Recover Your Blood Sugar: Fasting For Diabetes Transcript

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Introduction to the Summit and Dr. Hsu

This is Doctor Talks, real talk from real doctors on the issues that matter to you most. Hello, everyone. This is Dr. Joseph Anton, your host for the Fasting and 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. He was the vice president of Harvard's diabetes clinics.

They're called the Joslyn clinics. They're 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. Xu, 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 sick care system? And then how can we a little bit inspire people to reverse their diabetes or remit their diabetes with new technologies in the market?

Welcome to the Summit Doctor Show. Joseph, thank you. It's been quite a journey, four years in my current role. But when I think about it, what a fascinating time.

And the world also has changed in these past four years. So yeah, I look forward to chatting with you. Fantastic. Can you tell us a little bit about your life journey?

I mean, I mentioned that you were on the chronologist at Harvard. Can you tell us a little bit your 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, we always joke about how it's hard to leave Harvard because there's an umbilical cord, right?

That when you want to sever that cord, you feel a little bit afraid of the outside world because it's such a protected community. it's you know you feel 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 be 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 get out and it's because I saw something pretty amazing.

And I'll get to that in a second, maybe just a little bit of journey, you know, over the 20 years as an endocrinologist at one of the top institutions in the world for people caring for people with diabetes.

And I'd always wanted to do something different, you know, wanted to bring something new to the world of medicine.

Career Journey from Harvard to Digital Diabetes Care

So I did the classic thing, right? I won the teaching awards there and published. And I was curious 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, 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 if I write the guidelines, people will follow it, right?

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

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

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

And then so I went and worked with MIT's Media Lab and thinking, maybe we should bring care from hospital to home. And so 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 better results than what they could receive at an institution.

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

So it was a great journey. That's when I opened my eyes to see the concept of scalability. Like, if you have a good idea, if you keep it just in academia, it always will become a paper and people will debate to no ends, but patience 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 Fastimimic and Dia.

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 gotta look into this.

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

And the concept is very clear, right? That we all preach about nutrition and how we have to take good nutrition every single day. But the reality is most of our patients have trouble keeping up with a lifelong commitment to lifestyle change.

That was the thing that led them to developing diabetes in the first place. How is it the 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 model of doing the same thing, tell the patients, to do the same thing and yet expect different results. And we can talk more about it, but that was kind of my journey out of Harvard and joined a fantastic company called Alneutra.

And fantastic. So you decided to, so it was your frustration with not having enough within the current system, current health care system to help people go out of diabetes.

And you were looking at a solution to to kind of delve into the reasons why people have diabetes and something when I 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 patients or induce a change.

So we'd love to talk a little bit more about, well, first, I am 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 that out of diabetes and how many, what's the percentage that stay and live with diabetes for a long period?

Even 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.

You see, it's 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 healthcare professional, and even as patient, even as community of people with diabetes, we settle for just glucose. You 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. Why is it that we, you know, the healthcare 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 applaud that that's the end goal for 38 million people with diabetes.

To me, that's travesty, right? To me, there's a potential to bring patients to a better state. Why do we as a community, as healthcare providers, right?

Not 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, 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, you know, at the risk of sounding like an anti-movement person, I'm not an anti-movement person, okay? I prescribed 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 profits from this? No one. The drug companies want our patients to be on their drugs indefinitely. There is this silence.

There is this culture of silence around diabetes care. Now 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 if certain intervention is introduced, the potential to 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 to get diabetes out of the way.

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

We all learn 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, not 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, there's Wagovia, there's Ozempig. And then we

jump on them and it's another daily addiction or weekly addiction that's going to help you lose the weight.

Why Diabetes Remission Matters

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 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 diabetes regression and remission?

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

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 for a few days a month and repeat a couple of times is able to cause amazing changes in the factory of the body that makes insulin, it piqued my interest at that time.

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

Yeah. What does it mean remission? You're using the word remission and regression. Can you define those words a little bit for us? So, you know, we know a chronic illness apart from, you know, changing the organs altogether.

I mean, the conditions, well, many of these conditions will relapse, for example, obesity, right? We could lose the weight, 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. If you eat 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 so many organizations like the American Diabetes Association, the Endocrine Society, 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 end goal.

And what that means is you simply get your diabetes under a certain glucose level. By that definition is hemoglobin A1C is six and a half, right? 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 a 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 it's really a concept borrowed from other disease states like oncology, right?

Like there's no cure for cancer, you're in cancer remission. So the experts love that term because they know that it is a lifestyle disease, but now we are given a new hope, a new promise that the lifetime of medicine is not the only way.

Yeah. And what does it mean regression. So there's the word remission we said no more medication for at least three months. What is the word regression mean 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 takes average six different medicines, six medications,

including injectables, including oral pills.

Can you imagine like many patients are sick every day taking these pills? And that would be fine if there's a day where you know, you would stop them, right?

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

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

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

This is 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 in cell that fasting could help you lose the weight, but also rejuvenate the pancreas. Can you talk about what is the fasting mimicking nutrition or diet?

It's so low 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 responded to it.

So let me explain, you know, throughout history, every living organism encountered 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, and the cells have adapted to that stress by coming with a mechanism of saying, well, there's no food coming around, I need to survive, so I have to burn something within the cells itself.

So you're not going to go to the nucleus, where is the brain of the Celtic, because there'll be suicide. It's going to look for things that are more dispensable.

For example, things that are a little older, things a little broken. It's like in the winter, when you run out to burn, what are you going to throw into the furnace?

It's got to be the chairs a little bit more broken. You're not going to give your most precious table or the pillars in your house to burn. you go with something that's more dispensable.

Now, it turns out in the cell during that time, they're looking for more dysfunctional cell structure. We call that organelles. It's going to be misfolded protein.

It's going to be older mitochondria, things that are more dispensable. And so during times 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 starvation lasts forever. Rain will come, food 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 older 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 life forms can survive on Earth. And that's why that 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 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 shrinks, it eats the inside, whatever is disposable, whatever is broken, it rejuvenates.

And once you feed it again, it's growing back as a rejuvenated, better functioning cell. 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 having a difficult time linking the rejuvenation of the cell to diabetes, if you can elaborate to that. Yeah, and that's a really good comment and a question here.

You think about type 2 diabetes, it really happens in young people, right? It's a condition that is associated with aging, right? Typically, people develop…

In older people, you mean? Yeah. Older people, yeah. 50 years old, 60 years old, you'd hardly see it.

How Fasting-Mimicking Diet Works

I mean, we're seeing more childhood obesity right now that leads to type 2 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 our society gets heavier and heavier. But this process of cellular rejuvenation, this process of autopsy that we talked about, right? Replace the more worn out parts of the cells with new ones.

What 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, the fat has to respond, the pancreas has to respond.

So every cell in the body from that stress of fasting actually rejuvenates itself. And 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 you're saying that diabetes gets more established with age because the body is processing 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 young 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 rate. All these chronic conditions that 90% of us are going to die from cardiovascular cancer, diabetes, and Alzheimer's, they're 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, a genetic predisposition, or of course, this lifestyle.

But even when you have all those, you're not going to get Alzheimer's at age 20. 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 longevity.

Think about that triangle there, right? 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, right? Or by the converse of that is when we do not eat, has that tremendous implication to our health.

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

We lost that the last 40 years. We're eating all the time. And therefore we're getting spoiled, aging faster and getting health conditions 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 muscle, and keep us a little bit more efficient engine to fight the onset of these chronic conditions.

That's exactly right. It is the union of our life. You cannot just exercise every day without rest. You cannot just eat without fasting. And fasting, it seems like it's such a novel concept, but it's not.

We all fast. Everybody fasts. Well, you say, well, I don't fast. Well, you do. When you sleep, you fast, right? And it's 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 these fasting components for spirituality, but also for health, for mental clarity, But I mean, that's kind of posse.

That's like the, you know, that's a past knowledge, fasting and nutrition. After all, every religion and every culture has practiced it. What is really new to me, at least for me, maybe your audience has heard about this, is the link to healthy aging.

how these nutrition and fasting is linked to healthy longevity lifestyle to me is where 21st century science has really begun to reveal the impact of this.

Yeah. And so Dr. Xu, you explained very well the stellar effect 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.

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

You know we know when we fast, the mind changes. When you, by the way, I'm on day six of my, my fasting, mimicking diet to today's my reefing Dean day.

So I just experienced five days of that fasting. I can tell you there, there is a clarity of mindset and that's not 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 you're not feeding the liver with everyday food.

Just imagine, how do we make foie gras? We take these geese, poor geese, and we feed them incessantly so that the liver becomes fat. I mean, so what is the way back?

The way back is… And foie gras is fatty liver, right? Yeah. And so the way, but how do we reduce that problem? Not feeding, right? So clearly there's benefits on the liver.

There's 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 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're definitely going to lose some weight, but you definitely also going to lose some muscle. That is terrible. That's the wrong way of losing weight.

Fasting up is the opposite. You lose central fat, right? Your visceral fat, your belly tire, you know, 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, but you preserve lean body mass, you preserve muscle. But this is critical because I've never ever heard of a weight loss regimen unless you exercise and you take proteins that only selectively melts fat and does not impact muscle, including, by the way, the injections now and maybe soon to be oral on Ozempic and Wigovia.

I think even those drugs are inducing a fat and muscle loss. You're saying that with the fasting, mimicking nutrition, you're preserving lean body mass and the body only focuses on burning the fat?

Yeah, your audience may not know this, but you know a lot of the low calorie weight loss plus the GLP-1 drug like Ozempic and others, they lead to up to 30 to 35% of muscle loss as part of the weight loss.

So 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 gets down because there's no food, Right.

The muscle is going to get weaker that tiger will never hunt again. Right. The species probably gone long time ago, but it's the opposite during a short term fast.

Right. The minus sharp that the Tigers minus sharp is focused on hunting. the muscle is maintained because there is a stress to the body and the body causes growth hormones and other hormones to maintain the muscle mass.

Now, obviously, if you fast for a long time, like a month, that's starvation and starvation is never good for the body. But a short-term fast turns out to be a positive 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 growth hormone and other hormones that the muscle loves to rejuvenate plus the fasting, stimulating, rejuvenation of the muscle together, leading to preserving muscle, which in a short period, maybe that's natural selection, human evolution, or the way it is genetically, if God created us, 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 trying to go with the nature's design. Don't go against nature, right? And I love that. It's a natural intervention. You're just mimicking what our ancestors were doing in a natural way.

and you're tapping into these ancient survival genes. You can't fight against that. But we also are not leveraging that in modern medicine. And this is where I saw an opportunity.

One of the biggest challenge, Joseph, is our patients, many of them are your listeners here. I always remember 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.

Metabolic Effects and Muscle Preservation

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 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's lifestyle. What is the number of days that you're recommending this fasting goes for?

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

Actually, 18 clinical trials they have published looking at this five-day meal kit called the fasting-mimicking diet. A lot of people say it's oxymoron, how can you fast and then how can you have food?

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

And it's 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, you fast for five days, you eat normal in 25 days and you repeat it every month.

That's the period that allows this, the 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 confused 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? And so we know fasting does a lot of good.

The problem is, again, pragmatism. I'm a clinician. I'm also a researcher. But But the idea of how feasible it is to implement matters a great deal to me.

You can have great theories, but fasting for five days, you ask average Americans who can fast five days. I can tell you, as doctors, we go to medical conferences.

If they don't feed us lunch, we say, that's terrible. That's a terrible conference. I mean, even doctors, we have all these knowledge. But it speaks to how the solution needs to be pragmatic.

So fasting for five days, yes, theoretically is great. It cannot be done. This is also why a very bright mind by the name of Professor Walter Longo, at USC University of Southern California, director of a 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 with a little bit of nutrients?

Not enough to cause these sensors in the body to say, oh, there's food. Actually, go fall below the radar of these detections. So the cell says, OK, there's no food.

But in fact, we're sneaking, we're smuggling some nutrients into that. Now, that's not a DIY project. It's 20 years of research, $36 million of National Institutes of Health funding, and with dozens of publications to support that.

So you're saying that Professor Longo and the University of Southern California, they invented or they figured out a 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. This is what I call, really, we take the inspiration from nature, which is fasting, which is actually not voluntary.

It's a force upon us. Nature forces fasting upon all life forms. But we, using the knowledge of biochemistries and molecular medicine, come up with a five-day plant-based kit, nutrition kit, So when you consume this, you get some basic nutrients to support you.

So you could actually withstand the five days and yet, at the same time, get almost all the benefits of a five-day fast. To me, it's the best of both worlds, right?

And it's pragmatic because it's just five days. Now, what do you do for the rest 25 days? Obviously, we say you got to eat well, exercise. But the reality is, in all the clinical trials, people just go back to do what that used to do without keep thinking about what to eat, what to do, just give us five days, give your body five days of this intervention, you will see the results in a couple months.

So you call this fasting, mimicking nutrition, fasting, mimicking diet, five days, I receive 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 regular… Is it like lactose-free? Is it for people with reactions that are gluten-free?

It's gluten-free. is plant-based and is specially formulated, so it has micronutrients in there and it tastes great. It's got bars, it's got soups, so it's not like you take a pill, right?

You actually enjoy the soup, the chewing, and this is all designed with the mindset that, hey, We don't want to treat sickness as if you're totally sick.

We actually want you to live life through experiencing this five days. So even going through fasting, there is enjoyment, there is food, there is nutrients.

What is a typical day? What would I get for breakfast, for example? Yeah, so there's a bar. It's specially formulated with the same thing with that fasting-mimicking technology.

When you eat the bar, there is taste, there is texture, but it doesn't spike your glucose, doesn't spike your insulin, right? So 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 it's the same glucose level for a number of hours after you consume it, as if you're drinking water and your ketone level just keeps going up.

So that's exactly the physiological state when the body is in a fasting state. And what would I have, like, for example, a typical day for lunch? You have soups.

You have vitamins. There is snacks. There are crackers. Oh, OK. 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 you and you're pumping the iron, but we can make that as tolerable as acceptable and enjoyable at the same time.

And is dinner same soup and some snacks that goes with it? That's right. And so you're saying 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. On one side, I'm rejuvenating my cells, getting a little bit younger to fight better, fight diabetes. On the other side, I'm losing fat.

I'm protecting my muscle. I'm 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 your background health. So studies have shown, publications have revealed, that if you are healthy individuals without 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 of 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 fasting-mimicking diet. And if I have diabetes, say after six months, I do it every month for six months, what do I expect?

Because we started talking about regression and remission. 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 science showing if you do that fasting nutrition? How many times you need to do it if you have diabetes, let's say. And if you don't have diabetes, you have three times per year.

But if I have diabetes, what to expect around, let's say, six months? This is the most amazing results I've ever seen from a nutrition intervention. We published a paper in JCE and there's Journal of Clinical Endocrinology and Metabolism about a year ago, where we take two groups of people, right?

One is just standard care. The other one, we give them this FMD, this Fasting Moving Diet, five days a month, repeated 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. six times five you're saying six times five so every all what the patient needs to do is the 30 days within six months of eating that special that's right and for the rest 25 days they go back to live their normal regular life 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 These are actually people with type 2 diabetes.

They have about 14 years. And there are all kinds of medicine. What we told them to do was not to take more. We let their doctor decide on their medicine and see what happened after six months.

Because I see a lot of lifestyle medicine intervention. And I see the little bit sheet in the paper. They change your lifestyle. They ask you to exercise.

And then they do 20 things. And they say, you see, it's a great result. I just want to know, in this clinical trials, Did you ask the patient to change their lifestyle in the 25 days or you just give them the fasting-mimicking intrusion?

For the rest of the time, about 25 days, we asked 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? insulin resistance, HbA1c, can we talk a bit about the results? So it was after six months, it was very clear at the end of this study, now the group that actually used the FMD had 1.4 A1c drop, right?

1.4, that's actually very meaningful, right? For those of your listeners, for every percentage drop in A1C, one point in A1C, it's equal to about 30% reductions in complications in the long term.

1.4 is equal to..

Clinical Trial Results in Diabetes

. I remember from my medical studies, if you drop HP1C by 0.5, it's meaningful. It's clinically meaningful. It's almost a drugable level. And so now you're doing triple, you're saying 1.4 decrease in HP1C and you said, every point of decrease is equivalent to 30% decrease in the complications and complications in the long term.

So that's why the FDA will allow a drug claim, approve a drug. It has to have at least a 0.5. So here we're talking about triple. Yep. But what's more amazing is not just the drop in A1C.

A lot of the drugs could get you A1C 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.

And that's the remission and regression you were defining when we started. That's amazing because to get 1.4 A1c drop, what do doctors typically do? They tell you to increase your drug, increase your insulin, increase your ozempic, increase your pills.

But here is one intervention where you're seeing better glucose with less medicine. And this is something I hardly saw in my practice. And it's a nutrition.

And it doesn't require every single day. And just to give you to round out the results here, there's a 59% drop in insulin resistance. Many patients struggle with insulin resistance.

And by the way, the beneficial side effect 22-pound 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? Microalbuminuria.

These are protein leaks. These are diabetes complications. How do you see all these five days of intubation, all natural, less drugs, less payment? They don't have to pay for these drugs.

I want to take a moment here because This is exactly why you left Harvard. This 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 now we're talking about medical fasting, right? Is all the drugs combined in 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 and have put more technology into develop a diet and nutrition that helps you to fast for five days.

Suddenly we see these amazing results. You're talking about, you mentioned two thirds drop in medication. I mean, in six months, we've never seen this in the practice of medicine.

I did start the call by or in the interview by asking how many of your patients were you able to reverse? And you said it's a lifetime disease. You're saying 22 pounds of weight loss.

You're saying 1.4 decrease in HP1C, preserving muscle, which is key. I cannot stress enough for everyone how much muscle is important in aging and diabetes because you can drop 22 pounds by eating healthier and being on a diet, or you can drop them actually even more with Ozempic and Wagovia and the others.

But you're losing muscle and the day you stop that has been the failure that has been the secret that no doctor or others want to tell you is. You lose muscle.

You're a weaker engine. You metabolize glucose in a slower way. And then the day you stop dieting, you gain back what? 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. And I see a lot of my patients and a lot of today consumers, they tell me the same thing.

It's like, I dieted all my life and I cannot just get it right. Every time you're dieting, you're going through that visceral vicious circle of losing muscle and fat.

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 the company is called Alnutra, and we're going to talk about that, has uncovered a secret to lose the fat but protect the muscles, the stress of fasting, and you put nutrition on it in order to make it compliant and feasible.

Just as you're talking, the images of the faces of patients came back to me. In my 20 years of practice, 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 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.

No, because I remember the reaction, the emotions of the patient. It's not just, oh, I have to take another medicine. There is a sense of personal failure on the parts of the patient.

They feel like, oh, my goodness, I failed again. And you know what often would come next is a series of negotiations. Doctor, give me three more months.

I will eat better. I will lose weight. And sometimes I knew they can, but I got to give them a chance. I give them, OK, let's not increase this. Let's wait for three months.

They come back three months. Guess what? Same story. But there is a deep sense of personal failure and struggle and putting more chemicals in the body.

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 could send them to the dietician, which I do.

I can send them to exercise physiologists, which I did. But it still allows them to. 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 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 that frustration that you're mentioning, we see it everywhere. people progressing is 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 like diabetes is just is a heavy weight on everyone. And guess what?

It's a foodborne disease. I remember one time I had a post talking about diabetes being a foodborne disease and somebody say, watch out, you know, this is how you're defining that.

It's 80% of diabetes type two is a foodborne disease. And what a magic. You're saying fasting, stopping 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, et cetera, too. If you go to the essentials of it, you overate, you stock a little bit more fat.

You became insulin resistant, you became diabetic. Guess what? If I fast you, the opposite of what you were doing, you're going to very fast be hopefully free of your medications.

What a simple story, but how long did it take us to reverse that brainwash, to reverse that status quo that we were all kind of You know, learn to to to practice and have accepted to to show that the difference is now we have clinical results we have science to show this right that this can be done.

And it's not just the old fashioned just, you know, don't let the hunger bother you. No, no, no, there's actually innovation. This is why four years ago I joined L-Nutra because I saw this technology and how we can take into the clinic, how we can take into healthcare to give our patients with diabetes new hope.

And I see it behind you on the screen. L-Nutra Health for Diabetes. What is the L? Yeah, L means longevity. You know, we talked a little bit about this trifecta of fasting and longevity.

And as the longevity, we're driving the longevity through nutrition and health. It's just, it's a new effort at Alnutra to focus on healthcare, 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 listened 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 patient or my dad or my mom or my cousin, I know somebody with diabetes, what should I do going out of this summit? So because of the science that we've talked about, we have put together a medically supervised diabetes remission regression program, and that's under the flag of L-Neutra Health.

So if you want to find more information, go to that website, L-NeutraHealth.com. Okay. You can find how to call us, how to reach out. The program is a 12 months diabetes remission program.

L-Nutra Health Program and Closing Remarks

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

It has the MD guide. So the fasting-mimicking diet is for, as we talk about six months, What happens between this 12-month program between month six and month 12? On average, we believe that people will need about six monthly cycles of FMD and then go into a maintenance phase where we will continue every three-month cycle.

Okay. I'm doing basically eight cycles within a total year. Eight times five is 40. 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 dietitian, you said supervised, there's a doctor and a dietitian.

Yes, medically supervised. 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, it's a medically supervised program. And I'm glad you do it this way rather than, than just, you know, going straight to, to, you know, just like many lifestyle programs where they just want to, you know, with less science and then more commercial arms, trying to just get into people and change their lifestyle.

No, just if patients are first, you know, in our heart, I have a heart of clinician, it has to be patient safety first, a lot of hand holding, right? A lot of support throughout this 12 months journey.

And so to describe it, theoretically, if I go to my doctor, or if I contact you at Alitra 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 dietitian 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 months, the data is showing two thirds of people would reduce their medication. I mean, that's fantastic. So, I mean, I mean, hopefully within the last hour, we, we have one first learned this amazing journey of yours coming from leaving Harvard for this, it seems fasting and making nutrition technology.

We learned about the value of fasting, not just into weight loss or the tradition intermittent fasting, you need to lose weight. You talked about rejuvenating cells and 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. It's very critical in diabetes leading to reducing medication for the first time to talk about regression of the disease.

giving 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 LneutralHealth.com to go and subscribe to this program. So 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. 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 own aging and vice versa.

If you have it and your spouse, your man doesn't have it, it's okay to do it together so that people actually, you benefit from the rejuvenation and the healthy aging.

Dr. Shah, 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've provided for me to talk about my life journey this far. And my encouragement for your audience would be make diabetes remission your new end goal.

And hopefully we could be a partner for you on this journey. That's fantastic. Appreciate you so much, Dr. Xu, 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. Thank you for tuning in to Doctor Talks.

We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your well-being.

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