Introduction to Dr. Hsu and the summit

Hello, everyone. This is Dr. Joseph Antoun, your host for the Fasting & Longevity Summit. Today, I have a fantastic session for you. I'm honored and it's my pleasure to be talking to Dr. William Hsu, who was the vice president of Harvard's Diabetes Clinics.

They're called the Joslin Clinics, the number one clinics in the world on diabetes. So if you know somebody with diabetes, if you personally have diabetes or you're pre-diabetic, this is the session you definitely don't want to miss.

Dr. Hsu, I've known you for four years. It has been an unbelievable pleasure. I want everyone to know your journey. You had a fantastic life journey, and I want everyone to be inspired with it.

And then we're going to talk about the current status of treating diabetes with current care system. And then how can we a little bit inspire people to reverse their diabetes or remedy their diabetes with new technologies in the market?

Welcome to the to the summit, Dr. Hsu. Joseph Thank you. It's been quite a journey for years in my current role. But but this is a when I think about it, what a fascinating time and the world also has changed in these past four years.

Harvard journey and the search for better diabetes care

So yeah, I look forward to chatting with you. And that's it. Can you can you tell us a little bit about your life journey? I mean, I mentioned that, you know, you were an endocrinologist at Harvard.

Tell us a little bit. You're road getting to that. But then what have you done after? And did you have the courage even to move away from that big name and do something else? Yeah.

Yeah. We all hit all. We always joke about how how it's hard to leave horror because there's an umbilical cord. Right? That when you want to sever that cord, you feel like a little bit afraid of the outside world because such a protected community, it's a it's you know, you feel that like what will what life will be outside of that.

And what an amazing institution as well. Everyone there, I mean I had the chance to be also at Mass General in Boston and then I did my Masters at Harvard.

And this is like just what an inspiring and lovely institution. So, so definitely big courage to to take a move out of it. Then we want to know why and how.

Yeah. It's really 20 years, right? 20 years staying over there. I mean, think about like after 20 years, there's got to be a strong pull, right, to to get out.

And it's because I saw something pretty amazing and I'll get to that in the second, maybe just a little bit journey, you know, over the 20 years As an endocrinologist at one of the top institutions in the world caring for people with diabetes and I always wanted to do something different.

I wanted to bring something new to the world of medicine. So so I did the classic thing I teach and won the teaching awards there and published. And, and I was curious about specifically about why do people develop diabetes even sometimes when the weight is not very high.

And so I was looking at the Asian-American diabetes, how there was a unique physiology by something different about it. I always love something that's quite different.

So I did the classic thing. I joined the American Diabetes Association. I wrote national guidelines. Joseph, I thought that when, if I write the guidelines, people will follow it, right?

So I thought that was kind of the ultimate contribution. Then after, after the guides were published in 2015, I realized not everybody is following the guidelines and guidelines.

And so so I say, well, if that's the case, then maybe we build centers. If you build a center of excellence around the globe or around the country, maybe when you build it they will come, right?

And then we realized that you're only touching very few people that are out of the 38 million people with diabetes here, you're still touching lives, very few lives, right, from these bricks and mortar stores or institutions or clinics or hospitals.

And then so I went and work with MIT's Media Lab and thinking maybe we should bring care from hospital to home. And so we, we tested a digital care model where people actually didn't have to come to the hospital, that people could just go to the online and we could titrate insulin and start insulin and get people to to better results than what they could receive at an institution.

And that was exciting because that work was then translated into, into a commercial entity and that was acquired later on by Fitbit. And then Fitbit, as many of you know, that was later acquired by Google.

So it was a great journey. That's what opened my eyes to see the concept of its capability. Like if you have a good idea, if you keep it just in academia, you always will become a paper and people will debate to no ends. But.

But patients may not really benefit, right? It takes translation. It takes scalability. And so about four years ago, a good friend of mine was looking at this technology called the Fast Olympic Diet.

I'm like, okay, as a very conventional endocrinologist, like, I've never heard of it. I'm not very interested. My friend challenged me and said, You got to look into this.

And I spit urine. And I began to read the paper in cells about beta cell regeneration. I began to look at it in a contrasting to my everyday practical knowledge of patients with diabetes.

And the concept is very clear that yeah, we all preach about nutrition and how we have to take good nutrition every single day.

Why current diabetes treatment falls short

But the reality is most of our patients have trouble keeping up with their live low commitment to lifestyle change, lifestyle change. That was the thing that led them to developing diabetes the first place.

How is it that solution to treating diabetes is the same? Like people always say, right, if you do the same thing and expect different results, that's insanity.

And I feel like I was stuck in that that model of doing the same thing. Tell the patients to do the same thing and yet expect different results and we could talk more about it.

But that was kind of my journey out of Harvard and joined a fantastic company called L-Nutra. And fantastic story. You decided to. So it was your frustration with not not having enough within the current system or current health care system to help people go out of diabetes?

And you were looking at a solution to could've delved into the reasons why people have diabetes and something when they hear frustration about people not being able to be compliant, whether to their drugs or to their long term lifestyle change, it seems you find a solution that could work at the essence of diabetes and at the same time could be feasible by by patients or induced a change.

So would love to talk a little bit more about, well, first. Well, I'm always curious to ask you this question. I'm going to ask it live. How many of your patients you've had 20 years of experience in diabetes at the number-one institution in the world. How many patients with the drugs that are available that you know you had to prescribe, how many patients get out of diabetes and how many what's the percentage that stay and live with diabetes for a long period?

Given that question Joseph, even the question is so insightful because like we don't even as clinicians, we don't even think about getting out of diabetes.

Is it just a disease you live with? Right. We are. We've been taught to believe that diabetes is here to stay. Right. It's a chronic, incurable conditions.

And we as a health care professional and even as patient, even as community of people with diabetes, we settle we settle for just. We just want to manage glucose control.

But you remain diabetic for the rest of your life. And I feel like, you know, I've been thinking a lot about this is like why is it that we, you know, the health care community do not talk about getting rid of diabetes.

We talk about just oh, let's just be okay with sugar under a certain level and we should explore that. That's the end goal for 38 million people with diabetes.

To me, that's travesty, right? To me, that is a potential to bring patients to a better state? Why do we as a community, as health care providers right now ask for better something?

And I think probably it is like a side effect of policy focusing not on treating the disease like the current drugs to treat diabetes. Actually, they don't treat diabetes.

They just control blood sugar. Right. And if you have a better blood sugar control where we're settling, we're happy. Rather than saying, well, I've been able to support you with decreasing the essence of the disease, whether it's insulin resistance or pancreatic fatigue and failure.

Yeah, I think in the middle at the risk of sounding like an entitlement person, I'm not an entitlement person. I prescribe meds all my life. But the reality is, who's going to advocate for not using drugs?

Who's going to talk about I mean, who who profits from this? Right. No one The companies, the drug companies want our patients to be on their drugs indefinitely.

There is this this silence, right? This is there is this culture of silence around diabetes care? Now, we have known we have enough data to show, for example, if you truly are able to change your lifestyle and lose enough weight, diabetes, remission is possible.

We know, for example, for the data from bariatric surgery, that is, if certain intervention is introduced, the potential get off drugs is possible. I'm not saying that those are the most pragmatic way, nor am I saying that they're the most effective or safe way.

But it is possible. So when there is possibility, I'm just surprised at how silent the entire medical community is or even patient community is about wanting a to get diabetes out of the way.

I remember when I was doing my rotations in a little bit in psychiatry as well and or our studies, medical studies, there was this concept of learned helplessness, right?

We all learned that this is you know, this is the way it is. And then every five years, there's a new drug and we jump on it. That's from drugs to lifestyle or from drugs to solving the essence.

But we jump on a new drug. It's a new way of doing something. And everyone now is like, Oh, is what? Go we there's a Zen thing. And then we jump on them.

And it's another daily addiction or weekly addiction that's going to help you lose the weight. Yes. For the first time, thank God there's a positive effect.

But at the same time, you're losing muscle and getting into this vicious circle of being addicted for the rest of your life to these injections. So so tell me now with big anticipation, what made you leave and what is this technology you mentioned called the fasting mimicking diet and what does it do for for diabetes, progression and remission?

You know, I have to say that it had to be the science, right. So when I was reading this cell paper in 2017, where we saw in animal models, you know, these factories that makes insulin called the beta cells in the body.

How through a prolonged fasting technology done several times, it's able to perk up and regenerate. And so your audience, who may not know the biology to be able to cause these factory of cells that make insulin to regrow back is a tremendous, tremendous achievement.

Fasting-mimicking diet and the science of autophagy

And to me, while it was only an animal model, it was promising enough for me to say, you know, if you look at the risk and the benefit ratio, just by using a nutrition intervention, so for a few days a month and repeat a couple of times, it's able to cause amazing changes in the factory of the body that makes insulin.

It piqued my interest at the time, but it piqued my aspiration because what if we can somehow bring that to humans? What if we can somehow introduce, even introduced the concept of remission, the concept of not settling with glucose control only?

And what does. Yeah, what does it mean the remission can you're using the word remission and regression. Can you define those words a little bit for us.

So, so you know, we know a quantity illness apart from, you know, changing the organs altogether. I mean, the the conditions of many of these conditions relapse, for example, obesity.

Right. We could lose the way. But if we don't control, well, it's going to go back up. So there is no technically cure because you can't cure obesity.

Right. If you e poorly for the next six months, you're going to gain weight back. So the concept applies to the condition of diabetes. It's a chronic illness and in so many organizations like the American Diabetes Association, the Endocrine Society and and and Diabetes UK and European Group, they all come together in about two years ago.

They define what remission diabetes should be as the new angle. And what that means is, you simply get your diabetes under a certain glucose level. By that definition is hemoglobin was a six and a half, but as you know, that's a three months average for sugar.

But for three months without a drug, then you are in a state of remission. Now that's very exciting because now we have a new angle to look for and by setting that definition, it tells the world it's possible.

So remission means I am without medication for a period of three months as a diabetic, and therefore I'm considered in remission. That's right. And that it's really a concept borrowed from other disease states like oncology.

Right. Like there's no cure for cancer. You are in cancer remission. So the experts love that term because they know that that it is a lifestyle disease.

But now we are given a new hope, a new promise. The lifetime of medicine is not the only way. Hope. And what does it mean? Regression. So there's the word remission.

We said no more medication for at least three month. What is the word regression mean? But regression is simply means that you're not totally off medicine.

But you're on a path to less medication burn. Which to me Joseph is gospel people with diabetes and around in the US right now it takes average six different medicine, six medications, including injectables, including oral pills.

Can you imagine like many patients are sick every day taking these and. And that would be fine if there's a day where, you know, you would stop that. Right.

I remember when I did my rotations at my role at Harvard, I used to sleep with the attendings as we're prescribing this drug, when is the day of cure?

When is the day off? They say, no, no, that's a monthly refill. And it was okay for everyone to do that. And in and probably it is okay for certain conditions that we cannot help with the remission, right?

I mean, Alzheimer's today doesn't have a remission yet, but in diabetes especially, that 80% of diabetes is a lifestyle induced health condition, maybe there are chances of remission.

This what you're going to talk probably about now on the fasting, mimicking nutrition, what you mentioned, can you talk a little bit about why fasting you started saying that you saw the science and cell, that fasting could help you lose the weight but also rejuvenate the pancreas.

Can you talk about what what is the fasting, mimicking, nutrition or diet? What about. You know, love to talk about it, but I think it's really you know, one doctor has put it this way.

She said that this is the miracle of life, this process of fasting, how the cells respond to it. So let me explain. You know, not throughout history, every living organism encounter times when food is not available to us.

Right. So when nature was giving us a stress, the body had to survive. The cells have to survive in the cells that have adapted to the stress by coming with a mechanism of saying, Well, there's no cell coming around, I need to survive, so I have to burn something with within the cells itself.

So you're not going to go to the nucleus? Where is the brain of the cell? Because they'll be suicide is going to look for things that there are what is more dispensable, for example, things that are a little older seems a little broken. Right?

It's like in the winter when when you run out of bullets to burn or what are you going to throw into into the furnace is got to be the chairs a little bit more broken in not going to give you the, you know, your most precious table or the pillars in your house to burn.

You go with something that's more dispensable, not, it turns out, in the cell during that time they're looking for more dysfunctional. A cell, a structure we call that organelles.

It's going to be misfolded proteins. It's going to be all the mitochondria, things that are more dispensable. And so during tons of fasting, the cells shrink by digesting these more dispensable, older, more worn out parts of the cells.

Now, this sounds like, wow, that's a sacrifice. But no, no, starvation lasts forever. Rain will come through, will become available again. So when those food becomes available again, the cells now have the nutrients to regrow back.

Now, when they regrow back, those parts become new. So you're in fact replacing more old their worn out parts of the cells with new ones. That's amazing. Think about it.

Without that mechanism, none of us will be here. No lifeforms can survive on earth, and that's why they're fasting, although it created an existential crisis to our body.

But nature was smart enough to respond with this miracle of life. This process is so important, Joseph, that the description of this process called autophagy, was awarded Nobel Prize in 2016.

And so now we with modern day science, we can actually leverage that knowledge to improve our health. So you're saying the secret of this fasting nutrition is that it mimics a state of fasting to the body.

So every cell of the body is thinking it is fasting and therefore does whatever it learned through human evolution or through our existence on the planet.

And it's shrinks, it eats the inside. Whatever is disposable, whatever is broken, it rejuvenates. And when you feed it again, it's growing back as a rejuvenated, better functioning self.

Is that the summary? And so is the concept that this body coming out of rejuvenation is a better functional, is like a younger, better functioning body and therefore fights diabetes.

I'm I'm having a difficult time linking the rejuvenation of the cell to diabetes, if you can elaborate to that. Yeah. And that's a that's a really good comment.

And in question here, you think about type two diabetes. It really happens in young people, right? It's a condition that associated with aging. Typically, people develop in older people.

You mean. Older people? Yeah. Yeah. 50 years or 60 years old, you hardly see that. I mean, we're seeing more childhood obesity right now. That leads to type two diabetes, but it's still relatively rare.

Right. And so it tells us the body must have some trouble processing, renewing, rejuvenating the cells, and therefore, the diabetes clock is ticking, right as we with our society gets heavier and heavier.

But this process of cellular rejuvenation, this process of autophagy that we talked about, right, replaced the more worn out parts of the cells, new ones.

What is it's essentially doing is making cells younger and it's not only making the cells in the pancreas younger, but it actually affects every cells in the body.

Right. Because when there's no food to the body, the brain has to respond. The heart has to respond. The muscle has to respond to fast respond. The pancreas that's respond.

So every cell in the body for that stress of fasting actually rejuvenates itself. And in big diabetes being a condition that's affected by many organ systems, including the pancreas, the fat, the muscle and others through the process of rejuvenation, they all get better, they all function better.

And that's how potentially it has this effect on diabetes. So so you're saying that diabetes gets more established with age because the body is pressing maybe. Right.

The muscles used to burn the carbs fast when even if you ate high calories when you're younger, you were able to process those. Now with age, we get slower and the cells are less, you know, rejuvenated and less exciting and therefore less efficient.

And therefore, the body is establishing diabetes. And maybe this is how the body also gets into Alzheimer's or gets into cardiovascular, right. All these chronic conditions that 90% of us are going to die from cardiovascular cancer, diabetes and Alzheimer's.

How fasting affects metabolism, muscle, and aging

That all age related. And this is so important today for everyone listening to us is age is probably the mother of all these four health conditions of course there's environment of course the genetic predisposition or of course, this

lifestyle.

But even when you have all those, you you're not going to get Alzheimer's at age 20. You know, you're not getting your first heart attack at age 18. You're still getting them at age 60 and 50 and 70.

So the essence of you're describing fasting as the playing with the essence of the youth of the cell and having better rejuvenated cells to rejuvenate the entire body.

Getting rid a little bit of diabetes. But you're saying also could be a good intervention for the entire longevity of the body or the entire healthy aging of the body.

And this is where I think this is where the innovation really grabbed me four years ago. And that is the intersection of nutrition, fasting and little charity.

Think about that that that triangle that for a long time we've I mean if you listen to podcasts out there, there are endless debates about what nutrition, what kind of nutrition you should eat.

But that's only one vertical is not only about what we should be eating, but also the timing of our food. Or by the converse of that is when we do not eat, has that that tremendous implication to our health.

So and so we answer, yeah, go ahead. And you know, Dr. Walter Longo, who's the father of this entire concept of fasting and feeding cycles. Right. He's the top 50 most influential people in health and in his longevity diet book, which which I think, you know, describes what you're talking about, this simplicity of eating and not eating, which carried, as you mentioned, every organism in the world from from it historically and from a small to human.

We lost that the last four years. We're eating all the time and therefore we're getting spoiled, aging faster and getting health conditions, you know, sooner than later in our life.

What you're saying is bringing back fasting to our life cycle is going to help us to alternate with feeding and fasting, rejuvenate the cells, decrease maybe the weight, protecting the muscles, and keep us a little bit more efficient engine to to fight the onset of these chronic conditions.

Well, that's exactly right. It is a union of our life. Right. You cannot just exercise every day without rest. You cannot just eat without fasting in you know, in fasting, it seems like it's such a novel concept, but it's now we all fast everybody fasts while you say what else as well you do when you sleep you fast, right?

It is really the extension of that, giving the body a little bit of a break in a 24 hour cycle. That's helpful. But every culture, every religion also has this fasting components for spirit of so for spirit spirituality, but also for health or mental clarity.

Clarity up. But I mean, that's kind of passé. That's like the you know, that's a past knowledge, fasting and nutrition. After all, every religion and every culture is practice it.

What is really need to me, at least for me and maybe your audience has heard about this is the link to healthy aging. So how these nutrition and fasting is linked to a healthy longevity lifestyle to me is where 21st century science has really begun to reveal the impact of this.

Yeah. And so, Dr. Shu, you explained very well the killer effects of fasting. And are you saying it's even more relevant and important diabetes? Because, by the way, you're fasting, so you're losing a lot of fat.

And can you talk about. Yeah, what from a metabolic standpoint, not cellular standpoint. From a metabolic standpoint, what happens to the body and how many days of fasting you need to achieve what you describe or how many hours or because I hear a lot about intermittent fasting, I hear about prolonged fasting.

Can you talk a little bit about the metabolic impact and how many days ideally people should talk. To such an

interesting question. You know, we know what happens to the body when the body says, and I'll just take you through a quick, quick journey here.

You know, we know when we fast the mind changes when you fat by the way I'm on day six of my my fasting mimicking diet so today's my the day so I just experienced five days of that fasting I can tell you there is a clarity of mindset and this on new every culture religion practices that so we know that so there is changes in relationship to your food number one there are changes for example, to your liver, right.

Because there is no you're not seeding the liver with every day food a can just imagine, you know how do we make for what we take these guys poor guys and we feed them right incessantly so that so the liver becomes fat.

I mean, so what is the way back? The way back is and. Fighting foie gras is fatty liver, right? Yeah. So the way but how do we reduce that problem not feeding right.

So clearly there is benefits on the liver. There is benefits on the beta cells. I share with you the 2017 cell paper on beta cell regeneration. Right. That's the factory that makes insulin.

There's impact on muscle. Muscle is the most important organ where the glucose blood flow in the blood goes to when you have less muscle. And that often happens with low calorie weight loss.

If you lose weight for six months, you've definitely going to lose some weight, but you definitely also going to lose some muscle. That is terrible. That's the wrong way of of losing losing weight.

Fasting is the opposite. You lose central fat, right. Your visceral fat, your your your your belly tire. You know, the that the entire belly, I should say. Right.

The beer belly. That is the worst part of the body when you fast that's the first part to go for you preserve lean body mass you preserved muscle. This critical because I've never ever heard of a weight loss regimen unless you exercise and you take proteins that that only selectively melts fat and there's not impact muscle including by the way the injections now and maybe soon to be orals and on those in pig and wegovy I think even those drugs are inducing a fat a fat and muscle loss.

They're saying that with the fasting mimicking nutrition and you're preserving lean body mass and you're only the body only focuses on unburdening the fat.

Yet your audience may not know this, but you know, a lot of the low calorie weight loss plus the GOP, one drug like Ozempic and others, they lead to up to 30 to 35% of muscle loss as well as the weight loss.

So so as you as we lose muscle, we also lower our metabolism, which makes weight maintenance even harder. So it is a difficult weight, but the fasting is different.

So think about this. Like a tiger in the wild, right between the hunts, the tiger gets hungry if the tiger's muscle just gets down because of there's no food, right?

The muscle is going to get weaker. That tiger will never hand again. Right. The species will probably be gone a long time ago, but is the opposite during a short term fast, right?

The mind is sharp. The tiger's money stuff is focused on hunting. The muscle is maintained because there is a stress to the body and the body causes growth.

Hormones are the hormones to maintain the muscle mass. Now, obviously, if you fast for a long time, like the months that starvation and starvation is never good for the body, but a short term fast turns out to be the opposite of in terms of keeping muscle.

So you're saying because fasting works more not as a calorie, but as a stress on the body, the the growth hormone

and other hormones that the muscle loves to rejuvenate, plus the fasting, stimulating rejuvenation of the muscle together are leading to preserving muscle, which in the short period, maybe that's natural selection, human evolution or the way it is genetically if God created us is has been built into us to as a first reaction.

If there's no food, be sharp, be a better machine, be rejuvenated and keep your muscle because you need to go and hunt. And that's what you're trying to simulate with the fasting mimicking diet.

So to reawaken the cells and the body and rejuvenate the muscle and help the body get rid of diabetes. Yeah, I mean, we're try to go with the nature's design.

It don't go against nature. But I love that it's a natural intervention. You're just you're just mimicking what our ancestors were doing in a natural way.

And you're tapping into these ancient survival genes. Yeah, you can fight against that. But we also are not leveraging that in modern medicine. And this is where I saw an opportunity in one of the biggest challenges, Joseph, is our patients are many of them are your listeners here?

I always remember they they struggle. It's not that they don't know they need to eat well. But being a saint, eating well every single day is impractical.

It's can it cannot be done. Yes, we do encourage people to live a good lifestyle and we're all about that. But I've always, as a mind of a clinician, always think about are there pragmatic ways?

How can we give an intervention rather than a lifelong recipe of commitment? Right. That can still drive results. And that's why that's when my eyes turn to this technology called the fasting mimicking diet.

So how many days you're saying it's practical and feasible because it's shorter than changing everyday lifestyle? How what is the number of days that you're recommending this this fasting goes for?

So there are about 70 publications that look into the this fascination between fasting, nutrition and longevity and disease conditions. But specifically, there's been about 14 clinical trials there that published actually eight in clinical trials.

They have published looking at this five day, five day meal kit called the Fasting Mimicking Diet. It's a lot of people say is oxymoron. How can you fast and how can you have food?

We should go into that in a second. But just five days, it repeated a couple of times in a course of a few months cause similarly and activate these ancient genes is survival.

It is a powerful lifestyle medicine tool and it's truly an innovation. So you're saying it's a five days, only a month. So you you fast for five days.

You eat normal in 25 days and you repeat it every month. That's the period that allows this weight loss and the fat and the fat loss and then the rejuvenation of the cells.

Can you help us? You're mentioning the word fasting, mimicking diet, and like we're confuse a little bit with that oxymoron. Is it fasting or you're mentioning nutrition?

So the original studies have always been done with fasting alone, right? So and so we know fasting does a lot of good. The problem is, again, pragmatism.

And I'm a clinician, I'm also a researcher. But but the idea of how feasible it is to implement it matters a great deal to me. Right. You can have great theories.

The fasting for five days. You ask average Americans who can fast five days. I can tell you, you know as doctors

we go to medical conferences if they're on serious lunch with a terrible that's terrible conference.

Right. I mean even doctors we have all these knowledge. But but this speaks to the how the solution needs to be pragmatic. So so fasting for five days. Yes.

Directly is great. It cannot be done. This is also why a very bright mind by the name of Professor Walter Longo as USC University of Southern California Director of Longevity Clinical Longevity Institute, 20 years ago began to think about, well, is there a way to hack this meaning?

Can I somehow come up with an innovation that gives you the benefits of fasting without the burden of fasting? Can I provide the body? Body with a little bit of nutrients, not enough to to cause the sensors in the body to say, oh, there's food actually go for below the radar of these detections.

So the cell says, okay, there's no food, but in fact, we're sneaking were smuggling smuggling some nutrients into that. Now that's not a DIY project.

Clinical trial results and diabetes remission

It's 20 years of research, 36 years of a $36 million of National Institutes of Health funding, and and with, you know, dozens of publications to support that.

So so you're saying that Professor Longo and the and the University of Southern California they invented or they figured out the formulation of plant based, healthy nutrition that goes for five days.

The body is consuming the food. Is that like a box you ship to people with this formulation? They eat the food for five days and their cells are not figuring out that they're being fed.

So you're fasting while you're eating. You're getting the benefits of fasting while you're eating. You know, this is what I call it really is. We the inspiration from nature, right?

Which is fasting, which is actually not voluntary as a force upon us by nature forces fasting to power all lifeforms. But we are using the knowledge of biochemistry and molecular medicine.

Come up with a five day plan based kid nutrition kit. So when you consume this, you get some basic nutrients to support you so you can actually withstand the five days and yet at the same time get almost all the benefits of a five day fast to me is the best of both worlds, right?

And it's pragmatic because just five days now, what do you do for the rest? 25 days, obviously, we say you got to you will exercise. But the reality is, in all the clinical trials, people just go back to do what they used to do without thinking about what to eat, what to do.

Just give us five days, give you a body, five days of this intervention. You will see the results in a couple of months. So you call this fasting, mimicking nutrition of fasting, mimicking diet five days.

I received my box at home. I eat every day. Whatever you send me. It's a special nutrition formula. Is it is it plant based? Is it. It is plant based and it's a limited calories, especially formulated with.

Is it is it like lactose free is for people with with with with reaction is it gluten free? Is it is gluten free is plant based and especially formulated.

So it has micronutrients in there and it tastes great. It's got bars are suits. So it's not like you take a pill. Okay, actually enjoy the the soup, the chewing it.

And this is all designed with the mindset that, hey, we don't want to treat sick, you know, we don't want to treat sickness as if you're totally sit right.

We actually want you to live life right through experiencing this five day. So even going through fasting, there is enjoyment, there is food, there is nutrients. And what is it? Typical day?

What would I get for breakfast, for example? Yeah, so. So there's a bar it's specially formulated with, same thing with the fasting mimicking technology.

Okay, the bar you see there is taste, there is, there is texture, but it doesn't spike. A glucose does inspire insulin. Right. And you're saying I'm eating the breakfast bar and my body still stays in fasting.

In fact, we have a publication looking into that that was published to show is the same glucose alert level for number of hours after you consumer as if you're drinking water and your teeth level just keeps going up.

So that's exactly the physiologic state when the body is in a fasting. State, what would I have like for example, a typical day for lunch. And you have soups, you have balance, there is snacks there, crackers.

Okay. It's look, it's not going to be a three star Michelin gourmet. Right. And you should not be thinking about that either. It is an investment, right?

Just like when you go to the gym, you've got this coach yelling over and you're pumping iron into it. But we can make that as tolerable as acceptable and enjoyable at this.

Okay. And is dinner same soup and some snacks that goes with it? That's right. And so you're saying it's it's a box of food. You would send it to me. I'll consume it over five days.

My body stays in a fasting mode and one side then rejuvenating my cells, getting little bit younger to fight better fight diabetes. On the other side, I'm losing fat and protecting my muscle and metabolically getting better.

And you're saying, how many times do I need to repeat it? Every month it's five days, only per month. But how many times I need to do it? It depends on sort of the your your background health, you know.

So studies have shown publications that reveal that if you are a healthy individuals without conditions, with a health conditions, you only need to do three times a year.

You're talking about 15 days of engagement now. Is it a little bit hard work? Yes, there is a little bit of investment. But think about the cellular rejuvenation effect you can get.

We're talking about three cycles of a five day fast American diet. And if I have diabetes like say, say after six months, I do it every month for six months.

What what do I expect? Because it started we started talking about regression in remission in and I want to know because that was my frustration. I left medicine for mainly telling patients, you have to take the same drugs for the rest of your life.

What is the what is the science showing if you do that fasting, nutrition, how many things you need to do it if you have a diabetes, let's say, in if you don't have diabetes three times per year.

But if I diabetes, what to expect, you know, around that let's say six month. This is the most amazing results I've ever seen from a nutritional intervention.

We publish a paper in JCI and there's the Journal of Clinical Endocrinology and Metabolism about a year ago, where we take two groups of people. One is just standard care, the other one we give them this FMD, this fast moving diet five days a month, repeat it for six times, six months straight.

So six months sounds like a lot, but you're talking about 30 days of effort in six months. This is about. Five, six, six times five. So every hour the patient needs to do as the 30 days within six month of eating that special.

That's right. And so the rest, 25 days, they go back to live their normal, regular life. So you're not telling them to in the trial, you didn't tell them to take other medication or exercise or eat healthy in between cycles.

It was just. You do distressing people with type two diabetes. They have about 14 years and there are all kinds of medicine. What we told them to do was not to take more.

Right. We let their doctor decide on their medicine. Right, and see what happened after six months? Because I see a lot of lifestyle medicine intervention and I see the lipid sheet in the paper they like.

They change your lifestyle. They ask you to exercise, and then they do two things and they say, you see, it's a great result. They just want to know in this clinical trials, did you ask the patient to change their lifestyle in a 25 days or you just give them the fasting, maybe contrition.

For the restriction about 25 days we ask them not to change anything. Okay, so it's the only impact of the five day fasting mimicking diet by six times.

And what were the results like? How much weight they lost and insulin resistance? HB one C Can we talk a little bit about the results? So it was after six months, it was very clear at the end of the study.

Now the group that actually use the FMD had 1.4 A1 C drop rate 1.4. That's actually very meaningful for those of your listeners. For every percentage drop in A1, C one point in A1 C is equal to about 30% reductions in complications in the long term.

1.4 is equal to and. I remember from my medical studies, if you drop HB and C by point five, 0.5 mean it's meaningful thinking, meaningful, it's almost a druggable e level.

And so now you're doing triple you're saying 1.4 decrease in each B1 C and you said every point of decrease is equivalent to. A 30%. Decrease in the complications and.

Complications in the long term. So that's why the FDA will allow a drug claim approval. A drug has to have at least 2.51 C. So here we're talking about triple. Yep.

But what's what what's more amazing is not just the drop in A1 C lot of the drugs could get you where it wants you. 1.4 right. A lot of the expensive drugs.

But at the same time, two thirds of the people in the study were able to stop or reduce their medicine now. And that's the remission and regression you were defining when.

We started raising because to to get 1.41 C dropped what what the what the doctors typically do they tell you to increase your drug increase your insulin in the increase year was impact increase your your pills.

But here is one intervention where you're receiving better glucose with less medicine. And and this is something I hardly saw in my practice. Right. And it's a nutrition and it doesn't require every single day.

Right. And just to give you to round out the results here, there's a 59% drop in some resistance many patients do is struggle with these the results and by the way the beneficial side effect £22 weight loss in the study.

And by the way, the muscles were preserved. There was no loss in muscle mass. That's the right way to lose weight. And by the way, a 50% drop in this protein leakage in the kidney called diabetic nephropathy.

Right. Micro albuminuria, these are broken leaks. These are diabetes complications. How do you see all these five days of nutrition, all natural, less drugs, less payment?

They don't have to pay for these drugs. And I want to take a moment here, because this is exactly why why you left Harvard is exactly why I left the clinical practice of medicine to come to nutrition and longevity.

This is exactly why this summit exists on fasting and longevity and that we're talking about medical fasting, right. Is is all the drugs combined and trillions of dollars that governments are spending on diabetes throughout years are actually have not solved diabetes.

When the science of nutrition was able to figure out the value of fasting in have put more technology into developing a diet and nutrition helps you to fast for five days suddenly we see these amazing results you're talking about.

You mentioned two thirds drop in in medication. I mean, in six month, we've never seen this in the practice of medicine. I did start the call by or the interview by asking you how many of your patients you're able to reverse.

And you said it's a lifetime disease. You're saying £22 of weight loss. You're saying 1.4 decrease in HP once the preserving muscle, which is key. I cannot stress enough for everyone how much muscle is important in aging, in diabetes, because you can drop £22 by eating healthier and being on a diet or you can drop them actually even more with those Mpic and Wegovy and the others.

But you're losing muscle and the day you stop. And that has been the failure that has been the secret that no doctor or others want to tell you is you lose it, you lose muscle, you're weaker engine, you metabolize glucose in a slower way.

And then the day you stop dieting, you gain back what the muscle first? No, you gain back fat first. It's a vicious circle. Every time you go on a diet or on the cycles of injection, you end up losing a little bit of weight losing.

And I see a lot of my patients, a lot of today, consumers, they tell me the same thing is like I ate it all my life and I cannot just get it tried. Every time you're dieting, you're going through that visceral, vicious circle of losing muscle and fat.

Then what? Then when you eat back again, you get the fat first you go back even worse. Right? And this is why this learned helplessness that exists today in weight loss and in diabetes, the key is muscle.

And I think it seems a company called al-Nusra we're going to talk about that has uncovered the secret to lose the fat but protect the muscles, the stress of fasting.

And you put a nutrition on it in order to make it compliant and feasible. Just have a you know, as you even as you're talking the images of the faces of patients came back to me in my 20 years of practice.

L-Nutra Health program and closing takeaways

You know how many times when the glucose level goes up I had to talk to the patients and my only options were to. Well, Mr. Smith, I'm sorry, but we we need to increase your medicine.

We need to add another drug, another injectable, another pill. I see you're getting emotional about it as well. Because I remember I remember the the reaction, the emotions of the patient.

It was not more it's not just, oh, I have to take a lot of medicine. There is a sense of personal failure on the part of the patient. They feel like, oh, my goodness, I failed again.

And you know what? Often would come next is a series of negotiation. Doctor, give me two more months. I will eat better, I will lose weight. And sometimes I knew they can, but I got to give them a chance.

So I give them, okay, let's not increase this. Let's wait for three months. They come back three months, gets one same story. But there is a deep sense of personal failure and struggle and putting more chemically in the body.

That's not that's not the natural way. But the challenge was that we as doctors did not have a better tool. We only have drugs. Now, I can send them to the dietician, which I do.

I can send them to assess this young physiologist, which I wish I did. I mean, at least. You at least. You tried. Most doctors don't even have a nutritionist next to them or look at diabetes as a genetic predisposition and get get the pills.

And then once your pancreas fail, I'll give you an injection of insulin. I mean, at least there was a trial with nutrition, but but that frustrations that you mention, we see it everywhere, people progressing.

It's always has been a progression. The budgets that the insurance and the governments are paying is a progression. Medicare is getting into close to bankruptcy.

All governments around the world are going diabetes is just is a heavyweight that everyone and guess what? It's a food borne disease. I remember one time I had a post talking about diabetes being a food borne disease.

And so they say, watch out. You know, this is how you're defining day. It's 80% of diabetes. Type two is a food borne disease and what it magic. You think fasting popping food is the best way to reverse or to induce remission?

I mean, we're we're it took medicine decades and decades and it's taking doctors and debates, etc., to figure to the essentials of it. You overrate these, take a little bit more fat.

You became insulin resistance, you became diabetic. Guess what if I fast to the opposite of what you were doing, you're going to fairly fast be hopefully free of your medications.

What a simple story. But how long did it, you know, take us to reverse that, brainwash the reverse that, you know, status quo that we were all kind of, you know, learn to to to practice and have accept it to to allow.

Clients to show that the difference is now we have clinical results. We have science to show this right that this can be done. And is not just the old fashioned.

Just look, you know, don't let the hunger bother you. No, no, no, no. There's actually innovation. Yes. This is why four years ago, I joined a nutrient because I saw this technology and how we can take into the clinic, how we can take into health care to give our patients with diabetes new hope.

And I see it behind you on the screen. L dash nutria health for diabetes. Can you what is the L. Yeah, l means longevity. You know, we talk a little bit about this trifecta of fasting is a devotee and is the longevity which driving longevity is new nutrition and and healthy.

It's just it's a new effort, a new nutrient to focus on health care, to bring gospel and good news to people with different conditions. So it's longevity through nutrition for your health and the focus is for diabetes.

And is that the website? Like if people want to go, if I have diabetes today, what should I do? I just listen to this and or if I'm a doctor, actually, 10% of the summit attendees are physicians.

And this is a big call for doctors to take action. But if I'm a if I'm a patient or my dad or my mom or my cousin, I know somebody with diabetes. What should I do coming out of this summit?

So because of the signs that we've talked about, we have put together a medically supervised diabetes remission regression program. And that's under the slack of L Dash and Utah Health.

So if you want to find more information go to that website L dash in Utah health dot com you can you can find how to call us how to reach out the program is a 12 months diabetes remission program.

The idea is again to tap into those ancient mechanism of survival, the powerful what Mother Nature has, has designed to allow your body to rejuvenate through a 12 cycles of, 12 months a program it has to be.

Fasting mimicking diet is for as we talk about six month what happens between this 12-month program between

month six and month 12. On average we believe that that people will need about six monthly cycles of FMD and they go into a maintenance phase where we will continue every three months cycle.

Okay. So I'm doing basically eight cycles within in total the year eight times five is 40. So the entire 365 days, you're telling me you're going to give me just 40 days of food out of 365 and there's a dietician who says supervise.

There's the doctor and dietician that we supervise. And so your doctors may be interested in being part of this program. They can certainly talk to us and they could be the ones to supervise you.

If you don't have your own. Doctors we'll provide a health care provider to support you through this journey. Remember this, technology works. So that means that you're going to need less medicine.

And we don't want you to be just managing those medications on your own. So that's why it's a simple it's a medically supervised program. And I'm glad you do it this way rather than than just, you know, going straight to, you know, just like many lifestyle programs where they just want to, you know, with less science and then more commercial are trying to just get into people and change their lifestyle.

That no paper pages of patients are first. You know, in our heart I have a heart of a clinician. It has to be patient safety first lot of hand-holding, right.

A lot of support throughout this 12-month journey. And so to describe it and theoretically, if I go to my doctor or if I contact you at L-Nutra Health, you have your doctors and in I'm expecting to be put on a program, a monthly program.

I'll get five days of food on month. One, two, three, four, five, six. Then once every three months I'm getting eight months in total. I have a dietician with your program that will help me.

You know, if I need to do more between the cycles of or check in with me and maybe check in on my blood metrics and helping my physician to what? To reduce my medication.

So we said in six month, the data is showing two thirds of people would reduce their medication. That mean that's fantastic. So I mean I mean, hopefully within the last hour, we we have a lot of first learned this amazing journey of years coming from leaving Harvard for this it seems fasting-mimicking nutrition technology.

We learn about the value of fasting not just into weight loss or the tradition intermittent fasting. You need to lose weight. You talk about rejuvenating cells in the body, and I'm pretty sure there's a lot of emotional even benefits there.

The mental clarity you mentioned, the performance, the energy, and you said this is essential for the treatment of diabetes because you're making the body the engine younger, you're preserving the engine, the muscle, and you are losing fat and reversing insulin resistance.

And this is leading in diabetes is very critical in diabetes, leading to reducing medication for the first time to talk about regression of the disease, using a new tool in the clinics and to people to talk about when am I going to get out of diabetes?

Rather than how am I going to add more drugs into my diabetes and what's my next complication? This is amazing. And you're referring people to l-nutrahealth.com to go and subscribe to this program.

So I, I hope in the last hour it was planned to be 30 minutes. But this is so disruptive to medicine. This is so disruptive to the way we practice medicine and to the life of patients that we probably took a full hour.

But hopefully, we changed the lives of thousands and thousands of people. I mean, even if you don't have diabetes, the entire summit is going to talk about the value of fasting to aging and longevity of people.

So if you're if you have fasting and if you have diabetes and your wife does not have it, it's okay to do it together for her on aging and vice versa if you have it and your spouse, your man doesn't have it, you know, it's okay to do it together so that people actually you benefit from the rejuvenation and the healthy aging.

I, Dr. Hsu I cannot thank you enough for showing up today and explaining this disruption that's happening now to the diabetes disease management and to medicine.

Any final word before we close here. Joseph I really appreciate the platform you provided for me to talk about my life journey thus far and my encouragement for your audience would be, make diabetes remission your new end goal, and hopefully, we'll be a partner for you on this journey.

That's fantastic. I appreciate you so much, Dr. Hsu and thank you very much for this wealth of information. And I'm pretty sure we're going to see you again at some point and appreciate you and have a great day.

Thank you, Joseph.