Introduction to the Fasting Mimicking Diet

Welcome back to the Conquering Chronic Inflammation Summit. I'm your host, Dr. David Jockers. And today we are talking about the Fasting Mimicking Diet Program and Metabolic Health.

We're going to talk about some of the latest research utilizing the Fasting Mimicking Diet Program. We're going to go through the details of that and what it actually does inside your body.

Now my guest is Dr. William Hsu. He is a distinguished endocrinologist with over 20 years of experience at Harvard's Joslin Diabetes Center. He's been serving as Chief Medical Officer at L-Nutra since 2019.

In this role, Dr. Hsu leads the clinical development team and oversees Medical and Scientific Affairs. He also established the L-Nutra Health program, which focuses on diabetes remission and regression.

Before joining L-Nutra, Dr. Hsu was Vice President at Harvard's Joslin Diabetes Center, where he spearheaded global healthcare advisory initiatives across 12 countries.

And now he's doing great work with all the research you're doing over at L-Nutra And you can check it out at L-nutrahealth.com So again, we're talking about the fasting mimicking diet.

This sort of nourished fasting program and how it up regulates autophagy in your body and improves your overall metabolic health. And so you guys are in for a treat here.

So without further ado, let's go to the interview. Well, Dr. Hsu, always great to connect with you. And I love all the great work you're doing with L-Nutra and all the great research that you guys are putting out and, excited about our conversation.

You know, you and I, we share, you know, we're both, in a sense, fasting, evangelists. We really believe that, you know, fasting is one of the most ancient and expensive and powerful healing strategies known to mankind.

And today, we're going to talk about nourished fasting and how that can really dramatically benefit the body. And so let's let's start by, you know, breaking down for listeners that are new to fasting, what fasting actually does to ourselves, organs and and ultimately the body as a whole.

Yeah. David. Well, thank you so much for for having me on on your and your show here. you know, fasting is one of the most ancient traditions. all around the globe.

And, and so it might seem like a, a new trend, but but in fact, every living organism on earth has gone through fasting. Think about the days before refrigeration, agriculture.

food didn't come by easy. We had to go out to look for them. And from time to time, nature hasn't always been kind. So there's always periods where there's not enough food.

And so the body really has developed a mechanism to cope with that.

How Fasting Triggers Cellular Rejuvenation

And and there's actually more story than that because not only do we cope with that, the body actually has developed to turn that disadvantage of food into advantage.

And then allow me to explain a little bit when when there's no food, the body says, well, it's not time for growth, but

it's actually time for rejuvenation.

It's time where the body needs to kind of hunker down in and clean up its, internal mechanism, if you will. And so this is the time when the cells say, hey, you know, what can I use to burn, to burn for, for as a source of energy.

And so we begin to look for things a little bit older, a little bit more worn out and shoot it up as a source of energy until the food arrives again. And so by that process, the cells typically actually decrease in size because because this process called autophagy.

But where is self eating to to looking for energy to sustain itself until food becomes available again. That typically happens for a couple of days. And and so this you can imagine the cells of a shrink by a little bit.

But by the time food becomes available again, the cells is going to grow back by replacing those worn out parts with new parts and thereby completing their cycle, the rejuvenation.

I mean, just when you think about this, right, when nature doesn't have enough food for the body, the body goes through this process. You're supposed to be really bad for you, but it turns out, you know, you turn that disadvantage into advantage by actually now replacing parts of the older parts of the cells with new parts.

And now the cells emerge, healthier and stronger and in some sense younger than before. I mean, this is really the miracle of life. Yeah, it's it's amazing.

And and really, it it works with the cycles of life, you know, just like we have cycles like, winter, spring, summer, fall. Our ancestors had feast and famine seasons where food was available.

You ate and you ate well because the food was going to spoil you. You didn't know when your next meal was going to come. So he ate well. And then obviously they had, you know, times where they had a bad hunt or a bad harvest, right? And food wasn't available.

And so they would just naturally go through these cycles of building and then breakdown and repair. And this was just built into our DNA. Now we have to be intentional about it because food is so prevalent, which, which, which is a positive thing.

But now we have to realize, hey, we've got to kind of mimic some of the things that our ancestors were doing that, gives us greater resilience in life.

And so fasting is one of those things. And there's so many people all around the world that are getting amazing health benefits utilizing intermittent fasting, extended fasting, and then also nourished fasting, which is what you guys have specialized in.

And so let's talk about let's talk about, you know, different fasting strategies and of course, nourished fasting with the fasting mimicking diet. Yeah.

I think, you know, when you think about interventions such as fasting, it's really in my mind a double edged sword. And what I mean by that, you know, is something that's good, but if you do it too much, it's always harmful.

Right? So think about, is it good to run a marathon every single day? Of course. No, no, it's too much. Right. So you also have to, to, to train your body to leading up to that kind of long distance training.

Same thing with, with fasting, remember. And fasting is a stress to the body right. So because you're not getting the nourishment. And so what what we are doing with fasting in terms of the body is adaptation.

It's nothing short of miracle. We talked a little bit about it earlier, but when it's not done right, for example, when the fasting is too long, when it's too frequent is remember starvation?

It was never really meant to be good. Starvation is not good. Right. And and and but now, modern day folks, we've taken that to, to another extreme where we, we would avoid starvation at any cost.

And that is just, you know, we're eating too much. We're growing all the time. There's this growth signal coming from all this food, all the time, 24 over seven doing our, our, sort of a weight moments.

That's also not good. But remember the other side where there's not enough food, no nourishment. Starvation is also not good. And so this is where, you know, even even with exercise.

And as we mentioned earlier, there has to be a happy medium somewhere where you're getting just enough fasting, but also enough nourishment. Right? That's got to be in the middle ground.

And this is where the concept of fasting will begin. Diet. And and Dr. Jockers, you mentioned nourish fast. I really love that term. Right. The idea that the how can we hack the physiology of the body so that we can get most of the benefits of fasting without the burden associated fasting is what really underlies the fast moving diet.

Nutrient Sensing Pathways and Metabolic Health

And so, maybe allow me to explain a little bit, that concept, you know, it sounds initially like an oxymoron when you have what's in nearest fast. When you fast, most people say that means no food.

How could there be food and fasting at the same time? Well, you can imagine that that, that in order for, you know, on the behavior side, obviously when you eat, you're not fasting.

And that's a very simple term. But when you think about, on the level of the cell, we have something called the cellular fasting. That means what is the condition by which the cells actually experience fasting?

It's not the absence of all food because there's always some nutrients flow in the blood. Even when you're fasting, there's always glucose level. I mean, the glucose level never drops to zero. Yeah.

You'll be dead right. So for example, glucose level during fasting could be 75. It could be 80 milligram per deciliter. There's always some nutrients.

So from the the health perspective is not the absolute absence of food that defines fasting, but rather is there a level of nutrients under which there is no signal for, for for nutrition.

So now we understand as we look at the cells, they are these eyes and years and nos of, you know, we call the receptors inside the cells or on the surface cells that picks up the scent, the signals from protein molecules, from amino acids, from glucose.

So and there's always a threshold, almost like the thermostat in our house. Right. You don't turn on the thermostat until a temperature reaches a certain level below the temperature.

You actually don't trigger the thermostat. You don't trigger that that either or AC. So the same thing for cells, right? These receptors have a certain set point if you provide food underneath.

If you provide the amount of food that's below these, these thresholds, then the cells actually says there's not enough nutrients for me to perceive it as nutrients coming in.

And that sense, you could actually provide nutrients at the same time, mimic fasting. So you provide just enough nutrition to support this journey of fasting.

But at the same time, we're getting the benefits of prolonged fasting. That is the secret of the fasting being done. Yeah. When we talk about those nutrient sensing pathways, some of the ones that are most well researched are your mTOR mammalian target of rapamycin pathway and your IGF one insulin like growth factor one, and of course

just insulin in general.

So those are your three I guess you could say most well researchers there's a number of other factors involved. But those are the three that, probably have the most research or most discussed in the longevity space and natural health space.

And so those are the ones that we're looking to, to suppress basically, or to keep under that key threshold right where they're triggering, you know, they're changing the physiology of the body when they're triggered.

And so can you briefly explain, you know, mTOR, IGF one, insulin and what their what their jobs are and what they do. Yeah. So so essentially, you know, these what we call receptors, these are nutrient sensing pathways.

What they are is they tell the body what to do, when in the presence of a lot of nutrients. So you can imagine every day we need certain nutrients to grow.

And when you're a baby or when you're a teenager, you're constantly, constantly growing. But certainly when we reach adulthood, there's a certain maintenance we have to do because the cells die, you have to replace them, but certainly not at the same level.

When we were a teenager or a baby. Yeah. Now our our challenge comes when these nutrient sensors are always activated in our society. As you mentioned earlier, we have so much food that in fact, we I mean, as a society, we just all read from morning till night, other than the time we're eating.

Okay. And so that constant signal of growth, growth, growth through these nutrient sensing pathways resulting many of the one age related conditions and two chronic conditions like diabetes, obesity and hypertension, others, because this simply too much growth signal.

Now also when you think about growth in you know, in our society this sounds like a that's a very positive target. We are growing. The problem is when you are already a society, when that is 70% overweight, I mean, how much more growth do we need?

And when there's too much growth lever, for example, we call that fatty liver. Well, when there is too much fat in the belly, we call that central obesity.

And with all these things happened together, I mean then we have metabolic syndrome with prediabetes and then it's prediabetes. So so there is downside to growth.

Remember there's always a happy medium because when there's too much activation of these nutrient sensors it leads to the start of many of these, these age related conditions and chronic conditions that that we call metabolic syndrome.

On the other hand, a lot of people, may not realize this, that there is when there's too much growth signals. It also accelerates aging pathways because, you know, you can imagine, for example, let's say you have a sports car you love.

You love putting the, you know, the pedal to the metal, to the pedal, maybe the pedal to the metal, right. So all the way down, what happens? You arrive at your destination faster, but at what expense?

Look at your your the chair, on your tire. I mean, it gets worn out. So it's one of the side effect of all this growth signal is that that the body is growing too fast.

And so it really activates aging pathways. And that's, that's exactly what we don't want to see in a society where, you know, we we may live a little longer, but the problem is we're getting diseases much, early in our lives.

So, so the idea of healthspan is decreasing, even though we can use a lot of medicine to keep life. So to keep

going. But the problem is the time, the amount of time we say in healthy range becomes shorter and shorter.

And that's a huge positive that we're paying now. Yeah for sure. You know, we think about mTOR insulin like growth factor and insulin. You know they're they're their job in a sense.

You know, that they have a number of different jobs. But one of them is that they grow biomass. And so, you know, when you're a child or you're pregnant woman, it's normal to have elevated mTOR like that.

You need to be in a state of of elevated mTOR, right? You become an adult. You don't. And you only need short periods of time where your your body's focusing on growth.

Obviously, we don't want to sacrifice muscle tissue. We want we don't want sarcopenia as we get older. So there's there's some growth or some mTOR stimulation we need, but we actually need to spend a lot more time in autophagy.

Why Nourished Fasting Is More Sustainable

And when mTOR is stimulated, when insulin insulin growth factor stimulated, it blocks is one of the biggest problems with it is it blocks autophagy, which is the body's self eating self-repair process.

So now we can't repair. So I think about it like a copy machine. It's like okay, you want 100 copies, but the copy machine is just sputtering out copies.

And now it's copies of copies and now they start coming out blurry. Right? So you get 20 good copies and you get 80 blurry copies. Well, that didn't do you any good, right?

And that's kind of what's happening there. We actually need to reset and make sure that the cells that are replicating are replicating properly and that they're healthy and that they're stress resilient, and we end up with a, a number of these senescent age cells when when these growth patterns, these growth factors are elevated for long periods of time, like, like we were both talking about people eating all day long.

And it's in a constant feasting mode. Yeah. And we're seeing this, not only here in the United States, but actually globally. the fact that is that there are more people in the suffering from over nutrition than malnutrition or undernutrition around the world.

I mean, this is the world really has changed. And, and I think the solution is not more medicine. Right. Well, what I don't really want to bring up is we got.

A rhino deficiency, right? a semaglutide semaglutide deficiency. Right. Well, I mean, that's what we are led to believe. And I want to challenge that concept.

Right? So. So we know how we came about. There's just too much. Too much in nutrition. Too much the, you know, sort of the irregular intake of nutrients the way bag is not to treat it with another medicine because that's about it to, to bring another side effect.

Right. Which you're, you're yes, you're losing weight, but you're also sacrificing your muscle mass and thereby reducing your metabolic rate and your body composition.

Not screwed up. And but we knew how we came about. It's a, it's a it's really an eating related condition. And so the way back is naturally by introducing certain amount of fasting here.

But do it very humanely but also do it very safely. Right. If you can have a nourish fast where you give the benefits of Provo fast, but also still getting to poor, you know, by providing just enough nutrients that we develop.

And so if we calibrated that, I think you get the best of both worlds. This is this is really the 21st century way of

fasting. Yeah. For sure. And and, you know, for me, I'm a huge advocate of intermittent fasting.

I've done extended fasts. People get great results with extended fasting. But, you know, you take an average individual, especially somebody that maybe is has been on an ultra processed diet and they may not have a good experience.

A lot of people, there's low compliance level when you get people doing certain fasting regimens and what's been most intriguing to me is not only the great research that you guys, the data you guys are consistently putting out, demonstrating, effectiveness with the nourish fasting, with the fasting mimicking diet, but also the very high compliance levels and and overall satisfaction that people have afterwards.

And, you know, you and I being doctors, we realize, hey, you know, we can give people the best advice, but ultimately if they don't follow through, right.

it really didn't do them any good. I think the, the solution, the 21st century solution needs to be pragmatic, right? You could tell them, hey, you can go check in into a hospital and be on a ten day fasts.

And and so, I mean, look, I, I'm going to do that. And for a lot of the, the, the individuals with some health conditions, they may not be very safe to do this on your own.

Let's say if you have diabetes and others, I mean, you can imagine, right? And you can spell disasters if you're not really careful with how you're managing medication.

This is also why, et al. Neutra, we have developed a, a medically supervised program called Neutral Health. In this program, we're actually using the same technology as prolonged.

That's the five day nearest fast, but now with supervision, with medical doctor, supervision, with dietitian as part of this journey so that people could actually, able to allow the body to go to activate the body's own ability to repair.

And so we call the diet call that the, the program, the diabetes remission regression program. I mean, we're even using this now, this entire program format with doctors, dietician, the FMD, the fasting, the they can diet.

Right. And modern technology of of coaching to support the individuals through a journey of disease remission. And this this is to me is a pragmatic way.

It centers around a five day fasting mimicking diet. But all around the month you've got human support, you got medical experts. to me, this this has to be you cannot just tell people to say it be a saint and e perfectly, you know, for, for, for, for a course of a year.

I mean, of course, everybody knows that it's just like smoking, right? And everybody knows it's not good for you, but some people still do. Everybody knows that 70% of the population knows that they're overweight.

But the solution has to be doable. Pragmatic, right? It has to be evidence based. Yeah, absolutely. And with the evidence that you guys are the data you guys are putting out, you're turning on more and more people that, you know, we're in the I guess you can say kind of the the medical pharmaceutical model.

they're they're, they're becoming more and more open minded because they're seeing the data. Right. And again, I think for me, you know, I look at like, okay, how how easy is it for people like what's a compliance level?

And like I think you guys have like when people start the program, it's something like, I want 90% compliance. Like the people think, yeah. So it's amazing because like a medical doctor will tell you if they can get 90% of their patients just to take their medications.

Right. That's that's a big deal. I think the reason is because, this is one interventions where you see results quite immediately. Think about it. Right.

For five days.

Brain, Ketones, and Autophagy Benefits

I mean, you, you know, when you begin to see your waist size decrease, when you begin to see that your, your mental clarity, is becoming even more obvious.

And, in five days, you're seeing a decrease in your metabolic age and, and all these changes, right? When you step on a smaller scale, you see the changes in body composition.

You see muscle is being preserved. You see your visceral fat is decreasing. I mean, five days now, I mean, it's not the easiest thing to do. But on the other hand, there's no drug, there's no drug side effect, and it's only five days a month.

I mean, when when you begin to weigh the benefits and the risk and they say, well, what else is there? So. Right. So save and and, based on lifestyle changes, I mean, so, I think, this explains why the hearing here is rate is high and because they not only do the numbers get better at, they also feel better.

I think people coming for those biologic marker changes, but they stay and they keep doing it because the way they feel, and it's not surprising if you think about in the ancient days, well, why did people go into the mountains and, and fasted and prayed and try to get close to, to to God?

Well, because they felt better, right? I mean, it really purifies their, their cut of all these noises coming to their mind. And so there is definitely not only physical benefits but also emotional benefits.

Not to mention there is often linked to a spiritual realm and impact that comes from fasting as well. So yeah. Let's break down some of the physiological mechanisms that are behind some of those benefits.

Why people feel perhaps more creative, more innovative, more, intuitive. Right? Obviously, we know that ketones are elevated during this process. Right.

And that that helps to down regulate the neuro inflammation in the brain. And it helps to balance the glutamate, the Gabor ratio, so people feel more calm, relaxed.

They're able to think sharper and clearer and just kind of, you know, less brain inflammation. Right. That's a good thing. so that's that's obviously one of the great benefits there.

And then of course, they're getting mitochondrial biogenesis in the brain as well. Or the mitochondria are becoming more stress resilient due to the autophagy in there. And the metaphor that's taking place.

And they're getting more of them, more mitochondria in the cell, more energy production, better cell, detoxification and cellular strength. So it's all powerful.

Now you guys have it actually broken down as far as okay. You know, day one you're eating this this food which turns into this amount of calories and these set macronutrients that have been studied carefully to make sure that they don't trigger these nutrient sensing pathways.

And then day two and then day three. And you guys know, okay, basically how when the ketones are going to start to elevate, when autophagy, starts to really pick up and increase.

And when stem cells are, are, are starting to develop. And so can you break that down for us through the five day program. Yeah. So there really a couple of different levels right there is sort of the organ level.

The tissue level there is the cellular level and there's the behavior level. So so it's very clear. For example, when you first enter into a fasting, say the first thing you do is you burn up your glycogen storage.

These are the, the, the glucose, or the or the carbohydrate stored in the muscles in the liver. That's usually first day you burn them up, certain day you turn into burning fat.

And that's where where you mentioned earlier, right. The fat becomes the source of fuel and then and generation of ketone then that's when the body begins to shift into a different fuel.

burning by third day, that's when the body says, hey, you know what? I don't think I'm getting enough food here. And this is where I'm getting a little nervous here.

The cells begin to say, well, I need to survive. And yes, I'll take the fat, take the ketone. But I'm also going to look inwardly for that source of fuel and begin that process.

The toxic. But I tell you that we, we have data in, in humans now that to show that autophagy actually doesn't quite start, until much later in the process.

So perhaps by third day you see the start of that, that deep cleaning. But it's going to take four day for day five to for that autophagy truly to be activated.

And so, so this is on one level. But you know recently we also published another paper that just came out, involving people with diabetes for 12 cycles of FMD.

So they do five days per month for 12 months. Well, what also very interesting behaviorally is while the focus was on the nutrition on the five day FMD fast moving diet, we were so surprised at the Jockers that we saw by the end of 12 months, the group that were on the FMT that had that, they actually ended up having four more, actually, about 3 to 4 hours more activities per week.

By the end of the study, physical activities. Now, this is this is one of the really rare and expected results.

Inside the Five-Day Fasting Mimicking Protocol

You focus on nutrition, but you ended up, treating the other pillars of lifestyle medicine. And we understand why. Because because of the unique physiology and unique impact of of of nearest fast with fascinating diet is that you lose the fat when you lose the fat, but you preserve the muscle, unlike drugs and like ozempic and like other chronic low calorie diet, you don't lose the muscle.

So people actually feel like, wow, look at, look at I'm losing the weight. Hey. But I'm feel I feel lighter. And I since I maintain the muscle, I'm actually relatively stronger because I have not lost the muscle.

And because they see the immediate impact of the diet, they now are activated. Motivated to say, well, I'm going to put my energy somewhere else now, right?

Namely my physical activity. And so at the end, I mean, which doctor, which dietitian, which nurse doesn't want to see their patients being activated all throughout not only the day but also physical activity.

So we're very, very surprised when we saw that. But but you now you retrospect it makes sense. People who see results early and they and they stick with this intervention ended up wanting to take care of their entire health holistically.

And so we were very, very pleased to see the results. when it came out. Yeah, absolutely. And I would credit the maintenance of the, lean body tissue.

And in fact, I think some of your studies have even shown almost like a, increase a slight, very, very slight increase in lean body tissue. I would actually, I would credit that to the elevated.

And I don't know if you guys would measure this, but the elevated circulating human growth hormone. Right.

Because we know that when insulin comes down, insulin is an antagonist to growth hormone.

And so, that growth hormone tells the body preserve bone tissue, preserve muscle. Right. Burn fat, keep our muscle and our bone right. Which makes sense from an ancestral perspective, because when food wasn't around you, didn't you?

If you got weak, then you're not going to survive, right? You actually need you need heightened senses. Yeah. You need your strength and your vigor to have a good hunt or to go long distances to find some sort of food.

So it makes sense from a survival ancestral perspective. And we're getting that stimulation as we do this, this sort of fast. And you see that actually the beauty of this is that you can all not only see this in human, but think about in the animal kingdom, you think about a tiger, right?

Tiger doesn't hunt every day, doesn't need every day. I mean, it hunts and then it's a couple of days goes by and the body becomes hungry. Can you imagine in between the hunt that the tiger says, oh, I'm so depressed.

I mean, you know, I'm so hungry. There's no food. And the muscle just atrophy during these couple of days because there's no food that species would never have existed.

Yeah, right. The fact that these big cats continue all the animal kingdom during fat is a heightened attention, heightened mental clarity. Right. So it's focus on one thing that is the hunt for the next prey and also the muscle is preserved.

So it's healthy enough to not to chase after the deer and others. And so it's a beautiful story. Yeah, absolutely. Now with your research, you guys have also shown that the biological age of the individual, when they go through, I believe it was like three cycles, was like one of the main studies was on like three.

And I think there was one on six studies. And correct me if I'm wrong, six cycles, I should say. of the five day fasting, mimicking diet, basically doing it five days a month for three months.

and, and, and go into more detail about that. The, the. Yeah, it's, this this this is, this is really one of the, one of the, the study that really link, everything together.

Right. So for a long time we know, for example, when you're on the PhD, your metabolism improves, right? Your fat decreases, your, you know, all these benefits anymore.

In fact, in the diabetes program, we're using it to reverse diabetes. And we all know that. But how does that tie into aging? How does that tied to biological aging?

Well, I mentioned earlier, when you're providing so much in nutrients, a lot of times the cells get too old, you know, because they're just like the the tread on on the tires.

It's just get worn out with constant stimulation of growth. But when you lower, when you reverse the hands of clogged, you know, the, the the hint of time or the, the clock of time when you're reversing this age, what happens is the cells actually get younger, right?

And how do we do that? It's actually through the process of autophagy. If you're replacing the older parts with new parts when food becomes available again, right.

You're actually making the cells physically actually younger. And now we we are able to show we just published a paper in Nature Communications earlier this year with three cycles, FMD, because they're the process of autophagy or cellular turnover.

You're actually making biological age lower. So three cycles FMD. That's 15 days of every year, lowers median biological age by two and a half years. So what that means is, is, you know, we cannot change our chronological

logic, age or whatever birthday you already you can't change erase history.

But what? But we all know, for example, somebody who is 50 years old may have a body of 45 or a body of 55 or whatever number. Right? So the the, the chronology of the age does not represent the health of a per person.

And now we have ways to assess what is the physiological equivalent, of an age. And now with, with words that, that we published with Morgan Levine from Yale.

what we show was that reduction two and a half years of biological age. But the most beautiful thing, out of this study is it had nothing to do with with weight loss.

Doctor Jockers. I mean, think about this. Every intervention that we often hear about, about benefits, you know, for the heart, for, for for the brain, for it's all because of weight loss.

But but regardless whether you lose weight or not, with FMD, the benefits, the biological age reduction is there. So it means that, for the first time, we're introducing another mechanism that can make your body function younger, not necessarily going through the weight loss pathway.

Biological Age Reduction and Diabetes Outcomes

And so this is huge for us. Now weight loss obviously is but it's beneficial for health. Right. But now in in a waste obsessed society now we're we're also showing that even with our weight loss because the cellular turnover because the cellular rejuvenation, because this replacement of older parts of the cells with new parts through this prolonged fasting, we now have a new mechanism to drive healthier and longer.

healthy lifestyle, without necessarily be so focused on weight loss. Yeah. And that's important that, you know, there's a lot of people out there with health conditions or people that want to optimize their health and aren't looking to lose weight.

Like, for me, I've never tried to lose weight in my life. I'm lean, right? So I practice intermittent fasting. I've done the five day fasting mimicking diet.

I do these things to optimize my cellular health, not to try to lose weight. And so you might be out there listening, thinking, well, I don't want to lose too much weight.

And that's really that's one of the benefits of fasting mimicking diet as opposed to doing like a just a water fast is that you're not going to lose as much weight in a sense if you're if your body if that's not a need of yours.

And the body smart body knows if you need to lose weight or not. And and with five days per month, I mean, you're not going to overshoot on the weight loss, right?

So in fact, if you're near normal way you once you lose that that way during the five days during the re feeding phase, you're going to gain those back.

And that's a good thing because you know, whatever you replace whatever you depleted through autophagy, you actually want them back just in the newer form. Right.

So so that replacement is actually good. So yeah. And for leaner people, basically what happens is where you do lose a little bit of weight is when that glycogen gets burned.

That glycogen also brings water with it. And so you end up basically just losing the water weight. And so as you start to eat back and you replace those glycogen stores, now that kind of water weight in a sense comes back.

Whereas with people that are overweight you're getting insulin down, you're getting these growth factors down. And because of that now your body's actually better at using fat for fuel.

Even outside of the fast, you become more what we call metabolically flexible, better at burning fat for fuel, lower amount of insulin. So now your metabolic machinery is running better.

So you're burning fat, you know, all throughout the month as you're as you're doing that. So the weight loss is in a sense it's more it's really about changing around your metabolic machinery than just going for a number on a scale.

That's absolutely right that the body composition goes through changes. For example, the paper we published in Jkm, involving six cycles, FMD in people with type two diabetes, they lost on average 22 pounds while preserving lean body mass.

Think about this. I mean, we don't ever see this. You know, when you eat tacos and you lose weight, but you also drive down your muscle? there was a 59% reduction in insulin resistance again, right.

This is the right way to lose weight. We saw that two thirds of people were able to reduce their medications, rather than needing more medicine to reach a better sugar.

It's actually less than medicine. to reach that the a better sugar. And then of course we saw a 1.4 hemoglobin one C drops. So all all in all heading that all driving in towards the right direction of of restoring your metabolic health without medications activate your body's own ability right to rejuvenate.

And I think this is really a major innovation in health care. Yeah. For sure. And and you know, somebody like yourself like for me, I have kind of a natural bias towards natural health, nutrition lifestyle.

But for you, I mean, your vice president of Harvard's Joslin Diabetes Center, right, where, you know, you're working with, hey, let's the best medical science trying to figure out what we do for diabetes, right.

And then, you know, obviously came across this more natural approach. And then I think, you know, regardless whether it's medicine or natural, I mean, in the end it has to work.

And and so when I saw the evidence and how through these kind of the and it's through activating the body's ability to do this through fasting we diet.

I mean, I like to me this is where health care needs to head, right? We spend so much money on pharmaceuticals and we commit our patients to a live role.

Dependance on medicine, and also a philosophy that none of these diseases could be reversed when in fact, they can, to me, is a travesty, right? Yeah. When?

When when the body could get younger. When the body can repair and think about it, when you get a cut on your finger, on your finger, on your hand, what do you do?

You allow the body to heal you put a Band-Aid up and keep the wound clean. You put a Band-Aid on. That's it. The body has the ability. So how do we activate the body's ability?

And this is really a pioneering field called regenerative medicine. Right. So how do we allow the body to do this? And, and and I think we've seen from these mechanism how, you know, to trigger autophagy, these pathways conserved from essentially from, from single cell organism like these to fruit flies to, to mammals, like rodents and then to humans.

we're just at the beginning of a forefront, right, of discovering what human body can actually do. And I believe this is a beginning of a transformation in health care. And.

Yeah, and I'm excited that more and more people are looking for evidence based approaches that, that relies more on the body's ability to, to rejuvenate.

And, and then there's a whole branch of lifestyle medicine right now that's, that's becoming more mainstream. There's also, a many other, sort of pathways right now in different discipline medicine that that is really asking a tough question.

Right. Are drugs? Yes. As powerful as they are, are they truly the solution for chronic conditions like obesity, metabolic syndrome and diabetes? And I think I think we're really giving some very powerful argument that that, lifestyle medicine that, need a lot of the body can heal itself could be really the next, major wave in health care.

Yeah. For sure. I mean, ultimately, you know, you and I agree on this, that medications, for the most part, unless somebody has a chronic genetic condition or whatever it is, I would say for 99% of individuals when they're when they're on medications, it should be for a shortest amount of time as possible.

Meanwhile, we're trying to get to the root cause back. Right. So a lot of medications are necessary for a short period of time. And then you address the root cause factors and you're able to get off of those medications.

And that's the way that our system should be. And so fasting mimicking diet is just a really powerful tool that people can implement to help preserve, you know, to help improve their metabolic health.

And we know that metabolic inflexibility or, you know, metabolic disorder, a metabolic disorder, a insulin resistance is at the root of almost every chronic degenerative condition out there.

it's a driving factor in all of those. So it's a really powerful tool. And let's break it down. You know, just kind of finish off like basically order.

You can go to El Neutra and you can order kind of a basic, five day fast. And you guys have you guys have developed a few different ones for different body conditions, like, I believe there's one for cancer or one for diabetes.

And you correct me if you're wrong, but I know that the basic, the basic five day prolonged passing, mimicking diet somebody orders that first day is kind of a transition day, right?

It's like about 1100 calories. And it's so it's a calorie restricted diet that's part of the nourish fasting model.

Clinical Programs, Research Pipeline, and Closing

And it's also high in fat, low in protein and higher in kind of fiber and complex carbs in such a, a ratio in a in a way. And usually, you know, it's non-GMO, gluten free, right?

All those things, in such a way that we don't trigger those nutrient sensing pathways. And then day two is a little bit lower calorie, believe it's like 800 calories a day, two, three, four and five.

And again, there's a couple different programs, but can you kind of break it down the actual practical element of it. Yeah. So the you know, if you're healthy, generally healthy, you're looking to to support your health, you know, healthy longevity lifestyle.

You're you're looking to support your metabolic health. You can go to ProLon, ProLon Life. That's ProLon's the product, which is really a five day structured meal kit.

But everything you need to consume for food, it's in that box and inside the box. It's labeled day one today, five. Every day you just have water and there are soups.

They're bars there. They're there are micronutrients such as vitamins that support your needs of the body. And so by going just eating the food from the box, you're mimicking a fast for five days.

Now, if you happen to have condition, health conditions, we actually have developed a metabolic health program.

We also have developed a type 2 diabetes remission program that is medically supervised.

There is there is a team of doctors that are licensed and, and and there's, team of dietitian to training, longevity medicine and also metabolic health to help you to target the root cause of these conditions.

That is a different, program. So the the product is the product for health and, and wellness and longevity. And then we have a full fledged, chronic disease management program if we well, that's medically supervised to make sure that that will.

Well why why do we need that. Well because it works. When it works, your medicine needs to be reduced appropriately so you don't go into low blood sugar.

So with that we it's under the flagship of L-Nutra Health L-nutrahealth.com That's the management program basically from is A to Z solution to to help you to restore metabolic health with natural means without the use of medicine.

Yeah. Wonderful. You guys are doing great work. You're constantly publishing more and more research. last question. Just what are some of the things you're excited about?

Obviously you guys have several different things that are in the works, right? That will be published over the next, let's say, a year or two. What are you most excited about, with these new studies?

Yeah, I think, you know, we have a very rich, research and, and development pipeline, so. So I'm fortunate enough to, to had that that, clinical development area.

So metabolic health is certainly one of the first areas we're tackling. So now we have the L-Nutra Health for diabetes. We have the Metabolic Health Program.

but along the the R&D pipelines, we also have what, what may can come very quickly on the heels of diabetes is our, Cancer Program, which we're in the process is still developing.

there is a whole field of autoimmune conditions where we're we're developing programs for and then a little bit further down the line, but certainly very, very important and is actually neurodegenerative areas.

And so like Alzheimer's and other so so please stay tuned. Stay tuned with us. And we, we have lots and aspirations but but we also need we also realized that our society needs a different solution than just giving medicine.

So yeah. Yeah that's important guys. That's important. You guys are doing the trials because you know, we have a theoretical basis to and case studies to say, hey this can be very beneficial for these various conditions.

But if before the FDA is going to approve that, before you know that larger medical world is going to approve it, they want to see human studies. And so it's really and those those are time intensive and expensive and, and and valuable for the, you know, for, for everybody because they help to, you know, give us good quality data and look for areas where there perhaps are weaknesses or things that we just weren't expecting.

and, you know, really show the clinical proof. So I think it's really valuable. You guys are in that that's one of the reasons also that, you know, when you guys, when you do the five day fasting, mimicking diet for yourself and you go to ProLon, you get that you're actually making an investment into this sort of non-pharmaceutical based research into.

And you're involved in it. Right? There's a percentage that goes into that research to help get this, this information, this data out to the world. I think, the, the old concept that food is medicine.

I think now there is scientific basis and, and I think we, we certainly need to put in even more efforts. we're proud to

say that, you know, each study takes, 2 to 3 years from start to finish and takes a lot of investment.

But we're committed to not only to come up with new product programs or product, but also all the evidence to to support those. And that's the only way to do it.

And yeah, more where we believe we're leading the way in this view. Absolutely. Well, you guys are doing great work. I really appreciate you, Dr. Hsu, thank you so much for your time, guys.

Definitely check out L-Nutra and prolonlife.com as well. so you can look at the research and actually do the fasting mimicking diet for yourself. Thank you, Dr. Hsu And I wish you all the best with all the great research that you guys are doing.

Thank you. Thank you, Dr. Jockers. Absolutely. All right. Be blessed!