# Enhance Your Sleep With Fasting-Mimicking Diet Transcript

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## Introduction and Speaker Background

Welcome back to the Sleep Deep Summit. New Approaches At Treating Sleep Apnea And Insomnia. Now I'm very happy to present our next speaker, who is Dr. Will Hsu He has an amazing medical pedigree as an endocrinologist, including 20 years spent at Harvard's Joslin Diabetes Center And he's currently the chief medical officer at L-Nutra.

In this role, his work is to advance the adoption of new strategies for diabetes regression and even diabetes remission. Today, we're going to talk about the bi directional relationship between type two diabetes and sleep, especially sleep apnea.

And we're going to touch on fasting or time restricted feeding and the impacts and use of a fasting mimicking diet. Welcome, Dr. Hsu. Dr. Wells. Thank you so much for inviting me to the program.

Yeah, fantastic to have you. Because there's so much interplay between type two diabetes and sleep problems, especially sleep apnea. So I want to start off with a couple of statistics that I hope will be grounding for the audience.

One is that about 80%, some estimates 90% of sleep apnea out there is currently undiagnosed. And another stat is more than 50% of people with type two diabetes have sleep apnea.

Some studies even showing three quarters of people with type two diabetes having sleep apnea. So let's start with how do these two conditions interact?

Are these are amazing statistics.

## Diabetes and Sleep Apnea Connection

And first of all, and if we were to think about how many people actually live with diabetes, that's around 38 million people right now here in the U. S..

So if you multiply that number by the percentage, it's it's truly astounding. And if you don't ask your doctor, your doctor probably may not be bringing this up at your visit.

So I think Dr. Wells, first of all, I just wanted to thank you for this program. I think it's such a timely topic that many people need to listen to, need to learn and learn more about.

But in terms of the directions that it's truly amazing to, they are codependent or interdependent because while leads to one another and because they have a shared ideology or shared cause of for both conditions and that is likely the culprit would be the obesity rate, the obesity epidemic hitting our country right now.

So what thinking we're talking about 70% of all Americans either lives with obesity or overweight, which is a slightly so it's a lower body mass index and it's 70% of the population.

So in other words, only 30% of the US population is considered normal weight. So a common driver. Brendan Sleep apnea, but at the same time breathing diabetes and and they're tied almost the head and to to.

Yeah. Yeah. And and I want to help people understand more how the pathophysiology of diabetes. This can lead to a condition like obstructive sleep apnea.

Yeah. And certainly, if you think about people with type two diabetes, what's happening there? Well, the body

doesn't produce enough insulin, even if and that is true in people with type two diabetes.

So not making enough insulin so the body doesn't have enough hormone to get rid of the glucose that's flowing their blood. So that's one. And and that that reduction in the insulin production, unfortunately, is dependent on our general health, but also the amount of body weight that we have.

And and then also a process of aging. So even as we age, our ability to make insulin decreases over time. So that's one problem. And a lot of people know that, for example, people who are age 65 and above are about 25%, the prevalence of type two diabetes.

And so aging is a major problem. But on the flip side, the body also does not use insulin effectively as a weight gain weight. So you can think about, for example, the insulin sensitivity or sensitivity or the body's ability to use insulin effectively.

And you can think of it almost like a fuel efficiency for a vehicle. So for the same matter of gas as a car that is fuel efficient, can run a low miles, run many, many miles instead of the car that is inefficient in fuel efficiency only can make very few mileage.

So by the same token, people who are able to who have a high insulin sensitivity is able to use the same amount of insulin to do a lot of work, meaning getting glucose out of the system.

But unfortunately, people who have insulin resistance or low instances activity with the same amount of insulin can only work very little bit in terms of ability to get rid of insulin.

So obesity is a major problem that leads to this insulin insensitivity or insulin resistance. Right. And, you know, the reverse is also true. People who have untreated obstructive sleep apnea are more likely to be diagnosed with type two diabetes mellitus.

And so there's tons of overlap metabolically between these two conditions. Not only can they coexist in the same person, but they also tend to aggravate each other.

Yeah, that's for sure. So, for example, people who have uncontrolled diabetes, their body's ability to keep glucose in the system in the body decreases.

So that means they're prone to urinate out of these glucose, along with with with fluid in their body. And so we call that Ali urea, meaning that they are always excreting urine.

In fact, the diabetes mellitus, the term right has this this connotation that you're always passing through the urine. And in the old days in India and China and India, in ancient civilizations, how did the physician diagnose people to have type two diabetes?

They just look at the urine and where, for example, the dogs will go and drink the puddle of urine or into a congregate around the urine. And that's truly how people came to to understand diabetes is truly is a condition elderly type of blood glucose and where the body cannot hold down to these glucose level and they pass these urine out with lots of glucose in the urine.

What does that mean? Well, it means that people with type two diabetes are are not sleeping well and they have interrupted sleep. Right. So with interrupted sleep, their energy level goes down.

## How Sleep Disruption Affects Blood Sugar

And Dr. Wells, you're the expert at this, but with disturbed sleep. Every organ system suffers. Right. And that means people have less energy. People has less desire to exercise because they're so fatigued during the daytime.

And so that really compounds the problem, not to mention those of people with type two diabetes. Many of them are on insulin or on drugs that causes weight gain like sulfonylurea and other types of medication.

And then that exacerbates the underlying obesity. So it makes the person even bigger, more insulin resistance, more upset around the neck area, which makes sleep apnea worse.

And so it's such a major problem in a bi directional relationship. So true. You know, I see folks all the time coming to me for sleep care and a lot of them don't have diabetes.

That's very well managed despite their best efforts. And, you know, there's always a dietary component, there's an exercise component. And then you have the medications available for diabetes management.

And, you know, I would even suggest that sleep needs to be included there, because it's very clear that interrupted sleep or dysfunctional sleep because of untreated sleep apnea or other conditions, has an effect on blood glucose.

And especially especially since the continuous glucose monitors have come out. People report that all the time, I had a bad night last night, so I'm seeing a lot more variability and.

Was. A trend higher for blood glucose. And we see that in clinical practice all the time. When people are not sleeping well, just see it's an added stress, especially when you're gasping for air.

When you're having experiencing sleep apnea, it's stress on the heart. It's a stress onto the hormonal system. The body is stressed, period. So with stress your glucose goes up.

And so it's not unusual to see these peak in glucose when when people first wake up in the morning and as can punting on the fact that in the morning your adrenaline level, adrenaline level is high to begin with, right.

Because of that dawn phenomenon. You've been sleeping all night. You need to wake up. So the body naturally gives you a little bit more stress hormone to push the adrenaline up a little bit with the intention of waking your body up.

Mm hmm. Waking up every cell in the body to be ready for the day. But think about if that happens on top of a disrupted or disrupted night with sleep apnea, with where your body is gasping for air, that just really doubles up on the stress level.

And that has in turn turned into higher fasting blood glucose. That means your your blood glucose level in the morning, a lot of people will come to us as physicians and say, well, doctor, I didn't hear anything last night.

How come my sugar is so high? This is also a chance where you might want to nudge your physicians and ask, well, is this could be a sign of sleep apnea?

I think that would actually remind the physicians that to look for this very, very hidden condition. Yeah, right. Overall, I recommend to people to have a low threshold for sleep testing because, you know, it's it's really an insidious sort of condition because the person who's affected with sleep apnea is unconscious.

That's when the condition is active. So having a low threshold for testing makes sense on a number of different levels. Now, I want to shift gears a little bit and talk about dietary management of type two diabetes, because this is so beneficial for people who may otherwise feel that they don't have a lot of control over their condition.

So changing the way you eat, changing what you eat, and the quantity can all help you to improve your diabetes status and even start to gain some ground on the on the condition.

I know there's some talk out there about the benefits of time, restricted feeding or intermittent fasting. There's always sort of this asterisk for people who have diabetes.

Yeah. And I want to get your thoughts on that and how you talk to people who are considering intermittent fasting or time restricted feeding. It's really interesting.

## Fasting, Circadian Eating, and Autophagy

For over 20 years, I took care of patients with type one and Type two diabetes and the debate had always been around what food to eat, but certainly not to eat.

But it's not until recently where the medical clinic community has begun to really ask the question. I think another really relevant question there is when do we eat and when not to eat?

So while the debate still rages on on the type and the quantity of food, and we will put that aside for for now, I think the idea of when to eat and when not to eat is so timely now.

So think about it. In fact, when you think about the human body actually starts every day. Think about that, right? Yeah. When we sleep, we don't eat unless you sleep.

Right. So for having for however many hours you you sleep, that is the time where body is tossing a lot of nutrients. And I think this is by design. The body cannot constantly be processing nutrition.

Right. It's almost like a machine you cannot always be beyond. There's got to be times where the engine's going to heat up too much. The body cannot exercise for 24 hours a day.

It needs time to rest intake, health and really comes in a package of the opposites. What I mean by that is you need to exercise. You need to rest, right?

You need to exercise. You need to be active. You need to sleep in it, have great nutrition. But you also have time when there's not a lot of nutrition around so that the body can rest.

This is where the concept of fasting came in. Now it sounds like it's a new concept, but actually it's been around as old as humanity. And think about every culture, every religion.

There has always been a component of fasting, whether it's a day or two of three or going to the monastery to try connection with, with, with or with God or or it could be, you know, waking up to eat when the sun is up and then stop eating when the sun goes down.

Because frankly, they just did not have refrigeration or illumination soon enough. Right. So there was the concept that it was a natural consequence of just rising with the with the sunlight and sleeping with the sun goes down.

And and now more recent studies now we are seeing that with fasting and we could go into that the different types of fasting later, both with fasting, we're seeing an impact on insulin resistance.

We're seeing impact on weight loss. We're seeing even impact on beta cells themselves. And so it's truly a new aspect of of an old debate on diet. I couldn't agree with you more.

And, you know, this kind of brings up a sore point for me, which is, you know, sometimes when people think about going to see a sleep doctor, they kind of assume I'm just a sleep apnea doctor.

But I like to point out that, you know, the work that I do really spans a 24 hour period because I'm just as concerned about how people are awake and alert and having energy as I am about their sleep.

And to your point, we need to create opportunities for more contrast between daytime and nighttime and more balance between these two different periods of the day.

So this speaks to me on a circadian level. You know, this idea that the daytime is for eating and then you stop and

then there's a period where there's no eating and then you have your window open up again.

It's not surprising that in 2016, the Nobel Prize in Medicine, in Physiology was given to researchers that looked at the benefit of prolonged fasting and survival.

And what Professor Toomey from Japan uncover was that when people when actually when animals fast, especially for a prolonged period of time, they entering into this phase of extensive extension of crisis.

What I mean by that is the cell says, hey, where's food coming from? I'm starving. I don't know whether food is coming tomorrow or the day after, but in order to survive, I need to find sources of food.

And what the cells generally do is look inwardly to see inside the cell components of what can be used, what's like, what's disposable. It's like when you're stranded in the desert island with no food, you got to somehow and you're stuck in a rather hard place that you would sacrifice your arm in order to survive.

So the cells go into these extents, the potential crisis and look around and say, what's more disposable? I mean, it's certainly not going to be the brain, the cell, which is the nucleus, because then they would just die in once a by time, by burning, digesting parts of the cells that are disposable, it's often they turn to mitochondria.

There are more dysfunctional misfolded proteins think there are like broken, older, like it's like in the winter, you know, when you have to heat up your home before the furnace was around, what do you do?

I mean, you will look for certainly not your grandmother's heirloom furniture that you're going to throw away. The chair that was have broken. And so it's a heat up in the night, right.

So that you can survive. So the cells go through that cellular autophagy right to self-cleaning in order to survive. And little do we know today with 2016 Nobel Prize that recognition that this cellular autophagy actually occurs in every organism looks down to earth from simple single cell organism from east to tear fruit flies to mice to to mammals.

That's how we survive a days and sometimes weeks of starvation that happen to occur in nature. But little did we also know that, that when the cells go through that digestion in order to survive and if it survives, what it does is it expands back when food becomes available again.

Think about that. Mm hmm. So if it shrinks 20%, it's going to grow back 20%. When food becomes available in a few days. And what you have essentially done is you replace the older parts of the cells for new parts.

Now, give me one medicine that can do that. None. It was so substantial and so important to recognize when nature deals us with the hand of disaster, it would not assume the life forms respond with this mechanism of autophagy.

So it not only survives, but actually it becomes younger. Think about that. That's really the miracle of life. And so that's why this whole conversation around fasting is so founded on this foundation and that that is actually the survival mechanism for all living things on Earth.

And, and that's why I'm so excited to talk about that. Yeah. And your explanation makes it more palatable for people who have fear about starving or kind of going too long in between food and between meals.

Sometimes I like to point out that it gives new meaning to the term dining in. You're sort of dining in on your own energy stores, and that is something that the body is physiologically capable of and even meant to do.

So if somebody is looking to get started with fasting, what do you typically recommend as a beginning point? Yeah, so different types of fasting has different biological impact.

You can imagine, you know, one of the most popular fasting pattern, it's called intermittent fasting or time restricting

eating or time restricting feeding.

That means simply that you just restrict your daily food consumption to a number of hours during the daytime. Typically, you can do an eight hour consumption and then in 6 hours you would be fasting or you could do ten, 14 minutes eating within ten hour window, 14 hours of eating or.

And some people advocate more circadian fasting, which is 12 and 12, 12 hours of eating. And make sure that you don't eat for the rest of 12 hours. That has its own benefit.

It's great for metabolism. It's great for weight loss. It's also I mean, nighttime eating is one of the worst things we can do to our body. It's probably not very good for sleep anyhow.

It's so true for before your sleep. So it has its own purpose. But what I talked about, the 2016 Nobel Prize was devoted to this financial crisis when food is not available.

So it cannot trigger this kind of alarm system every night for just because of six hour of fasting.

## Fasting Mimicking Diet Overview

So typically what we're seeing with these longer fast is when we're seeing these and we're going to have an Asian effect in human, it's likely to be greater than three days or four days of fast.

Okay. Because that's when the cell says, my goodness, how am I going to live through another day with no food? And it begins to look for that internal source of energy.

That's when you're burning the broken chairs, right? That's right. That's exactly right. So so now we are facing conundrum, right? So while intermittent fasting is great for metabolism, but that kind of entire aging, the kind of healthy aging cellular rejuvenation only occurs when it's longer, fast, 3 hours, three days or four days of fast.

And this is where the challenges like is modern people. I mean, fasting a day may be okay, but three or four days now we're talking about a real challenge.

And this is this is real. This is a real challenge. And not to mention people with sleep apnea often carry other comorbidities. People with type two diabetes also may not be safe to be fasting three or four days in a row, especially if you're taking medications like insulin and and other pills.

And so this is where I think super medical supervision needs to to take place. This is also where I think we need to have a 21st century solution for something that that truly works.

But this is where innovation papers. Yeah. And you know, I want to sort of underscore that point for the audience watching. If you are taking insulin, if you have a complicated medical picture, these are scenarios where you should definitely consult with and have your own personal physician on board, tend to sort of supervise and respond to any complications resulting from a fasting plan.

There's this seems like a good time to pivot into a fasting mimicking diet plan. Can you tell us what that is and what sort of solution this provides for people who want to get the benefits but maybe avoid some of the challenges?

And this this is exactly kind of the solution we will try to solve here at a neutral. We recognize the challenges of people wanting to do long fasting, but also may not be in they may be taking medications or may they may simply not be able to tolerate three or four day fast.

So the founder of the company, Professor Walter Longo, who is a who is a faculty at the University of Southern California, invented the fasting mimicking diet.

And so let me explain what that is. So fasting, mimicking diet and shall we call it FMD? It's really precision medicine

or precision nutrition, I should say, that gives you the benefits of a fast but with nutrition.

That's why it's called position and nutrition. It comes in a five day structured meal plan that basically provides nutrients that just fall below the sensors of all of the cells so that the each the cell does not really pick up the fact that you're eating nutrition.

And the way it's able to do that is because these nutrition components are calculated, instinctively designed to fall below the detection threshold of these nutrient sensors.

Now, this takes a little bit of explication. So every cell in your body has these sensors. They are like eyes and ears and the nose of the cells, the sensitive nutrients is coming to your body and your bloodstream.

Right. And so if there is glucose coming in, there's amino acids and proteins come in and these ears and eyes are going to say, hey, there is food. And whenever the cells get these signals of food, it tells the cells, hey, it's time to grow.

It's not the time to go into that rejuvenation, that autophagy. So the cells is constantly looking for that signal now. So if you're constantly eating a 24 seven or eating or during festive times of the year and so on, so forth, then the cells never rest.

The cells are constantly growing. Now, in a society like ours where we have 70% overweight or obesity, I mean, how much more do we need to grow? I mean, there is time for growth.

But as I mentioned earlier, there's also time to rest and to rejuvenate. So with with fasting, limiting diet, the amount of nutrition is just right below the radar is right below the thermostat.

So it doesn't trigger these nutrient sensors. So the cells, oh, there are sea nutrients, the supports, they're there, their functions, but essentially doesn't let the cells go into their growth mouth.

Now, this technology was developed, developed with 25 years of 25 years of research and AI funded for 36, $37 million because the federal government recognized that there is a need for innovation like this.

And so, in short, this structured meal plan of a five day fasting, the picking diet is able to give people the benefits of a five. Don't prolong a five day prolonged fasts without the suffering and the challenges of.

That so fascinating my curiosity is really piqued because my brain immediately wants to ask, what are you eating? Yeah, that's a really good question.

I mean, we we, we have a choice to make it into powder suspension drinks. But the reality is people want to eat. You see, people want to feel like they are living a normal life and they're not like fasting for five days.

So the this was designed in very familiar form for factors. So the fasting diet includes six bars, has all those has the crackers and multivitamins to support you for these five days.

They're informal factors. They're are familiar to to your listeners, to our consumers, to our patients. So it could be acceptable by almost, almost everybody who wants to experience the benefit of five day fast.

So fascinating. So it sounds like you buy this package of foods that are going to sort of fly belly beneath your metabolic radar while you're doing this program.

Are there any changes that you need to accompany the diet with in terms of exercise, adjusting your medications or even keeping your eating window in a certain time frame?

No, it's actually very simple. You don't eat anything else other than what's in the box. All you do is add water. You add water to the soups. You drink a lot of a lot of water.

You drink the herbal tea that comes with it.

## Clinical Results and Diabetes Remission Program

You can have one cup of coffee, otherwise it's going to cause a lot of people to not be happy. And also, some people may experience withdrawal headaches, so a cup of coffee so that that's that's easy.

You don't have to be within a certain window because the stress of of fasting is already much has much bigger impact in terms of eating since you're you're assimilating fasting for five days.

So this is also the time where you don't need to overstress yourself. Fasting itself is already triggering some of the most powerful survival mechanism.

You don't need to add too much exercise. On top of that, if you want to do a simple walking stretching, those are all welcome. But fasting is not the time to max.

Your your exercise is not to intensify your exercise, but to take it easy doing those five days. Let the body experience what nature has designed for millennia.

And and I think a time to exercise would be after the five day fasts. When you go into that refueling phase, this is when the body wants to grow back, right?

That all the cells want to replace the old parts with new parts. That's when you want to exercise. That's when you want to give the body the nutrients.

Remember, it's the cycles of shrinking and rejuvenating, shrinking or rejuvenating through that process. You're replacing all the parts of the cells with new parts and not the old.

So to also to bring it to relevance to sleep apnea when you fast like that, you also burn visceral fat. You better burn subcutaneous fat. This is this is very different than a slow weight loss with with low calorie.

Well, what's the difference? Well, you can imagine losing weight slowly is like turning on a faucet, right? It's a small, small kind of a drip, drip, drip.

When you're fast, it's like it's like a fire hydrant. I mean, it's a it's a it's a force of nature. Is that triggers a stress to the body. The body then secretes growth hormone.

The growth hormone then supports your muscle integrity. So it actually is probably the most natural way of weight loss is actually from periods, you know, period to period and fast from period to period.

If you look at all the large animals in nature, look at cats, look at lions, for example, the lion to a lion doesn't hunt every single day. It hunts, eats, and they fast until the next time.

It could be days before the lion once again. So think about it. In between the fasting phase, if the muscle decreases in size or strength, the lion is probably going to be set to hunt next time.

And the species would never have lasted on earth this long. So this is all part of the design, right? When, when, when we fast the muscle gets preserved.

This is not a 30 day fast. Right. So you're talking about a couple of days. You actually preserve lean body mass, you burn visceral fat, you burn a certain subcutaneous fat that's very, very different than a low calorie diet where it's an equal opportunity, fat burner and tissue burner.

The body in a low calorie diet basically is not enough stress to trigger these growth hormones so that what body does is just, hey, I need energy, so I'm going to go to the muscle and burn the muscle, the source of energy, or I go

to the fats and burn the fats, the source of energy.

So that's I think that's where the differences fantastic explanation. And I want to tell everybody out there that growth hormone is like a fountain of youth and growth hormone is produced during sleep, everybody.

So if you're getting your vectors aligned nutritionally to kind of do this, reset this autophagy stimulating program, it makes a lot of sense in my mind to get your sleep vectors aligned with that too, so that you can come out on the other side of the five days with energy, with vitality, with this new appreciation for what it takes to be healthy.

I really love that explanation and I'm glad you mentioned caffeine because the joke is all sleep. Dogs are addicted to caffeine. So I was wondering about that.

That's great news that you can still have some. Know that because people with diabetes, they always ask, well, can we can we use the food? Can we use fast mimicking diet?

And I always say that it's always safety first. So and now we in a research study that we published in Germany involving just six cycles of the study, just think about as five days per month and you do it for six months.

Now, that's always under research protocol, under medical supervision. I just wanted to to make sure I emphasize that there are specific protocols where medications are adjusted and so, so forth.

But just five days per month, for six months, we saw a 22 pound weight loss with a lean body mass preservation. So we're talking about losing the fat, preserve the muscle.

We also saw a 1.4 81c drop that's very meaningful. It's as powerful as a drug just with these dietary intervention. And what really struck me as a clinician is that two thirds in the people going through these these dietary intervention were able to reduce their medications by six months to two thirds.

Wow. So low yields is not horrible. You increase more medicine, but when you when you reduce the agency at the same time, lowering the amount of drug use, it's powerful.

And this program we have now make it available to to consumers through what's called L-Nutra health for diabetes. It's a diabetes program using the core technology of the fast and addicting diet layer.

On top of that medical supervision, we we partner with telehealth companies where they have physicians who are interested in lifestyle medicine, using nutrition, using FMD to help you get rid of your medication, reduce your burden for taking medications.

And that program is available. And it's a social dimension for the rest of the 25 days when you're not on the FMD. We also have dietician. Who holds your Hand that provides tailor personalized meal plans to help you to achieve one single way and that is getting you towards diabetes remission.

And that's simply defined as getting your glucose back to a normal level with no medications. And that's that's the program we're offering right now. Okay.

That makes so much sense. And, you know, my five year old would say that, you know, even if you are somebody who's been diagnosed with diabetes and you've got a long haul ahead of you for weight loss, how do you lose weight?

He would say don't eat. So this is a great program for people who want to experience the benefits of fasting while avoiding some of the challenges and even some of the pitfalls that are more likely if you're a Type two diabetic.

Now, as we wrap up here, I wonder if you can tell where they might go to learn more about the fasting mimicking diet from Prolon. And even these supportive measures that you've just described.

You know, the diabetes remission program and you can find it at L-nutrahealth.com So it's L-nutrahealth.com to come and for people without diabetes and once a few months to lose weight and you want to use this five day fasting mimicking diet as part of your nutrition support you could go to prolonlife that's prolonlife.com I love that because it's almost prolonged, isn't it?

prolonlife.com. Okay. Thank you so much, Dr. Hsu. It was great to talk to you today. And you brought a wealth of information for people who really are looking for some changes, not only to their sleep, but to their nutritional needs.

Thank you so much. Thank you, Dr. Wells.