Why Fasting Reverses Biological Age

Fasting probably is one of the only two, three interventions that we know today that can really reverse biological age and help people live a healthier, longer life.

We can talk in detail about the types of fasting and the impacts of each on longevity. But in general, you're doing a big intervention on your metabolism and you are doing your metabolic reset.

This is The Longevity CEO, where we explore the science of metabolism, cellular renewal, and future of longevity Well, Dr. Joseph, great to be with you today.

Excited about this conversation. I know you've been working in this fasting and longevity space for a long time. You've got some incredible knowledge and really love what you and your company on Nutra are bringing to the space and helping people access this natural form of medicine in the form fasting, and food technologies that really help us to get the benefits of fasting particularly with certain population groups that may really struggle with fasting.

And so let's start with this question. Why, why is fasting a core longevity intervention? Well, thank you, Dr. Chokris, and hopefully when it's changed somebody's life today, I'm going to go straight to it.

Fasting probably is one of the only two, three interventions that we know today that can really reverse biological age. and help people, you know, live a healthier, longer life.

And what's the correlation is when you fast, You're doing two major benefits to the body. I mean, there's, we can talk about in detail about the types of fasting and the impacts of each longevity.

But in general, your doing a big intervention on metabolism and then doing metabolic reset. 73% of Americans today are overweight. 90% Americans suffer from one or two kinds of metabolic disorders and or, you know, something going wrong with the metabolism, whether it's cholesterol, triglyceride, weight, et cetera.

So when you bring fast, just to start with that, your helping 90 percent of the population try to reset one of their metabolic markers. But what made, what brought fasting, this is the, if you want the low calorie setting of fasting and helping the body lose the weight and improve blood pressure and blood cholesterol and brought triglycerides and all the other inflammation and inflammation, et cetera.

Now what took fasting to the prime scene of longevity was around that 2013 to 2016, when the science coming from USC and Professor Walter Longo were saying that if we do fasting in mice, you're rejuvenating their cells.

And you're bringing new stem cells up to the surface to replace old senescent cells, the zombie cells. So USC has established a longevity Institute and they were looking at fasting and under the leadership of Dr.

Walter Longo, a lot of folks probably listening to us know that name and have read the longevity diet book. And if you haven't read it, please go and buy the Longevity Diet Book by Walter Longo.

He explains how first in mice, they we're looking if do two or three days of fast. which is equivalent to four to five days in humans, the mice metabolism is a little bit faster.

And he was showing that the buddy is going into a type of crisis. You know, they're fasting a mice or fasting the body. The buddy first couple of days has enough calories from the liver, from glycogen, and from fat, to the reserves of the buddies.

They help you the first a couple days. Then on day three, you go into crisis where the Buddy is telling the cell, hey,

I cannot feed you any longer. the debris in the organon, you got to rejuvenate and you're going to perform at your best so that we together, all the cells can survive the fast.

So the crisis on the cell after the three of human fasting or after second day in mice is what pushes the body to regenerate the That discovery won the Nobel Prize in Medicine in 2016 under the name of autophagy.

And then for the first time, we're seeing a fast at pushing the cells to fix and therefore they're going biologically younger. You know, when you fix a cell, you're a little bit back in time and a younger you is a you further away from the onset of the four big killers, diabetes, cancer, Alzheimer's and autoimmune disease, mainly the age-related health conditions that are killing 90% of us.

Now what Walter Longo and USC developed actually, they went even further.

Fasting Through Human History

We all talk about autophagy and fasting. The next step, so imagine, the first two days the body relies on the reserves, fat, glycogen, and liver. Then day three, day four, body tells itself, hey, no more food, I'm depleting the bank account, you gotta eat the inside, that's autohagic, we established that.

Now, if you move forward, now the cells are saying, I depleted. I rejuvenated. What's next? And this is where the elimination process happens, what we call the regeneration.

And the buddy is saying okay, have cells that I don't need. They're old, they're zombie cells, their senescent cells. The buddy kills them, a process called apoptosis for those, and pushes the younger cells to replace them.

So basically, get ineffective cells out. and push the younger cells. And we see this very much so in mice and we've seen it in humans in our Prolon trials, we're going to talk a little bit more about Prolons.

We saw a spike in stem cell and precursor of white blood cells, the mesenchymal proliferative stem cells and which Which means the body is getting that older cells out and these older shells are key in the process of aging because once you start having many of them, they're very pro-inflammatory.

They start creating that environment of accelerated aging. You know, folks who are 50, 60, 70, you started having a lot of these old cells and they accelerate aging actually even faster.

We call it the exponential aging at the end of life. So it's very important to look at not just the intermittent fasting, but a little bit the prolonged one whereby improving metabolism, benefit number one, we talked about due to the weight.

Benefit number two, rejuvenating the cells, that's the autophagy. benefit Number three, replacing old cells with new cells. The regenerative part of fasting.

All those things are reversing bio age and helping you stay healthy longer. Yeah, what a great explanation. I mean, fasting is this, like you mentioned, this hormetic stressor.

It's a stresser on the body, but the, body actually becomes stronger, more resilient through it by getting rid of these old damaged senescent or zombie cells that are just kind of going along, they're not functioning properly and they are causing poor function inside the new young stem cells or repairing cells that we're still able to repair through that autophagy process.

So yeah, really incredible stuff. Now, when I was growing up, I told you got to eat three meals a day. It's got be breakfast, lunch and dinner. You got get all your calories.

And so I never really heard the term fasting. My family would do fasting one day a year for spiritual religious purposes. I thought that was like the worst thing And so now, of course, you and I are big advocates of fasting.

You hear a lot of people online talking about fasting, a lotta people are certain to practice this. Is fasting new or has it been around for a long time?

No, and everything you said is right. Both eating three times a day, we're actually a proponent of that. And the prolonged fasting has to be added to this, so I'll put it all together.

Well, first of all, fasting has been part of the human diet since the beginning. Imagine the first, you know, few thousands of years where humanity didn't even have any fire or any refrigerator or anything and humans lived.

I hear all these theories about the cavemen and the… We lived around rivers. In the cave, you can hide at night, but there's no food or water. And by the oceans, the water in the ocean wasn't drinkable and there was no trees.

So we lived that around the rivers and humanity lived because with the river, water you can drink, and you have a lot of grass and a lots of trees and lots fruits.

And so we were plant-based and little bit pescetarian. The fish is the only animal that cannot fly or run or see clear and it was easier to fish. This is why for the longest period, our diet was a plant based pescatarian, then we started learning how to hunt a little.

We became flexitarian, we added a bit of meat to it. And there were periods where there was rain and snow. So in the summer with abundance, we would store.

Our buddy used to store, in fact. We'd go through the winter, and in winter there's a lot of fasting creates. There was a lots of times where because we couldn't store food the way we can store it today.

The notion of not having food all day or going several days without food coexisted with us for the longest time. Imagine in a middle of the snow or you're migrating.

you know, packing your tents and going and all that. There was a lot of periods of prolonged fasts. So the body learned how to cope with all of it, learned to soar when there was abundance and learned, how, to deplete and learn how also to react when the depletion goes longer by fixing the cells, fixing this cordage.

and being very ready to walk and find the next fruits or, and this is why we, what happened with fasting, we transformed fat into ketones. The ketone are just food for the brain to stay up and be able to work and not faint because then we will be exterminated as a race.

And the second thing that the body does is to protect lean body mass. This is very critical, critical. And, and the buddy invests into the brain and muscle to keep walking and collecting fruits and vegetables.

Why is critical today? Because today for all the folks who are diabetic or overweight or have some We put them either on a chronic diet and they lose muscle and then lose the fat, but because they lost muscle, they're not able to go back and resist resorting the fact.

How Fasting Protects Muscle and Metabolism

And they always, everyone tells me I'm learned helplessness. I go out on the diet. Then I regained everything because I lost the muscle. Now we have the new semiglutide and injections that a lot of people are doing.

Up to 20 to 30% of the weight loss is muscle loss. which means the day you stop those, you're going to pick up the fat again. It's very difficult to rebuild the muscles.

Very easy to store the fact. So it's critical to understand that fasting is one of the very few, if not the only intervention that helps you lose a lot of fat while maintaining lean body mass.

And it was part of a success today of athletes who still do it or and what we do with the fasting mimicking diet,

probably we'll talk about it. We even accelerate that because we're giving the muscle even the nutrients that it needs to develop.

So we have even a better way to preserve lean body mass. And in some trials now we are seeing an increase in lean-body mass when you do a fasting-mimicking nutrition.

But to go back and close on the answer, fasting lived with us for a long period of time as humans. Even then, when we started sorting food, religion was the predominant, you know, adoption with humanity.

And all divine religions actually have one common word, which is fasting. So we kept it as a tradition, as cultural tradition. Up until the last 40, 50 years, we became less religious.

We store now food better than ever, and we accelerated the delivery of food. Late night deliveries with the Uber Eats are, And we started working late at night and overeating.

So we went from fasting and feeding to multiple times eating per day and eating late night, which is the worst thing you can do to your body. But your parents were right.

We should eat three times a day. And this is a big discussion between intermittent fasts and longevity proponents, whether you should do the 16 hours or the 12 and the 14. I'm happy to go into all of it.

But one recommendation here is eat early, do a front loaded intermittent fasting. If you want to do your 12, 14 or 16, just have your dinner at five, six, and then still eat something the next day in the morning, which will give you the 14 hour that you need or the 16 versus eat late at night and starve your body all the way to the evening time.

because that creates a delta between your circadian rhythm and your biological clock versus the, and you'll be starving your organs when they need the food in the morning.

And you will be feeding them at night when there just relaxing and, it pushes insulin IGF and accelerates aging. So that's a separate discussion on how to do intermittent fasting, right?

But definitely we should do intermediate fasting and not eat during the night phase. And two to three times per year, which is what our ancestors did and prolonged fast when there was no food.

Today, the science is showing that actually the five days of fasting done two or three time per years helps us refix our metabolism, fix ourselves, and be a pro-longevity intervention.

The simple example to give here is that… is a Formula One or a NASCAR car race. If you watch those, if you're driving, you are going pretty fast. That's life today.

We're getting toxins. Again, the wheels are being over abused. The engine is heating. What you can do is you slow down intermittently. Intermittent fasting can help you a little bit decrease all this heat on the engine.

But what you could do optimally, is go to the pit stop. Mechanics come in, they fix, and they change. And that's the five days fast, that is the problem with fasting when you die.

You take the five days, the zombie cells are out, or the senescent cells, you're fixing the existing cells. You're resetting your metabolism and your car goes back on track and stay longer, healthier and faster.

Yeah, really fascinating. And you made a really good point as far as the sarcopenia or muscle loss. We know when we talk about longevity, one of the biggest risk factors for all-cause mortality is muscle It's called sarcopenia and fasting helps preserve that because you get an elevation in human growth hormone and HGH helps your body preserve your lean body mass.

We think about it from an ancestral perspective. When our ancestors didn't have food for a few days, if they got

weaker, it would be hard to hunt or harvest.

So they actually got, in a sense, they preserved that lean-body mass And their senses, because of the ketones in their brain, their sentence got heightened.

And therefore, they were more mentally clear. They had less brain inflammation. So they're more creative. All their sentences were heightened, so it was easier for them to get food.

You mentioned the key word, it's distress. So, fasting is not a low-caloric setting. We see that in other restrictive diet, it doesn't work, you lose the muscle.

Fasting works because it's an injection of stress. It's like intermittent, intense exercising, right? You get the same benefit. fasting's actually like the intermittent transient and high intensity exercise.

It develops a superior level of intervention. It's a peer level stress that then the cells say, okay, I need to flex. I needed to adjust. And to be metabolically flexible, but I to rejuvenate and fix and be at my optimum to survive.

and you don't need do it all the time, the prolonged one. You got to do with, you know, when you. When the body is, is needing it. And we think it's every four to six months is when you would go and do it, which again, whether it was a car race, you do two or three pit stops during that race.

Whether it is humans, we used to migrate two to three times during the year with the snows and the springs and autumn. It's part of the cycle of life.

For sure. And, you know, some people that are listening here have done a three or five day fast, water fasting.

Inside the Fasting-Mimicking Diet

So for a lot of people, they see amazing results with it. They feel good with that. But a lotta people are very intimidated by it and really have trouble as they get started with.

That's what's interesting about El Nutri. You guys have made these great food technologies where You're getting the benefits of fasting, but you're still actually eating and you don't actually have to make food, prepare food or really think about food.

You know, you just, in a sense, yeah, all your food in the box and it's all set out for you. So you still feed, your still eating. A lot of people are taking medications that you gotta take, that they need to eat with and things like that.

They don' have disrupt their day to day life with that Yeah. And, you know, we used to be a water fasting, a clinical trial, right? We, our story Alnutra is enough, is an offspring of University of Southern California.

We were founded, by Dr. Longboat, the head of the Longyear Institute and USC. And we were the results of their water fasting actually initiated trial.

So this is 20 plus years ago, they were looking at the benefits of intermittent fasting and then fasting for a day or two or three. And there was a lot of actually benefits on cancer patients.

The first time USC went on a human trial, it partnered with Mayo Clinic to go on pure water-fasting intervention for patients with cancer. It took a year and a half to just recruit two to three patients because nobody could or wanted to do a four or five day fast.

But in mice, we were showing major benefits on diabetes, on cancer, and on autoimmune. So we took all these results in Mice to the NIH and we asked for grants to go and develop the fasting mimicking diet, meaning can we, because we are also, our founders are experts into what we call the nutrient sensing pathways of the cell.

How a cell recognizes food? What are the sensors of this cell? And they thought they would devise a very specific precision nutrition formulation that would feed the body and the cells, but keep the signals of fasting at the cellular level.

So, this is why it's called the fasting mimicking diet. You're feeding the buddy over five days and I'll tell you how the cell misses that. But at a cellular and metabolic level, the Buddy doesn't recognize.

the food and therefore you're getting the benefits of a five-day fast. Actually, you are getting even more benefits because you funding the transformation of the body.

When we say autohygiene, we get to mobilize lysosomes and others too. So if you don't have minerals, if your have the vitamins, and you have macros that you need, your not going to do that.

If you want to crush new cells, then you got to also feed them. We were seeing in a lot of cases, the fasting in beginning to be not just safer and more compliant and easier to, but actually a much better results than fasting on certain determinants.

And the big question I always get is how can you trick the body into fasting and what is this formulation about? So it all goes to how the buddy understands that you eat.

When you feed, there's two macros that stimulates, if you want the recognition of food, you have the carbs, which stimulants that insulin, it's a growth factor at systemic levels saying, okay, we have carbs we're growing, or off fasting.

And, the proteins trigger exactly similar IGF, insulin light growth, factor. So whenever you have a protein intake, you're also telling the body that I have one of the micronutrients and therefore we're not fasting.

So the first step at the systemic level is to not spike insulin and to no spike IGI. And so one the core formulation of The Fasting Medication Diet, we call it Prolon for promoting longevity, Prolan in the market, is not to spike Insulin and not Spike Igi.

And there's two secrets there because people wearing CGM now they say, oh, I did get a spike after, little spike, after lunch and a little bit bigger spike.

And we engineered actually two of our soups to do that because you want to feed, you wanna create a mini spike of carbs and insulin at night where the body naturally is pushing the growth hormone as well when you sleep.

So that the muscle is getting the calories and the boost to be preserved. This is why we do better on protecting your body mass than water fast. We're nourishing the muscle and we're giving a signal, a double signal of insulin and IGF and growth hormone naturally for the muscles to be preserved and to rebuild.

But then go back, it's a small spike. So in general, no big spike of Insulin as a response to Paranoid, big spiked off IG. Now when you get in the cellular level.

The cell perceives nutrition through the PKA pathway, the TOR pathway and the RAS pathways and they interject. There are other mini pathways. And so the formulation does not over-trigger these three pathways, we have to study on every ingredient, there's 77 ingredients.

Because for all of it, it's fasting by nourishment, not by starvation, you're getting a lot of nutrients. Every combination of nutrients that the cell does not get satisfied is saying, well, I'm getting some nutrients, but I think I got to be cautious that I can still be protective and stay in the fasting levels.

And these are the two layers that we need to cover to put the body into. We do gift kickers with the omega supplements, et cetera, to end the healthy fats.

It's rich in macademia and pecans and other, it's all plant-based, all vegan. There's nothing engineered in it, so it is clean, vegan, one of the healthiest thing you can eat outside of fasting from an ingredient perspective.

And we also play on the healthy fast to boost that environment of ketosis and environment fasting. Yeah, and so it's a calorie restricted diet and short-term, we know long- term calorie restriction, you have a lot of the problems like you talked about where you start to lose the muscle, but the short term bouts of calorie restrictions where your also keeping your insulin and your mTOR pathways down, your growth pathways, down.

You're getting all those benefits that you've talked, the stimulation of your autophagy, stem cells, different things like that, getting rid of apoptosis, these zombies, senescent cells.

And so, can you talk about, because you guys have it all down to a science, and so it's like day one, you're consuming a certain percentage of your normal caloric load, right?

And then day two, three, four, five, it is a five-day approach, Right? Can you break that down, what it looks like, day 1 through 5? Yeah. And I want to clarify, It's not the calorie restriction so much, as much as the formulation.

Because for Alzheimer's, for example, we have a fasting mimicking diet that's up to 1400 and 1200 calories. So it's calorie restriction is part of it, but the precision formulation that does not spike insulin and IGF and does trigger the nutrient sensing pathways, the redness on the cell is the big key secret.

Yeah, because you could eat a thousand calories of fruit and it's all sugar. You can eat 200 calories. Yeah. Right. This is why the ketogenic diet, by the way, which could be also restrictive, is not getting you into deep ketosis because the cell senses the protein.

ProLon Protocol and Day-by-Day Structure

So you're very low on carb, but you are sensing the proteins and therefore you don't go into full deep fast. And sometimes you can just, and people say I'm doing juice fasting or others.

I mean, if you, even with a 300 calorie or 400 calorie, you know, intake per day, can excite one of the receptors on the cell. And therefore the cells would be an in-between fast or a partial or non-fast state.

So it's very important to, this is what took us $36 million in the research and 12 years literally to get to that formulation. Now we have 18 universities that have tested ProLon, Stanford, University of Miami, USC, UCLA, all the big ones in the US and in Europe.

And it took a long, long time. It's very balancing calorie intake with ingredients and effectiveness on longevity and on chronic conditions. But day one is 1,100 calories, and day two, three, four, five are 800 calories each of the days.

And again, we have a formulation that goes for cancer patients, a little bit more restrictive. We have one for Alzheimer's patients that's even higher in calories.

health conditions but if you're doing the the prolon longevity package it's a thousand one hundred calorie day one and then 800 calories every day it comes in boxes you get a big box there's one box here behind me you got a box and it has day 1 day 2 day 3 day 4 day 5 you open the box of day1 you have your breakfast bar you, have you soups you, have your lunch and your dinner you have the snack and the drinks and supplements.

So you don't need to do anything else. You have your drinks, you had your hydration, your pills, supplements of the day and food. And you just enjoy five days of a structured, delivered meal and you get the rejuvenation and metabolic benefits of it.

Yeah, and I'm most familiar with your basic ProLon package. I am interested to know the science there with you were talking about with Alzheimer's patients.

You bumped the calories up a little bit. What is the reason for that? You know, most Alzheimer patients are actually an older population and they're a bit more frail.

They have less reserve or they can adjust less even if they have their reserves. They're a little bit metabolically inflexible. Their metabolism is different.

So we allow ourselves to go a bit higher up, giving them a bigger nutritious, if you want, intervention to adjust. And we also play a lit bit on the Alzheimer's as a condition of the brain.

You can allow them with more ketosis and funding that ketoses with healthy fat as well to prime the benefits. Yeah, yeah, really interesting. Now, you said that cancer, sometimes you're more restrictive.

Can you go into that? So we have a fasting mimicking diet that we've studied. Probably now we'll have eight papers on it. And the goal is to couple the fasting nutrition with chemotherapy or with immune therapy.

So whatever standard of care you're doing, we do the fasting nutrition we tested right before the four days before and the day off the intervention. In wine, you want to fast the cancer.

And this is how the entire company, by the way, started. We started as bringing nutrition to cancer patients for testing them on fasting, nutrition, with cancer, as I indicated.

The goal is, you know, cancer is what? What is cancer? Cancer is a cell that lost inhibition. It replicates. Typically, a certain one replicas when it touches other cells, it stops replicating.

Cancer's a sound that just lost that inhibitions. Keeps going, going. And when is too big, locally just goes in the blood and goes everywhere. Just loves the proliferation.

So cancer doesn't know how to stop replication. We use this to do this advantage of cancer. When you fast the body before chemo, the normal cells of the buddy, there's no food, no growth factors, they hibernate.

They don't replicate. And the cancer doesn't know how to do that. So the cancers being starved and doesn''t know to respond, doesn' know know stop. It gets into a very oxidative, very stressful, a really weak state.

And then you hit it with chemo on day four and you're hitting a cancer that is malnourished, that's starving, and it doesn's know now how escape. The first theory is how can we weaken cancer versus chemotherapy or immunotherapy?

The theory number two is, as you know, chemotherapy has a lot of side effects because it kills any cell replication. Any cell doing mitosis replication gets impacted by chemo.

Cancer first because they replicate the most, but you lose hair because hair replicates fast. You lose white blood cells because the replicate fast, by fasting the body before the chemos, the normal cells are hibernating.

So you're sparing them the side-effects of the chemotherapy.

Fasting for Cancer Support

So benefit number one, sensitizing cancer to chemo. Benefit number two is sparing the normal cells. We call this phenomenon differential stress resistance.

You're creating a delta, you're sparring the novel cells, your sensitize the cancer, which unlocks the biggest dilemma in chemotherapy and cancer treatment because you cannot give high doses.

you can induce cancer cure today if you give very high dose of chemore. But you could not because of the side effects. So what we do, we enable, unlock this delta.

of differential stress resistance so that the doctor keeps giving the high dose of chemo to the patients and spare the normal cells and hyperkill cancer, increase chances, hopefully, of remission.

We're studying all this. There's two, three papers already published on it. The third benefit, which is, as we know, the fasting-mimicking diet rejuvenates white blood cells.

So white blood cells are supposed to attack cancer. This is why we have immune therapy now to help unlock that, but they coexist and they get lazy and adjust to the cancer by doing fasting for the four or five days.

You're swapping new whiteblood cells, you're activating them and the infiltrated attack cancers in a better way. And these are the three major benefits.

Now, if you want to overstuff cancer, we do the version of Prolum, but it's a version for cancer specifically. We haven't launched it yet. we're launching it next year.

But it is more restrictive because you wanna overstaff the cancer before the chemo and oversensitize it. Yeah, really interesting. Some people with cancer are dealing with cachexia where they're rapidly losing weight, losing muscle.

Is there any sort of modifications they need to make as they are doing this? Yeah. If they already have lost A lot of weight. And by the way, that's the dilemma.

The problem is doctors do chemo without the fasting or without spinning. and therefore you have a lot GI side effects. You have nausea and vomiting, then you lose weight and it's a vicious circle.

So if you want to do the fast, you start it early on so that you don't get to that state. But if already are frail, if your really fraile below BMI of 18 or 19, Then you should not fast.

We should actually replenish. It's important here to replenished with healthy fats, not to feed the cancer with high protein, with The other big mistake that a lot of oncologists and a lots of people do today, they replenish them with high doses of big concentration of carbs and proteins.

And why it's a mistake because you're feeding cancer first and foremost. The cancer is the hungriest organ once you have it and wants to take it. It's very important there to give them complex carbs, to get them plant-based proteins that doesn't over-spike IGF and grows cancer, and to fill them with healthy fats, give the calories mostly there as well so that they are actually not boosting the cancer growth while they're picking up on the weight.

And then you can go back to do the fats. So for some, it's too late. For some you could refeed them and help them do it. Yeah, really powerful stuff. So this fasting-mimicking diet, again, helps to protect the normal healthy cells, but helps too sensitize the cancer cells.

Basically starving them down and making them uptake more of the chemotherapy or whatever sort of oxidative therapy that you are utilizing, radiation, whatever it is that your using to try to kill the cancers cells so they get more that, less side effects.

It's just a great combination. And how about diabetes, right? What kind of results are you guys seeing with diabetes? And a common question people give is, you know, if they are diabetic, how do I go about fasting?

What do i do with that? And this is why the fasting nutrition is important. You know they're not on water fast and they don't risk hypoglycemia, right?

This is where fasting is our main core main main today and we actually just launched a month ago or two months ago our fasting what we call the diabetes regression and remission program in You know, the word remission is now…the American College of Lifestyle Medicine, The Endocrine Society, and the American Dietetic Association, they came together and they kind of did a national position paper saying, if treatment is reserved as a claim for

drugs, we want to create the world remmission reserved, as non-drug intervention, to reverse diabetes.

So the word remission meaning a patient does not need medication any longer. And the words regression, they define two words. The word regression it means the patient needs less medication.

So diabetic patients typically today when, you know, in traditional medicine, the story is they start on one pill, They go to two, then go three, and they inject and then they go on insulin.

That's the normal course, right? You don't hear stories about, I was diabetic for 10 years and I reversed it.

Diabetes Regression and Remission

And we accepted that, that's the problem. It's a lifestyle disease and we accept it to just code it as a progressive disease. But now seeing that eating healthy, and actually in the national position paper, they mentioned the fasting-mimicking diet because the results of the fasting-imaging diet were so effective on diabetes that it was one of reasons for them to create this regression and remission position because we're seeing a lot of patients needing less medication or no more medication with the Fasting Mimic Diet.

So what is, why to do the fasting-mimicking diet on diabetes? And we have a separate program, again, under El Mutro Health for diabetes that people can go and subscribe and have their product of fasting nutrition for it.

And they'll be supervised with the dietitian also on our behalf. But the premise is. Diabetes is a disease of three pillars. Number one, and this is the most surprising, is aging.

Most people who get diabetes at age 50 or 55 or 60, they were still overweight, most of them, even at 40 and at 35, but their body had enough muscular metabolic rate and muscle mass and the cells were young enough to correct and escape it.

So it's a diseases of aging, first and foremost. And even if you get it at a younger age, you accelerated your aging with overnutrition and you're biologically older.

This way you'll get at the younger. Number two, it's a disease of also muscle retaining muscle because muscle is the engine of burning carbs. And we start losing muscle mass correlated sometimes with aging.

You start seeing your blood sugar going up and then you have the lifestyle. It's, a, disease are over storing calories, which create insulin resistance and get you into a full diabetes.

and obviously there's genetic predisposition as well. And the problem today, when you look at aging, we're talking about root causes. Aging, having enough muscle in the body and not overeating and having the right lifestyle.

We never had an intervention that deals with all three. The chronic calorie diets help you with the insulin resistance, but then you lose a lot of muscle.

They don't work much on aging and therefore, once you stop them, you go back to diabetes. On the other side, the drugs, diabetes drugs. they play mainly on the uptake of HbA1, of blood sugar.

They accelerate insulin sensitivity or insulin production. They're both leading to more carb storage into fat and accelerate the disease. And now we have the C-myoglutides, the Zempix and the Wagovis and others.

and they're just helping you lose weight fast, but you're losing 20 to 30% muscle. So whenever you stop those, you pick up back the fat, and you don't pick out fast the muscle, unfortunately.

and then you go in a vicious circle. So there's never been a solution for it up until the fasting-limiting diet, because with autophagy reversing biological age, you're protecting lean body mass.

As you mentioned, it's a stress, the growth hormone is high, we're nourishing the muscle and we maintain lean-body mass, and obviously we work on insulin resistance.

You lose a lot of fat to the pre-insulin resistance and you escape the pathways. And what we're seeing now, we've done two clinical trials on fasting.

One in Leiden in Holland, it's showing in six months. Six months only. Five days a month you do the fasting when you can lie. So an aggregate of 30 days, six times five.

You have two thirds of the patient needing less medication. Two thirds already. Some of them off medication, they lose 22 pounds. They decrease their consumption of blood pressure as well as pills.

And the Hb1c is decreasing by 1.4 points, triple by FDA recommendation. If you have 0.5 decrease in HB1C, you are already clinically significant and you can become a drug.

In six months, the drop is 1,4 H1. And then we did another trial in Holland at Leiden University, one of the biggest health systems over there for 12 months showing that If you do the fasting-mimicking diet versus the metformins or a healthy lifestyle, you have 53% chance of better regulating the disease versus just 8% when you're in a traditional recommendation on how to eat or when do methormone alone.

So we're over 800% superior. in better regulating the disease versus today the most used drugs metformin and or lifestyle recommendations that typically the doctor gives to the patient.

So 800% results clinically studied. Really awesome stuff. And that's one of the great things that I love about your company is that you guys use proceeds to actually further research on this, which is really important because, you know, there's really not much money to be made in fasting, right?

As opposed to a pharmaceutical drug or something along those lines. So there is not a whole lot of government grants and things like that. It's like, we need to funding this because we wanna actually show more and more research, on these benefits.

And you, guys, are the leaders in the industry when it comes to, funding research and fasting and basically using these kind of products, like Prolon.

to support the benefits and to reverse metabolic diseases and overall chronic disease burden in our society. So really great stuff. And people can find it at prolonlife.com.

Is that correct? And you can fine practitioners that help support this and you guys have a support team as well? Yes. As you mentioned, we're the first NutriTech of the world.

We apply randomized signal files to You know, and people trust us for that. It's like, okay, this is almost like it's how every drug gets tested. We do heavy science in mice and then in humans, then we bring the products and the claim forward to market.

we're showing to lead nutrition for longevity and nutrition as medicine. And we want to keep using our revenues to fund more and more trials. Now we are now in our 34th clinical trial on one foot formulation.

Yeah, if you go to ProlonLife.com, you can buy the Prolan five days there. We have products for intermittent fasting. Also have longevity proteins and longevity spreads.

And you, can you benefit from any of those for healthy aging. and if, subscribe, and you you also reach out, we have a team of our customer service team is all nutritionists and dietitians.

If you want to do the diabetes program, it can go AlnutraHealth. Al Nutra is the name of the company. alnutrahealth gets you to the Diabetes program where you have a personal dietitian with us.

And we have also doctors and or we send you to your doctors to help you, you know, every three months reduce your medication or recheck with it in a fully integrated program.

Closing Thoughts on Longevity and Fasting

Well, I have to commend you and just acknowledge the great work that you're doing, really leaders in this industry and pioneering this approach to reversing chronic metabolic disease.

So thank you so much, Dr. Antoine. Any last words of inspiration here for our audience? What I want to say is, you know, a lot of 90% of us here, me and everyone listening are going to die from four conditions, diabetes, cancer, Alzheimer's and cardiovascular diseases.

60 to 80% percent of why we get any of those is due to aging and lifestyle. And so let's make these disease optionals in our life, or at least let us push them by 10, 20, 30 years.

The way we're living today with eating all the time and stressing all time, and not sleeping well all of the and not exercising is not the right approach.

You know, Warren Buffett always says, because they asked him about changing acids and he said, the only acid I cannot replace is the body. And this is why it's like, can it go wrong about it?

And one of the best thing that tradition and religion and science all agree and all like to define that can change your life is fasting. Do intermittent fasting, do the right one.

Overnight circadian, 12 hours. This is the balance of life. You need to lose weight fast so you can extend it a little bit. And or do three times a year, prolong fasting to make you nutrition.

It takes your body the cycles that our ancestors used to go through when they're going summer to winter and when emerging into the spring. this is what's going to fix your cells, reset your metabolism and always give you that temporary reverse of bio-age and keep you further away.

from whatever incident or accidents that is correlated with aging and you're not having the right lifestyle. I love that vision, Dr. Antoine. And thanks so much for your time.

It's been an honor and a privilege. Everybody be blessed. Thanks for listening to The Longevity CEO. Follow the show and join us as we rethink what it means to live longer and healthier lives.