Fasting: Your Tool Against Type 2 Diabetes Transcript

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Introduction and Dr. Hannou2019s Background

Again. This is Dr. Joseph Antoun, and it's a big pleasure in this session to be hosting Professor and Dr. Hanno, who has been one of the most you know, one of the leading experts actually in fasting and longevity has done multiple clinical trials on fasting and longevity.

And he's a prominent doctor. And at the Leiden system of hospitals in the Netherlands, one of the leading European hospitals in health care, but also in fasting and longevity.

So I would invite Dr. Hanno to first introduce himself, and then we're going to have a big discussion on how can fasting contribute to longevity. And Dr. Hanno has done a lot of trials on fasting for cancer patients and fasting for diabetic patients.

What those trials have been about, what are the outcomes and how can people today benefit from these interventions? Welcome, Dr. Hanno Thank you, Joseph.

It's a pleasure to be here. Yes. As you as you told the audience, I'm I'm a doctor. I'm a clinical endocrinologist, actually, at the Leiden University Medical Center.

And I'm a professor of diabetology. And I've been interested in the health benefits of fasting for a very long time now. Approximately, I would say 15 years ago, I became interested in aging and the aging process, and I learned about the trials that showed that that fasting or intermittent fasting actually can extend lifespan and also improve health.

And I was, you know, intrigued by the idea that that may we could perhaps help my patients and other patients with fasting. And that's why I started doing trials investigating the impact of fasting at first on cancer, in particular the effects of fasting and chemotherapy.

And in breast cancer. And then just recently we did a trial to evaluate the impact of periodic fasting in Type 2 diabetes, which we in the details we probably will go into a little later.

Why Fasting May Help Cancer Treatment

But, you know, I strongly believe that that that fasting is a powerful intervention to to improve health in particular. And perhaps it will also in extend lifespan in humans, but that's less certain.

But I think it definitely has benefits for health. That's fantastic. And and, you know, I've had the chance to to meet you probably maybe eight or nine years ago on a trip you were coming to Los Angeles and partnering with Dr. Valter Longo on the fasting trials at USC.

Prominent fasting experts and and have tracked you for the last seven, eight years. The work that you've done at Leiden has been unbelievable. Probably is going to change in the medium and long term.

The way we do medicine today, we do medicine with drugs mainly. And I think you worked on fasting and fasting-mimicking nutrition to have an alternative support for the doctor that the patient when it comes to cancer and diabetes should we may be should we separate maybe cancer and diabetes and talk about the concept why to do fasting and fasting nutrition and why periodic fasting for like a patient in it seems you've worked on breast cancer can you tell us a little bit how come a patient that could have breast cancer or there are other trials probably happening on other cancers, but how why a patient would do fasting and what it does biologically to the body when they have such a condition.

Yeah. So you you have to realize that fasting is an intervention that will protect your body against all kinds of stressors, all kinds of toxic agents and other threats.

And you are I always like to think in evolutionary terms because what in the old days, you know, thousands of years ago, humans were often faced with huge food shortage.

And it was essential to survive these periods of a lack of food. And that's how our physiology actually developed. It developed in a way that when there's a shortage of food, our healthy cells start protecting themselves against all kinds of threats to survive that particular period of a food shortage.

And at the same time, we know since not so very long that cancer cells cannot protect themselves against the cannot do not react in the same in the same sense.

So they cannot switch to this mode, cellular mode of protection, and they actually suffer from from nutrients shortage when when we fast. So this concept which is called differential stress resistance was discovered actually by Valter Longo, you mentioned before.

And years ago we thought, well, this is something that we should try to see whether when we apply that to patients who have breast cancer and get chemotherapy, this chemotherapy is obviously bad for cancer cells, but it's also bad for healthy cells.

And the idea was when we have people fast around chemotherapy, of course, then their healthy cells may get protected against the threats of chemotherapy, while the cancer cells that cannot make that switch get more sensitive to the chemotherapy.

And that's why we tested the possibility that fasting or at a later stage we did fasting-mimicking diet where we go into in a minute, I guess Fasting-mimicking diets would be would do things in patients with cancer first protect healthy cells against the threats of the chemotherapy and this and secondly render the cancer cells more sensitive to the chemotherapy.

So and that's basically what we what we evaluated over the last, let's say, ten years.

Fasting-Mimicking Diet in Breast Cancer Trials

And so is it is it that when there's no food, the normal cells say, well, we're in fasting mode, let me protect to survive and let me not replicate and not grow and not invest in expansion and just protect myself and rejuvenate.

You know, we hear the word autophagy with fasting. There's other ways that fasting induced rejuvenation as well. And it is that the cancer cell by definition loses its its inhibition factors and keep growing and then needs needs food to survive and need the growth factors as well.

And now it's being lost and deprived of the fasting and therefore gets weakened and sensitized to the chemo intervention or the hormone intervention or whatever intervention is happening. Mm.

That's exactly how it is. That's exactly how it is. And you know, we did, we did two trials, a very small trial at first to see whether it was safe to fast around to chemo.

And it was very safe. And is that water? That was water. Water only fasting. How many days? We, in total around the chemotherapy for the first study was two days of complete fasting and it turned out to be very safe.

There were no major side effects. And it also we had we had indications that the fasting actually protected healthy cells. There was less DNA damage in healthy cells.

We tested that and we couldn't at this, the trial was too small to actually determine whether the fasting sensitized the cancer cells for the chemo. So but since we learned that it was safe and it appeared to reduce damage to

healthy cells, we thought we have to do a bigger trial to see if we can actually show that the cancer gets more sensitive and that it reacts more strongly to the to the chemo.

And that's actually that's what we did in the second trial. And and we we did show in that particular trial that cancer cells in with this was again in women with breast cancer that how can.

How many participants in. A 128 in total so half of them. Was that on water fast or other fasting nutrition. No that was a trial we did with a fast so called fasting mimicking diet.

And this is a diet designed to mimic the effects of of water only fasting. But you can eat something because and in particular healthy fats. But but but no, a very little protein and virtually no carb. The carbohydrate, the refined carbohydrates and that particular diet has similar effects as total.

Total and is water only fasting. But in here you can still have some calories, which is which makes it a bit easier for people to do it. So this particular trial, there were 128 people that half of them get got an advice to eat healthy around to chemotherapy, just, you know, no specific advice, but eat as healthy as possible.

And then the other half got the fasting mimicking diet. And what we showed was that the response of the tumor appeared better in the in the people who use the fasting mimicking diet, which was three days prior to chemotherapy and on the day of chemo therapy itself and that.

It's a today nutrition protocol. Basically. It is yeah. And the patient starts the fasting mimicking diet say chemotherapy day minus four, minus three, minus one and the day of the chemotherapy.

Exactly, exactly. That's how it is. And and in that and that study showed that there was a a stronger had better response after cancer to the chemo. However, and fortunately, the power of the study was not completely was it was not enough to be absolutely sure.

So that's the reason why we currently do a second study to confirm those findings in a even bigger study population. So we have to wait for the results of that particular study before we can definitely advise people to to do the fasting mimicking diet.

Okay. That's fantastic. And how many people in the new trial? 250, at least. I'm not completely sure whether it's even 450, but but I'm I have to I have to look into that.

But we did a very, very thorough, powerful power calculation now. And it's a lot more people. In this that's it's fantastic. I mean, the the a lot of a lot of cancer patients.

I mean, breast cancer patients actually gain weight. So probably also they're getting a little bit of help with the fasting mimicking nutrition.

Weight, Muscle Preservation, and Cancer Nutrition

But, you know, some some cancer patients lose weight with with cancer. It is the fasting mimicking diet is that is that induce more weight loss or it protects lean body mass and just cut the fat?

Or can you talk a little bit about the impact of the fasting nutrition for for patients and regarding their weight as well? Yeah, it's it if you use a fasting mimicking diet for a longer period of time over a couple of months, for example, every let's say 4 to 5 days and then every month, five and every two months, the fasting mimicking diet, then you actually tend to lose weight in particular fat mass, while muscle mass is preserved.

That's something that we showed just recently in the diabetes trial. We did. But and that's really critical. That's a very critical that's a very critical discovery because typically weight perceived the weight loss diet or the world diet.

You know, doctors and patients perceive that they're going to lose weight. And when you lose weight, you lose

muscle as well. Yeah, but what you're saying here is that the fasting nutrition is a fat loss but protects the muscle, which is critical for diabetic and cancer patients.

We know we know that there's a lot of company that specialize in those protein drinks as well, which, you know, I don't know how controversial it is to drink high proteins when you have cancer and you're feeding the cancer rather than starving the cancer.

And maybe this is an important balance with the fasting nutrition whereby we're supporting, we're creating the you're creating the right environment for the body to host the chemotherapy, but you're not compromising on the muscle loss. Mm.

Mm hmm. Yeah. Well, I think I think a lot of cancer patients get a lot of protein to preserve that, that muscle mass. Do you know, to keep them functional, optimally functional in terms of in terms of mobility, in terms of strength.

But at the same time, I'm not so sure whether that is healthy for because and precisely because what you say, you you you somehow you you feed the cancer cells with all that protein as well, just as you probably feed your your your muscle mass.

But so so a fasting mimicking approach appears to be very useful because it you make it makes you lose fat while it preserves your muscle mass and and and there's not so many calories and protein in particular in there. So and that that might be a very and you're right that might be a very important.

Which is which is contrary to the to what the word believes. Right. When you say, oh, you're not going to give my patients high proteins, is that good or bad?

Because we've all. I went to med school. You went to med school? Everyone when we go into cancer is like go on low on carb, but then get your proteins.

But cancer is the fastest growing cell in the body once you have cancer. Right. And and the more proteins we're giving that patient, we're helping the bit on the muscle, but we're feeding cancer in a great source for it to grow.

And we're spiking IGF as a response, which again pushes the cancer for extra growth, right? Yep. Yeah, you're absolutely right. You're absolutely. Right.

So this exclusivity of fasting, nutrition, I protect the muscle, they optimize the body around chemo, then maybe if that patient is a little bit acting after or needs some muscle building, maybe certain proteins after that, maybe plant base and be more on the ketogenic side, maybe is that something that you're.

Yeah. You're recommending so that so that you balance feeding the body but not overfeeding the cancer. Yes, of course. Of course. If you of course, there's cancer patients who lose a lot of muscle, a muscle mass.

And that, you know, impairs their their their strength and their mobility. And then you should make sure that there is that you protect that muscle mass.

And you can do that perhaps by bye bye eating in particular, plant based, a little bit of plant based protein.

Fasting-Mimicking Diet for Type 2 Diabetes

But you have to take care, I'm sure, to not to eat too much animal protein, too, to make sure that you do not feed the cancer as well as you feed your your muscle mass.

So you're absolutely right there, in my opinion. Yeah. Well, we're excited to see where medicine is going to take us. This is the this is pretty exciting to see how food is medicine can tag team with with the current drugs and the standard of care and and potentially protect the body or enhance the outcome.

I mean cancer has been always the struggle with it, with medicine. So hopefully with your work in the future it seems you're on board with a very exciting high, high number of participant trials and hopefully that can show, you know, significant results where we're I think patients around the world would be very and doctors will be very excited to to see the outcome of that one.

Yeah, I think so too. So it happens that I think because of your belief in fasting and your leadership at Adelaide, then again, which is one of the best university health system that I know of in in Holland, you also did another trial of diabetes in and use the fasting mimicking nutrition as well for for diabetes.

Yeah so you talk a little bit about that protocol why the science why doing fasting nutrition for diabetic patients. What was the protocol and some of the outcomes?

Yeah. So we did a study in 100 patients with type two diabetes. So there's two different types. Type one is with the juvenile form and then there's type two usually associated with overweight and obesity.

So we did a study in 100 patients with who are who are overweight with type two diabetes. And what we showed one half got a fasting mimicking diet for five days once a month and the study lasted for 12 months and the other half and they got regular, you know, diabetes care as indicated by Dutch guidelines.

And the other half of the patients got just the regular treatment. And what we show is that the patients who got the fasting mimicking diet for five days a month used much less medication.

Then the group that got the regular treatment. So the majority of the patients who were treated with medication at the start of the study who used the fasting mimicking diet, could stop that medication.

And while on the in the control group, people used more medication at the end of 12 months. So that's that's and while their glucose control was well it was a tiny little bit better in the in the fasting mimicking diet group.

It was although it was not statistically significant, but it was a little bit better and there was no while they used much less medication, there was no increase of their glucose levels.

Right. So seeing the fasting nutrition had allowed the doctor to decrease the medication while the frequency staying stable or decreasing little bit. So they're avoiding the need of medication and controlling the blood the blood sugar at the same time.

Exactly. That's what happened. And then we also show that if you use that fasting, mimicking diet in this way over year, you lose fat loss, you lose quite some body weight, which is particularly fat loss because there is minimal loss of muscle mass.

While in the control group, there was an increase actually of body weight. And this is not unusual for people with type two diabetes or any one of us.

Basically, we tend to increase weight over time. But that that was counteracted by the by bit by the diet. So I think we we actually show very beneficial effects of the fasting mimicking diet in type two diabetes over a year.

So that I had a this is this is one of the major reasons why I personally departed from the clinical aspect of medicine and went into the discovery and development of healthy nutrition.

It was diabetes and cardiovascular I know a little bit kid in comprehend the system off so we say diabetes treatment is keeps the blood blood sugar in a certain range 90% of the medication that does that does it not by disappearing glucose but by just transporting it further into the cells, which then the excess glucose gets into fat, which then increases insulin resistance, which then makes the pancreas more tired for overproducing insulin, which then advances the patient and the disease forward and get the more dependent on more drugs.

And they get their pincus failing with time and then getting the need for insulin in. And I couldn't comprehend this

system where where to fit within the regulatory definition of a disease just keep the glucose within range, therefore send it somewhere else that somewhere else is doing more damage because it's creating more insular resistance in and pushing the the patient forward in their disease.

They just couldn't comprehend that system that that is like is like it's an it's an odd conspired, of course, but it is kind of somehow the evolution of the of the system was just the kid to have never seen a disease where the more you take medicine, the more you move forward with the disease.

And and I always say diabetes type two to a certain extent, there's obviously genetic predisposition, lifestyle, etc., but it's it's to 80, 90%. It's a food borne disease, right?

It's it's a disease. It's a prolongation of the overweight and into the resistance pattern. And the solution what you're saying today is, okay, you can eat healthy and under eat.

You lose some muscle with it. But hey, we discovered that maybe if fasting, mimicking nutrition helps you to lose the weight faster, but because it's the stress on the cells, the muscle gets protected and you're not decreasing muscle mass.

So you had two birds in, one still in. The diabetic patients wants to protect their mass. It's critical for them not to pick up fat again fast and you want them to quickly reverse insulin resistance and needing less medication.

And probably this is what this is what the magic of the study that you did that that you led is is that satisfaction of it is a lot of feet healthy with between your diet or a lot of a lot of other healthy nutrition.

You will decrease HP once he had maybe the need for medication but the weight loss is is it just by fat and muscle. And I think this is where a lot of doctors struggle and a lot of patients struggle and they think this is what's going to happen with Ozempic and right.

And we'll go with it all. Now, this big hype with the jab when we're seeing the patients losing weight fast, but they're losing muscle fast and if you stop them, you're going to gain weight fast.

Nutrition, Medication, and Long-Term Disease Reversal

And it's mostly fat. You don't gain muscle fat fast. You're creating bigger insulin resistance. You go back deeper into the disease and it's like a lifelong dependnce and the new drugs rather than free them from medication from them.

Yeah. You know, I think that a major issue here in the treatment of type 2 diabetes and many other chronic disorders, by the way, as we do it now, is that we try to correct the physiological consequences of our behavior of in the case of type 2 diabetes, food intake is a major issue.

So we try to correct the consequences is of the wrong food in combination, as you said, in combination with genetic factors. And also, don't forget the microbiota yes, the bacteria in our gut.

So in interaction with what we eat, glucose levels increase and what we do with medication is we try to correct that while people keep on doing the wrong thing basically.

And as long as you do not correct the food intake, whether you do that with a fasting-mimicking diet, we well, we show now that we you can do that by eating a fasting-mimicking diet for a couple of days a month.

There is alternatives of course you can also continuously restrict your calories in a, you know, in a prudent way. But it's very much, much more difficult to do that than to periodically use a bit more stringent regime.

But you have to do something as long as you keep on doing the wrong thing while taking those medicine this disease is progressive at. Exactly why you explain that that excellently?

I think. So, this is fundamental. I think dietary intervention and is fundamental to the treatment of type 2 diabetes. I learned I always learned that it's a chronic progressive disease.

You know, we heard that on medical meetings over and over again. And this is we both went to best medical schools and still thought. It's right. And I don't know how many how many hours of nutrition you took in your.

I took one and, I'm MD, PhD Yeah. And two masters all of them. And just took one session on nutrition and that's the main cause of the main disease the majority of people with overweight end up with.

Yeah, yeah. No, I think I, I can't even remember maybe zero. It's yes. Virtually nothing on nutrition. While nutrition is the the basis of our of our health, I'm convinced that that is the case.

Dr. Hanno, I think trial was done finished and and now the fasting is a version of the fasting-mimicking nutrition that is that was recently launched.

And people I think in the US and then next year in Europe can in can access that can you, can you a bit talk about the protocol of such a nutrition, like when, when a patient should do it, say I'm a diabetic type 2 patient and I'm on three or four drugs, like when should I take this?

If I go to my doctor and, and talk to them about it, what should I tell them? What what am I suggesting here? Well, you know, we use that the or our patients use the diet for five days every month.

But we are not sure whether you know, you can even do it for every like every two months, for five days. That may be effective as well. We simply don't know.

I appreciate you very much, Dr. Hanno for the great session today on generally fasting for longevity and specifically focused on the use of fasting and fasting-mimicking nutrition for you know, certain group of patients especially you studied breast cancer, how to use that in cohesion with the current chemotherapy and and using the fasting-mimicking nutrition for diabetic patients.

The protocol I think you tested was once a month for six months. And then once every three months to maintain and to help them regress for the first time from their health conditions.

I think this is what some of those studies we are excited about is just to bring that cutting-edge technology in nutrition, and how nutrition as medicine as a tool for longevity can join hand-in-hand with the current medication in the current health care community and empower the patient and the doctors to have additional tools to support their patients.

Appreciate you very much.