

This is awesome. In the show notes, we'll absolutely include, I guess, things that you're suggesting, your sleep travel kit. It's interesting you mentioned a pillowcase as well.

You're really covering the details, which I certainly respect. We have our own sleep suggestions, especially for travel, but in terms of nutraceuticals more to kind of realign circadian retinopathy.

Obviously, nutrition is, if not the biggest lever, blue light exposure early on, exercise, another lever. In terms of the meridian, I don't know if you can quickly guide through that, like a 30 second, if there's specific points.

I know for listeners who are not viewing this, If there is points on the inner side of your forearm or underneath the hand you were pressing on. It actually changes depending on how far you're flying, where you are flying to.

So it's actually very unique. There's a cool company that is coming out. It's called Uplift, I believe is what they're called. And what you do is you put in your starting destination and your landing destination.

and it will actually guide you through the unique points. It's not always on your wrist, but it's oftentimes on the wrist that you will do to get you accustomed.

They're using this actually in endurance athletes and things like that that have to go across the world and work and be their best version of themselves, sometimes within 24 hours and get accustomed to a new time zone.

Um, and, um, perform. So I think it's pretty cool stuff. It's again, like it gets relatively early, but I it, it it seems to work. Placebo or not, I don't know.

Stay tuned, we'll have to do a round two. This has been so awesome. Thank you, thank you again so much for sharing your wealth of knowledge. I appreciate our time today.

For everyone tuning in, please like, review, subscribe, share this with someone who needs to hear this message. And as always, stay healthy, Stay wealthy, my friends.

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