Introduction and Dr. Antounu2019s Background

– Welcome to this episode of the Reverse Inflammaging Summit Body and Mind Longevity Medicine. And today we're going to talk about a fascinating topic. Everyone's talking about food as medicine, which it is today, we have the pleasure of joining and speaking with someone who actually has implemented that in his company. This is Dr. Joseph Antoun.

Please welcome him. His company is Poland. He is L Nutra and Roland. He is the CEO of this company. Welcome Joseph. – Thank you Dr. Lufkin. Hopefully we're going to change somebody's life today.

– Yes, absolutely. I there's so many, so many things I want to get into talking with you today. But before we do, maybe you could tell us a little bit about your background and how you came to be in this space.

– Yeah. Well, probably like you when it was, when I was young, I wanted to help patients and I wanted mainly to help them reach a cure, not just be okay for the less okay sick, okay, healthy, for less for the rest of their lives. So I wanted to be a cardiologist and I'm an MD phd by training and, and, but doing my rotations I, I felt that I'm meeting people after they're getting sick.

So I was practicing more sick care than health care and I was putting them on almost the same five meds a statin for the cholesterol and, and blood thinner and a blood pressure and blood glucose and, and I was subscribing them to those pills with no end point. Right. And there was just no, you take it every month and you refill it every month. And by the way, while they're leaving the office is like, hey, take care of your food, take care by the way, right? And that's, that's, that's the essence of it. And I always used to tease the attending saying, hey, if the meds work, why, why they have to refill it?

And and nobody had an answer. So I actually left medicine and I went to health policy and public health trying to move the system or towards a preventive system. Let's practice healthcare versus sick care.

And also that was difficult because you can explain so many times to a person that they should eat healthy, which everyone knows you can tell them exercise, everyone knows, you tell them stop smoking, everyone knows that in.

And I felt that the gap was to bring products, you know, preventive and curative products that are lifestyle products. So how can we create lifestyle medicine? How can we make it concrete at that time?

When I had these ideas. It was, there was nothing called lifestyle medicine or food is medicine or it was either appeal or recommendations about lifestyle.

And I got passionate about how to bring nutritional products as medicine, how to bring nutrition as prevention, how to bring nutrition for longevity. And decided to focus among the five pillars of healthy aging, stress, sleep exercise, nutrition and social capital is focused on nutrition because it's the only product we consume every day of our life three times a day, 3 to 5 times a day. So it must have the biggest impact.

And I felt the concept of food for longevity and food is medicine were very appealing to me. I got lucky. I met the founder of this company, Professor Walter Longo. I think many of the listeners today would, would, would know about him. He's the author of the Longevity Diet book, which talks about how to use food as for longevity and, and for medicine, his time, top 50 most influential people in health.

I met him and he had something that no one had, which is the biotech level of science, very hardcore pre clinical trials and clinical trials that, that I coming from medicine and MD, PhD and it was a biotech as well.

I can trust and I can't believe and I can see how the evidence is there for it. So I felt for the first time you have a

new tree technology company. And to compare it to biotechnology and pharmacy have a true scientifically scientific foundation behind food concepts for, for medicine and for prevention.

And I decided to join and I've been here for the last seven years and, and I brought the first food is medicine to the market. And one of our core ingredient is we will make fasting with food.

I'm pretty sure we're going to talk about it and that's our magic and it's been the right. We had to launch these concepts and it's been quite a ride, but a pretty satisfying one.

– Well, I can't wait to get into talking about food and nutrition and, and fasting as well before we do that. Maybe we could just take a moment and just to understand your framework of, of longevity and aging and these chronic diseases.

Why do we age by this longevity work? Obviously, the, the theme of this summit is all about longevity and inflammation, aging. And how do you conceptualize that?

Aging, Chronic Disease, and Inflammation

– You know, something that I have not learned in medicine, but I had the pleasure to meet a lot of aging researchers and for them, they were like, it's all about aging. We should be treating aging.

It's not about Alzheimer's as a different condition than cardiovascular disease is a different condition than diabetes. They're like they're all age related symptoms.

This is why we don't get Alzheimer's at age 20 you're not going to get your first heart attack at age 23 you're not going to get most cancers. At age 18, you're going to get them at older stage.

It's like a car. You buy a car. Do you drive it now for 250,000 miles? And if you press on the window to open it doesn't open. You don't say there's a man, you fractured the fact it's just, you know, you've used it so many times and by the way, you're going to fix the window and next month the engine is going to express something wrong and then the tire is going to blow that. You just sent this to blow up sometimes after.

So it's all about aging, not all but the major chronic diseases that were dying from today. Diabetes, cancer, cardiovascular and Alzheimer's the four biggest killers, 87% of us are dying from them.

They're all age related diseases. So you can put some patches on this and this is why we're not able to reverse them because they're, they're essentially, it is function of the cell and an old cell.

Yes, there are kickers like genetic predispositions. Yes, there are other kickers as side effects of interventions, etcetera. But the essence of them, their age related diseases and the focus on aging Today is actually one of the most powerful, healthy aging is one of the most powerful interventions.

You can do to give people more health, spent healthy, longer, healthy part of their life. And this, this was fascinating for me, and and that was my quest in my last 15 years of professional life is how can I slow down the biological aging of the body?

And I can give you a pill for cholesterol is not going to move, aging, can give you blood thinners. But if I slow down the aging rate of everyone of yourselves, I'm actually creating a space between you and the first Alzheimer's or the first cancer, the first heart attack or the first diabetes. And I think that's the fascination behind healthy aging in and inflammation is just another sign of it.

It's like a heated engine when you drive your car and if the engine is getting more and more heated, you know, my car is getting old and I got to fix that.

It's exactly what it is, the more you age, the more you're, you're the heat of the engine and that accelerates your

aging even faster. And therefore it gets you faster too.

You know, a 1st, 1st chronic disease and we're all about finding ways through nutrition and lifestyle to slow down that process. – Yeah, it's amazing how people were coming to the understanding that these, these four major chronic diseases that drive longevity itself are driven by these common underlying conditions, like you mentioned, like inflammation or insulin resistance and these are all tied uniquely to nutrition and what we put in our, in our body. And in fact, one of the earliest most powerful tools experimentally to reverse aging or slow down aging was caloric restriction.

And then increasingly fasting and intermittent fasting has has begun to play a role now in that. And how does that work with? How is fasting, intermittent fasting related to aging?

– And there's two ways that fasting is probably even at the at the center of aging and has helped our ancestors, our ancestors did not eat all the time. It was one of the secrets is that there's a doctor called by the name of Dr. Felice Curse. He's a big fasting expert and she calls it the miracle of biology. Fasting was one of the assets where our ancestors stayed healthy and strong at later age.

And she thinks fasting, she believes fasting was one of their secrets. But now we eat all the time. So we lost that secret and we're trying to bring it back. So fasting helps aging in two ways.

The number one is a metabolic way when you fast, like you mentioned the word calorie restriction. Well, obviously you're going to start losing weight, you're not gonna the the when you lose weight, there's a lot of downstream positive metabolic effects. Right?

Weight is related to inflammation. Again, going back to inflammation, weight is related to hypertension. Weight is related to blood clogging, weight is related to insulin resistance. So there's a lot of downstream benefits from being in a calorie jurisdiction, mode and that's the metabolic benefits of fasting. And what separates fasting from all other weight management because you can achieve the metabolic part with, any color restriction is the cellular impact of fasting.

Fasting is such a stress on the body that it triggers the cells to rejuvenate. It's a process called art of aging and typically it starts on day three of fasting.

So the first two days, the body stress, I'm not eating, I'm depleting my fat.

How Fasting Triggers Cellular Rejuvenation

The cells then at day three says, hey, you know, I'm not getting enough nourishment, neither from the outside because we're fasting nor from the inside because we're burning the fat and we're in depletion mode. So I as a cell to survive, have now to eat what's inside of me, intracellular self eat and it starts detoxing, starts rejuvenating as a survival mode.

This cellular rejuvenation process that is called artificial. And it won the Nobel Prize in medicine in 2016 is at the core of reversing potentially the age of the cell and or decelerating the aging of the cells.

The cell is saying, you know what I got to fix myself, I gotta get a little bit younger to survive this fast. And that's the key and core component with how fasting is correlated with longevity and the only actually patent ever issued on, on promoting longevity is on the fasting product is on the fasting nutrition that promotes rejuvenation and longevity. And that's the secret of fasting.

You're losing weight and improving a lot of markers including inflammation and your reservation yourselves to get biologically a little bit younger or to decelerate the biological process of the cell.

I want to, I always talk science and then I go back and I give a life example to make it simple. If you watch a car race and, and the driver is going pretty fast and the engine is heated, that's accelerated aging and inflammation.

But what that driver can do, he can put, put his leg on the brake and a little bit decelerate that's intermittent fasting is going to help decrease the heat. Is this is, this is the metabolic benefits of fasting. But ultimately, what he can do, he can go on a pit stop and that's the prolonged in a rejuvenated part of fasting. The mechanics come in, they see they check what's going wrong, they change the wheels, the oil, etcetera, and the guard goes back healthier to stay longer on the track and win the race.

– Let me see if I understand that right. Then, there, there are two large benefits of fasting. One, would be if I'm overweight, let's say that I'm obese and that is unhealthy for all sorts of reasons. It drives all those chronic diseases.

So if I do caloric restriction or a hypo caloric diet, my weight will come down and when it returns to normal, my risk factors for these other diseases, my metabolism, everything will improve.

That's one situation. And of course, a hipaa caloric diet is not sustainable. You know, you, you do until you lose weight and then you go back to your normal, you go back, you have to maintain normal caloric input.

So how for a, for a thin person like me, let's say, or someone who's not overweight, their additional benefits of fasting. What you're saying is that for an ice, a caloric diet, in other words, a fixed amount of calories that there's actually a benefit for me or a disadvantage. If I eat them spread out over 24 hours versus if I eat them over three hours, then the same calories just eating in a narrow window will be healthier metabolically because of a Ta Fiji and other factors than if I just snack all day long. Like our parents used to tell us was a healthy way to do, right. Lots of small meals.

– I agree with you on the, on the calorie restriction piece on artificial G. There's a misconception which is artificial, doesn't happen within one day.

You get across two days of fasting for artificial to start. And I know that there's a lot of theory about 18 hours and 16 hours and this is barely, barely, less than 1% of us will go. And other, because artificial, artificial means I as a cell, I'm so depleted from the outside.

They have to eat the inside for a cell to be depleted on the outside. The body has to start spending like rogen, all the reserves and fat and breaks down fat and do NAO glucose genesis, etcetera. So for most people, unless you're running, you're doing very high intensity exercise during that window.

What you describe shrinking the food into 2-3 hours or we call it oh mod or one meal a day or a time restricted window food. The you are still not touching on reservation the cell because your liver still can dump a lot of calories in the blood. You have still a lot of glycogen in your muscles and your liver, you have a lot of fat to burn before the crisis starts and before the cells are engaged. So, although I know there was a lot of theories that run out of energy happening in day one out of 50 for most people, unless you're doing high intensity exercise and spending a lot of calories happens actually after day two. So what I'm trying to say is you're right about all the benefits of the calorie restriction.

But the seller intervention starts, you know, around day two and three and, and this is where water fasting becomes challenging. And that's exactly what it is. When it challenges your body, the cells response, the cells start responding. But ideally, you want to go above two days for the cells to start rejuvenating.

– And then people can do that by just restricting, restricting their food for two days. What are other ways that you, you're looking at now, these, these diets that mimic fasting. What, how do you mimic fasting with the diet?

– Yeah. And the diet exists because of what we just said that you have to go longer than two days to, to get the seller benefits. And people is so difficult for people to fast for like on water only for two or three or four days because the science is showing minimum two days if you want to engage your cells. And if you go, if you go along 6789 days, then you're bankrupting the body, right? And, and I always, I compare that to a company if you have a company that needs revenues And if the revenues are not there for a period of time, the theo starts restructuring, the company cuts some unnecessary costs, improved performance to survive. But if you go longer, the company

goes to bankruptcy. So our science is showing that 3-5 days is where that sweet spot is often using.

You lose the weight in the first two days, you continue losing weight, you engage yourselves on day two and the sales ratio we need for a good three days before then they get depleted and declared bankruptcy. So that five days is a key period but still water fast is too difficult. Taking a company through no revenues is very difficult. And this is exactly the trigger that you need.

And therefore the National Institute of Health has given us fund to go and develop us. And University of Southern California given us funds to go and develop the fasting, mimicking nutrition. Can you help people do it?

five days of fast but without starving, being nourished at the same time. And it's an oxymoron. How come they're doing it fast and they're being nourished. So what we had to do for over 20 years, we started studying how a cell perceives calories.

And we discovered that there are what we call nutrient sensing pathways or radars, the radars of the cell and they sense the food. And if the radars are triggered, the sell says, well, I have food, I'm not fasting.

Fasting-Mimicking Nutrition and Nutrient Sensing

And if the radars are not triggered to a certain level, they're not sensing the food. So we started studying how can I give you enough carbs and what kind of carbs and which part of the day to not trigger the nutrient sensing pathways? How much protein's I can give you, what kind of sequences, I mean, acids that do not trigger the receptors.

So we figure out a full nutrition program that has the fats, the proteins, the carbs, the micronutrients, the vitamins, all of it together that goes right below the triggers of the cells.

So that the nutrient sensing pathways are telling this, it seems something is going through me, but I'm not satisfied. So we're still fasting. And this is the trick that the scientific trick that took, you know, tens of millions of dollars to discover and lead to.

Now the creation of the fasting mimicking nutrition has called proton as a product. And it actually helps people eat for five days, the prolonged diet while their cells are still rejuvenating and growing through the fasting benefits.

– Yeah, we, we've had several other speakers have talked, we've gotten into uh mentor a little bit and talked about nutrient sensing there and, and knowing what m tor senses basically glucose. So you want to keep the carbs down and the glucose down and then branched chain amino acids.

So I suspect the diet is high in fat relatively. And then moderate carb, moderate pro but, but low in carbs are, are the patients in ketosis all the time is that I guess that helps with the, the appetite control as well. Right. – Yeah. And the nature of it is five days that the different and I agree with what you said is sensitized to the more so to I G F and proteins, PK and rest pathways to the cars. But they all, they all are, they get triggered by both sides and the goal is to give the right sequence of amino acids and the right carbs so that those three receptors that toward the P K and the rest are not overly triggered. And, but the beauty is only five days.

So we are a deeper fast, the fasting immigration is a deeper, faster than the ketogenic diet. So it has a little bit of a different protein profile to really mimic a fast and get you in a deep part of aging and a deep rejuvenation. Whereas the ketogenic diet is, has a little bit more protein and goes a little bit longer for every day, but keeps you in a shallow fast. So it gives you the metabolic effects for diabetes for other metabolic condition but does not get you into the rejuvenation because it's a little bit of a shallower fast because the cells detect the protein and the ketogenic and they don't go into like a deep, full fast.

– And what does the value, how do the carbohydrates help? I know we have a lot of, several of our speakers have been about, you know, ultra low carb but that kind of thing.

How, how did the carbohydrates help with this diet? – The we have a little bit actually more carbs than the ketogenic diet. I mean, I know we don't know what the word is but we devil eyes, the carbs and everyone hates carbs today, but carbs is the essence of the function of every cell of the body.

And if you study centenarians, people living 100 beyond, they're not carb restricted. It's just, they don't eat the short term carbs. They don't, they don't eat a high group glucose, high dessert based lifestyle.

They eat fruits and vegetables. So the right complex carbs that by the time they get to the body, they don't over spike insulin, which is a pro growth, pro aging factor. By the time they get to the tour and the rats pathway, they don't over trigger these receptors.

These type of carbs give you the fundamental energy for a healthy operation of a cell without doing the damage of pushing the cell to grow or to age or to store fat and to turn the carbs into fat. So we love that concept.

If you go super low on carb, either you have to turn the body into full ketosis so that the brain is not confused. It's like, am I going to work on ketones or am I going to work on carbs? Because that's the metabolic flexibility.

And the brain has to switch the issue with the ketogenic diet is that it's, it's great for, because of the ketones is great for the brain and because it's very low on carbs, it's great for diabetes. The downfall of it.

It has enough protein for the cells to not fully fast and it's showing some uh and and no carbs. So the cell is like hesitant, should I turn into, into full ketosis and live on the ketone? But I'm seeing proteins and the tor pathway is triggered. So I'm sitting in between and that's sitting in between is healthy for certain conditions like diabetes and some neurological is a little bit less healthy for longevity and for a deeper reservation too fast.

– And so for longevity for longevity benefits first and, and then I want to talk about the other diseases that this is useful for, for longevity benefits. Would someone take this diet and do it every week or is it once a month or what is the recommended approach for?

– Yeah. Well, the beauty is again like the formula one car race, you do a couple of pit stops. You don't do, you know, you don't stop all the time. So it's only three times per year is the average recommended time for the parole on fasting nutrition.

So we as a company, you're rarely going to hear a company or still telling you, hey, do only my products two or three times a year. But that's the truth. That's the truth because you don't need to regenerate yourselves all the time and you do it three times per year.

We're actually about to publish a major article that's going to show longevity benefits from doing that. Now if you say, look, I'm overweight, I'm prediabetic and I really want to accentuate the weight loss aspect, not just the cellular aspect of Poland.

And therefore we say okay, do it four times or do it once every month on the first four or five months and then you can start skipping and the minute, once every three or four months. So you can do a little bit more frequently if you want to accentuate the way it lost.

But we recommend doing it 3 to 4 times per year on average for healthy aging. – Now, I understand that, that I'd like to talk about to the fascinating work you're doing and taking this diet, this, this food as medicine concept and, and going beyond longevity and applying it specifically to the diseases that determine our longevity that that 80% of us are more, are going to die of the four big categories and, and see how that is. And I understand that as we'll talk about that, insurance companies, at least some insurance companies will actually pay for this once it's prescribed by your physician for them before we do that though.

For longevity, I assume there's not a prescription code for that. If someone needs this for longevity, I guess we all do. Right. – Not yet. I think the payers, the insurance, the payers and, and Medicare money gets figured out that if you pay for food as medicine, for people with conditions, it makes financial sense for them to spare that cost.

Now, it's up for us to show them in the future that even if you pay even earlier when people are healthy and keep them healthy, that still has some economic benefits.

But the problem is on average citizen stays just for a few days with one insurance. So no one wants to pay for something today that's going to benefit another insurance or saves another insurance in the future. So that, that longevity of investment into today's food is going to be a little bit tricky in the U S in Europe where you have single payer systems. And for example, in the UK, the NHS is paying for all your health care from the day you're born to the day you die. This is where it could be interesting to start creating codes for food as healthy aging and as preventive and, and show them long term value into and savings into investing in those.

Longevity, Insurance, and Medically Tailored Meals

– So it's really remarkable what you've done is having these diets now that are paid for by many insurance companies that then will actually benefit the major diseases, which we, we've talked about many times with cardiovascular disease and cancer and Alzheimer's disease and diabetes is given that they're driven by common underlying mechanisms like inflammation or insulin resistance.

Although there are different, they're filtered through our own genetics and environments that we're exposed to is are the diet. How similar are the diets, let's say a diet for diabetes versus a diet for heart disease versus the diet, for longevity that we just talked about.

– So, what we have done is we created a project under us called Nutrition for Longevity and it ships your meals exactly what you describe. The meals are medically tailored.

They called medically tailored meals or MTM and the medically tailored meals. We, our science team look at and also we follow the association. So for example, for diabetes, the American Diabetes Association has its own recommendation on what you should eat. We couple that with our longevity formulation and our science team input into this under, under Professor Walter Longo and we tailor the food to help you on the short term, uh mitigate and manage, better, manage your chronic condition, iii diabetes.

In this case, why the longevity formulation is helping you to stay potentially healthier as well or, or to have a healthy aging process and and the Center for Medicare Medicaid love this concept. They give us a reimbursement code and and now I think we've signed over 70 insurances around the US that are immersing our medically tailored meals under the brand called Nutrition for longevity.

We're we're very excited about that. We're probably one of the first food is medicine now. Truly food is medicine companies in that company in that regard. And we're very excited that you know, first thankful for the national sort of health to have invested in us and supported us to get here and very thankful for the Center for Medicare Medicaid and the insurances.

They're saying we see you as medicine, we're going to pay for your food as well to help patients, you know, optimize if you want their metabolic uh part of aging and, and help, help them increase their chances to, to for remission and regression.

– Wow, that's such a huge milestone. And I mean, given that the fasting mimicking diet has all these advantages for, for aging and inflammation and insulin resistance that we talked about when we take the diet and apply to Alzheimer's and versus cardiovascular disease.

Are there additional things in the diet that are unique for Alzheimer's disease or cardiovascular disease? Or are they just getting the same benefits from the overall decreasing inflammation that's for aging?

Or are the diets tailored specifically like that? – The fasting mimicking diet was tested and we have the results for diabetes and for cancer. And we mentioned Alzheimer's and, and autoimmune.

We're actually currently in trials, Stanford is doing the autoimmune trials. University of Milan is doing the

Alzheimer's trials. So I cannot comment on the results there. I don't have them yet, but on diabetes and cancer, it's the same description we had.

The theory is you help the metabolic factors and and diabetes is mainly a metabolic disease and become sellers when the pancreas starts falling, it starts, you know, getting tired. Cancer is a mixture of metabolic and cellular condition. So it starts with a cell that loses inhibition and starts growing and growing without, without inhibition without stoppage.

But at the same time, cancer lives on getting food and, and gets pushed by growth hormones. So when you fast cancer, the theory is that first of all, you're slowing down feeding cancer, you know, once you have cancer, it's the, it's the organ that likes to eat the most and you slow down, the body is pushed for the cancer growth and insulin.

So we with the fasting, mimicking nutrition, we've been able to create an environment in the body that does not help the cancer thrive. And when you under feed cancer and then you bring chemo or you bring hormone, cancer is so weakened, is not being well fed, is not so defensive. And then potentially that's the theory we studied. You can sensitize cancer to be better hit by the current standard of care. So these are the two angles.

Diabetes makes very diabetes as a disease of overeating and fasting in a very simplistic way is the fastest way potentially to help with their revision and or regression on cancer. We hit a little bit on the cellular aspect and we hit a little bit on the metabolic aspect and we've published these trials in top science and medical journals for now.

– Yeah, that's an interesting point that, that the diabetes and the cardiovascular disease and Alzheimer's sort of there's a, there's a stage where they, they ramp up essentially with symptoms or there's an early stage and you can have a little bit of diabetes or a little bit of Alzheimer's or even a little bit of heart disease with, you know, calcium score or something.

But with cancer it's kind of a binary thing, you sort of fall off the cliff with cancer. So I wonder for the, for the Buddhist medicine usage, then this would be for people who have cancer undergoing treatment or who have cancer. What are the current indications?

Now for our audience out there as far as cancer patients and which cancers they approved for? – The nutrition for longevity, the meals, the medically tailored meals that we have every day.

The concept there is how can we so cancer thrives when there is abundance of carbs and proteins.

Applications for Cancer, Brain Health, and Access

And the cancer gets even happier when insulin is spiking as a response to carb and insulin like growth factor is spiking as a response to protein. So the tailoring of the food is to give you complex carbs and to give, you know, animal protein or special sequences of amino acids that do not overfeed cancer and do not over spike.

So that the cancer is feeling wow, I'm in a restricted environment. I cannot thrive. I'm not getting short term carbs. I'm not getting the proteins that boost me the most, which are special sequences, you can find a lot in animal sources of protein.

So it's a plant based max pesca terry in with a little bit of fish type of diet that's tailored to not spike insulin and that spike so that the cancer doesn't feel that it can grow faster into the body. – And one of the topics of this course is not only the body but also mind effects on longevity.

And we've had some other speakers like Chris Palmer talking about ketogenic diets reversing mental health issues. Do you have any currently experience or what's your vision for how these diets affect, not only mental health but cognitive function, even sort of healthy normal people. – You know, fasting is fasting.

Ketogenic diets are important for brain conditions. And we are currently, we just published an article with mice trials, pre clinical trials on Alzheimer's and we're now we're now in a clinical trial versus Milan.

At the same time on our medically tailored meals were doing a trial with, with a few top clinics and Alzheimer's. But why, why the brain loves fasting ketogenic diet? Because the brain is a fat organ and when you fast or where you're in a fasting mimicking type or on a ketogenic diet, you're feeding the body the mid chain fatty acids which are fat like food that the brain loves. And when and so so the brain actually switches very easily in living on ketones and and loves that setting to perform better.

Actually, this is why we have fat in the body. You know, this is, this was human evolution defense mechanism when you're walking and there's no food. The body knew that. Okay.

I'll break down the fat, I'll turn it into small chains that can cross the blood brain barrier to feed the brain so that I don't go into sync copy and I don't die.

So they stay up and I keep looking for food. So the brain loves that state. It just loves the ketones more than the carbs being a fat organ that's thrive on it.

So the ketogenic diet indeed, and the fasting could have some could create at least, let's say honeymoon impact by supporting the brain and the function.

And maybe if you go to a deeper fast by rejuvenating parts of the brain, we don't know that we're studying that in mice, we do see an improvement in memory and we're now in human trials to see what the outcomes could be.

– So I understand that as you said that that actually the health care system, depending on the insurers may pay for some of these things if I have certain conditions that there are currently pride for it. And there's a long list, actually, I imagine it's on your website. But how about if I just want to get the diet myself and maybe I don't have those conditions? Is it available for individuals like our audience just to go purchase it. And if so how expensive is it?

– So if you want to do the five days passing nutrition, Pro Lan, you can go and purchase it online and prolonfast.com. And it's going to cost you between 189 and 199 which is basically the $30-40 per day that you would otherwise spend on food. So we kind of say okay how much on average you live in Los Angeles? And we pay more in Los Angeles than that.

But on the average and the average country expenditure that $30-40 a day. And we said okay times five, that's between $189 and $199. And that will give you your five days of food and supplements and everything you don't need to add to it any food or drinking. It's all included.

If you want to do every day's meal, the medically tailored meals or the nutrition for longevity, then the price per meal is actually just around $11 or $12.

If you want to go full plant based will be closer to the 11. If you want to add fish and go best Catania will be close to that $13-14 and you can buy it on nutritionforlongevity.com.

– Oh, great. And you mentioned one website for prolong, maybe you could also tell our audience how they can follow you on social media and also the main website, if there's any other websites they should be checking.

– Yeah, if you want to read more about the science, we talked today about a lot of, you know, out of A G and fasting nutrition for health conditions, all the sciences published under the science tab with l-nutra.com.

l-nutra.com. That's our company sign. If you want to follow me on social Dr. Joseph Antoun and linkedin and Facebook, Twitter, Instagram, I'm active on all platforms. And if you want to follow Poland and get the latest on the fasting nutrition itself, same on all the social platform, you can follow Poland or problem fast or prolonged FMD.

– Thank you so much Joseph for taking the time to talk with us today in this episode. And also thank you for the remarkable work you're doing and advancing food and medicine and making it available to so many people and potentially doing such great good work.

– Thank you, appreciate you very much and we'll talk again soon.