How 5 Days Can Transform Your Health Forever Transcript

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Introduction to fasting research

Everyone. This is Doctor Joseph Antoun, your co-host for the Longevity Summit. I promise you, today is going to be one of your favorite sessions because I'm with no one else but Doctor Hanno Pijl,.

Doctor Hanno is a prominent leader as a clinician and and researcher at the Ladin system in Holland. It's one of the biggest, if not the main, you know, tertiary hospital system in Holland.

And he has been researching fasting for probably now close to two decades. Doctor had starting with water fasting and then the fasting mimicking diet.

And he had to focus his diabetes and cancer. And these are two out of the three top killers in the words. You definitely want to stay tuned and listen to the discussion today, doctor, I didn't do the full justice to your background.

I would love to have you kind of talk about how you got into fasting and the research, and then we're going to address the outcomes right after that. Yeah.

Well thank you, Joseph. As you said, I'm a clinician in the Light and University Medical Center and an endocrinologist, internist, endocrinologist. And I treat many patients as an I treat many patients with diabetes and type one and type two.

And a long time ago, as you said, about 15 to 20 years ago, it occurred to me that, you know, what we did in the in, in the office is treat people with type two, in particular with many, many drugs.

And many of them still did not adequately check their, their control, their, their glycemic. And I realized that, you know, one of the things that is going wrong there is that we fail to do actually, in practice is address the issue of food intake and physical activity, lifestyle in general, but food intake in particular.

And as of that time, I, you know, I'm not sure how, but I bumped into one of the papers of Walter Longo is showing that fasting could be of great value in cancer in particular.

And I was intrigued. And as of that time, I started me and my coworkers and started doing clinical studies with at first water only fasting in cancer and in particular breast cancer.

And later on, as the fasting mimicking diets occurred, we started doing studies with fasting, mimicking diets and found some very, very, I think, promising results.

So I my research actually is fully focused on the impact of fasting on health in patients with diabetes and breast cancer. And so, yes, it's a very important and relevant issue.

What you just mentioned is probably the number two killer in humanity with diabetes and maybe a cardiovascular number one related to it. And breast cancer is the number one cancer woman.

Type 2 diabetes trial and metabolic benefits

So this is a very important discussion today. I want to get right to it. Can you help us understand why the fasting mimicking that I'm going to start with diabetes.

Why the fasting mimicking diet in diabetes? And I know there has been 2 or 3 trials that your team led in that regard. And can we talk about the results and the magnificent actually, you know, health outcomes that you've led in regressing the disease, helping patients needing less medication or and for remission, taking them off

medications from diabetes.

Would you would you please describe the concept, why the fast and diet, how it works on diabetes, and where were the outcomes of the trials? Yeah, so what we did was we studied a group of 100, basically 100 patients with type two diabetes who were treated with metformin and diet alone.

And so early on in their disease, and we randomized them to receive either five consecutive days of fasting, mimicking diet each month for their regular, you know, clinical treatment.

And the fasting mimicking diet was provided in addition to regular care. And then we did this for 12 months, and we studied many, many things in these patients.

And one of them was, of course, their glycemic control and blood pressure and lipids. And what we actually found was that the group receiving the fasting mimicking diet for 12 months after 12 months had used less medication, had better HBA one sees while their blood lipids were actually similar, statistically similar.

But there were some benefits in terms of non statistically significant benefits in terms of lipids as well. And so in terms of their life and metabolic control, the fasting mimicking diet was very was very successful and was very useful for these people.

And this is probably because when you so the fasting mimicking diet is, as the name suggests, mimics the fast the impact of water only fasting and water only fasting has a profound effect on metabolism.

So it has a widespread impact on not only glucose but also lipid metabolism on immune, your immune system and it. In a way, it resets metabolism in a very healthy way.

And I think this can be understood in view of our evolutionary history. So in our evolution you you always there were always periods of food scarcity.

And we have to survive these periods. Our whole physiology is meant to, you know, not to eat every day, but to survive periods of, of food scarcity. So the metabolism turns in times of the fasting mimicking diet for five days, the metabolism completely turns into a metabolic state that is meant to survive, that is healthy.

And this state actually continues to be there for sometimes after sometime after the fasting. And therefore, if you use this fasting mimicking diet every month for five consecutive days, it appears to have a very beneficial effect on metabolic control.

So we were actually very enthusiastic about the data because the patients needed less medication, felt better in general, and lost some more weight than the people in the control group who received regular care.

So it was in these terms it was very successful trial. And as you alluded to, Joseph, we looked at more things. For example, we looked at visceral fat and heart felt.

So our heart is surrounded by fat tissue as well to some extent. And that fat tissue has bad has a bad influence on heart function. And what we found is that both visceral fat reduced more than in the intervention group than in the control group, and so meaning that the people who received the fasting mimicking diet lost some visceral fat as compared to the controls and also lost our fat.

And this is also a very beneficial effect of the diet. And finally, we looked at liver fat. And as you probably all know, liver fat is very bad for your health, not only for liver health but also for general health because liver fat induces inflammation.

And so we found a strong reduction of liver fat in response to the dietary intervention. And that probably we didn't measure that yet. We may do that in the near future, but that probably means that not only the liver becomes more healthy, but the general health is improved because inflammation is down.

So I think what we found in this particular trial is that the use of the fasting mimicking night is very beneficial for people with type two diabetes.

Well, this is amazing. I want to dig a little bit deeper into some clarifications. Well, first of all, you're saying that the fat around the heart and the fact that some people accumulate in the liver in this comment would weight gain.

And with aging, they were reduced in the with the fasting and making diet what we call the visceral fat. Yes. Yes, absolutely. Yes. And this is probably a feature of fasting that it goes after what we call the visceral fat, the fat around the central organs, which is the real bad fat for people listening to us today, what we call as doctors, visceral fat is the fact that you carry around the organs, and this is the fact that induces two really bad things.

It increases inflammation and induces insulin resistance, which is the essence of the mechanism of the evolution of diabetes in your body. Doctor, how did there is a lot of diets and lifestyle that can also help reduce fat in the body?

Can you tell us besides that, into the resistance? I know we as doctors, we care a lot about muscle preservation. And now we started caring about Senator Rejuvenation to reverse the bio age of the body.

Can you talk about how does the fasting, why it's so special and particular intervention versus other diets or not, the GLP one craze also that we're seeing everywhere?

Why did. Yes, that's an interesting question. I think it turns out that for some reason, and to be honest, I do not quite understand why this is, but for some reason, the fasting mimicking diet preserves muscle tissue, while if you restrict calories continuously, which actually happens when you use this, these GLP one analogs like simulated and others, then you know, these drugs actually reduce appetite and they make people eat less.

And so continuous calorie restriction somehow that you lose fat obviously, but you also lose muscle tissue. And this is much less when you use this periodic fasting mimicking diet cycles.

And this is important because muscle is a huge sink, is very important for for metabolism, in particular glucose metabolism. It's a huge sink for glucose.

And so the loss of muscle tissue in response to calorie restriction is a thing that you do not want. And it appears that the periodic use of a fasting mimicking diet does not cause are much less loss of muscle tissue.

It particularly induces loss of mass of fat. And then also and this is also something that I'm curious to know if anybody understands this, but I think we need to do more research in this area. Why in particular defective fiscal fat loss.

It appears that the physical fat mass is somehow the more dynamic storage depot fat than the subcutaneous. So if you if you use very little calories, then this particular fat depot appears to be become smaller for some reason.

It's interesting to study how this works in terms of hormonal, you know, regulatory systems that control glucose and fat metabolism.

Muscle preservation and why fasting mimicking differs

Yeah, I may shed a little bit of light on muscle preservation because we we did two clinical trials on that. We did one clinical trials in young male adults, as you know, young male adults, they have a lot of muscle and they can swing muscle mass fast.

So we wanted to understand how why the fast, significant diet preserves muscle mass. That's a big as you mentioned. And for everyone listening here today, we're talking muscle because this is where the the medicine a little bit failed is muscle is the engine of burning in the body.

And what you want is when you reverse it your diabetes with healthy lifestyle. You don't want to lose muscle

because this is what keeps burning the carb and keeps you out of diabetes.

And that's the essence of why we're so we're so focused on muscle. And this is where the GLP one and the tides, I mean, the studies are showing 20 to 30% of the weight loss is muscle loss.

And this is not something we want with fasting and with the fasting. Maybe actually if you do water fats you lose muscle. This is a big distinguish between water fasting and the fasting that became night.

So we looked into why the fasting mimicking diet helps preserve muscle function in mass. And what happens is that, as you know, doctor, fasting, the way fasting is different than any other calories fiction is it's a stress.

It's an acute stress over five days, right. One of the stress hormones is growth hormones. And so when you're doing the fasting in between diets, you have a high growth hormone in the body.

And after day three we're doing autophagy and rejuvenation. So you have a muscle rejuvenating with autophagy under the fasting and became diets. You have growth hormone telling the muscle to grow with water fasting there's no nutrients.

With the fasting mimicking diet. There are nutrients including proteins actually from plant based sources. Plus then we create mini spikes, insulin after the soups where people get the soup, especially at night, we create a mini spike at insulin.

I growth hormone spiking naturally with fasting. So there's two signals for the muscle to pick up the nutrients and to be preserved. And as you mentioned, rightfully so from the beginning of this session, he said, look, this is an evolutionary defense mechanism, and this is what happens when you're fasting.

Humanity lived with foods car City for, as you mentioned, tens of thousands of years. And so what the body does when there's no food, it says, okay, I'll break down the fat to nourish the brain so that you stay up and you don't faint and you seek food and I'll increase growth hormone, I'll protect the muscle, I'll invest into the muscle mass so that you keep walking in order to find the next food, fruits or vegetables.

So it's the stress of fasting that preserves the muscle. Obviously with the fasting. And there are nutrients coming to the muscle, plus rejuvenation and autophagy.

This is the third pillar of how it works on diabetes. Right. And this is where this is where traditional medicine didn't do enough on diabetes. It solves one root cause, which is insulin resistance.

It didn't solve muscle, it didn't solve cellular rejuvenation. And the bio age of the body. And this is where the fasting mimicking night is working on all three three root causes and helping effectively patients.

I think in your trial, you're showing two thirds of patients will decrease a dose of medication or a full medication. Within six months of the fasting diet.

There's just 30 days of nutrition, right? Five days month, one, five days month, 2 or 3 months for five and one six. So within just 30 days of the fasting, we can died.

Two thirds of people are dropping a dose or a full medication. And and thankfully, this is all coming from from your labs and from your clinics in laden and got published in big journals and also in Germany, the big centers in Germany as well, with doctors so large that has published the six month effects as well.

Yeah, yeah, yeah, they were very I mean, their results were very comparable to ours actually. And so it is confirmed by several labs now. And I must say your story about growth hormone, it sounds perfectly plausible.

It's a very plausible explanation, I think, as an endocrinologist, for the preservation of muscle tissue that we observe in response to the fasting mimicking diet.

Yes. Interesting. I wasn't aware of that. So it's one of the biggest investment that with doctor, you mentioned Doctor Walter Longo, who's the kind of the grandfather of fasting and the fasting mimicking diet is how can we bring the fasting mimicking light to the clinics, to doctors, to patients, to help them induce what we call a regression, leading less medication or an admission needing no more medication for the fasting.

And we can buy it. And I really appreciate keeping this. And researchers such as yourself that actually brought that science. And the proof to the world is now changing.

We launched that program few months ago and is showing amazing results and changing the lives of patients like no medicine has done before. Yeah, yeah, I think I also think that it is interesting.

As for me as a clinician and for patients with diabetes in particular, because this has no side effects, this has you know, the only thing is that if you do this, consequently, if you follow the diet, consequently some people, you know, they get a bit bit weak, they feel a bit weak after a couple of days, and some people get a headache.

And we warn them beforehand that this may happen and many of them is not that there's. In our study, there were very few people who actually stopped doing the diet because of the because of the side effects of the intervention.

And it's it has no serious side effects whatsoever. The only thing and that's something that I would like to warn clinicians who now consider treating their patient with this fasting, mimicking diet, if they if people use insulin or soften derivatives, they're stimulating endogenous in some secretion.

You have to very be careful of hypoglycemia because as soon as people do this, you have to lower the dose of insulin and as you derivatives, because otherwise they will certainly get a high event.

So that's something to take good care of if you consider this for your piece. And to remind patients here what is in the fasting begin is what is it made of?

You're saying no direct side effects, etc. some people think it's are we fasting, mimicking with preservative, with a chemical or that 100% plant based natural just to remind everyone?

Yeah, it's basically it's plant based. It's very is composed of very natural foods. And it has no sugar virtually virtually no no refined carbohydrates, has fiber rich complex carbohydrate and very little protein.

And some healthy plant based fats. That's basically what is comprised of. And so it's a very basically it's a very natural diet. Okay. I want to close the diabetes chapter and go to the cancer breast cancer chapter. Why.

And then the chronology was inspired with significant light on breast cancer where first, water fasting, I think you were one of the first to test even water fasting in cancer.

What is the mechanism? Why we're talking fasting in cancer. Can you help people understand what are the benefits of doing a fast when you're cancer, which is contradictory a little bit, right.

Fasting with breast cancer and chemotherapy

Cancer patients, they're like, oh, I lose weight. Side effects of chemo. Why would they? And doctors the first reaction of doctors, especially cancer doctors, maybe not so much breast cancer.

Breast cancer gain weight typically. But in general that picture that people have that, oh, I get to be more nourished when I have tensor because I may lose the weight.

And can we talk about, you know, what is what is that myth and what is the science behind using fasting with cancer. Yeah. Yeah. It's interesting that, you know, I saw many years ago, I saw the first papers again from Walter showing that fasting actually around chemotherapy in animals with cancer did two things.

It had a very positive effect on negative. What how however you want to express this, but it slowed down the growth of cancer cells and simultaneously protected healthy cells against the toxicity of the chemotherapy.

I was very much intrigued by that. And it's a phenomenon that multicolored, different differential stress resistance. Right. Thank you. Differential stress resistance, meaning that the fasting actually renders healthy cells protected against all kinds of toxins, not only chemotherapy, but also heat and radiation.

And that's because these cells sense the lack of nutrients, and the lack of nutrients is a stressor for any cell. And whenever a cell sends a stress, it starts protecting itself itself against that stress, but also against all all other types of stress.

Basically, it's a very widespread biological phenomenon. And so it activates antioxidant systems. It and it also activates autophagy, which is this the stress of nutrient, lack of nutrients.

It also it activates autophagy, which means that the cell actually starts using cell debris cell components that are not functional as a full back fuel.

So these healthy cells strongly protect themselves against the toxic effect of of the chemotherapy. While the cancer cells the cancer cancer cells are mutated, they cannot slow down damage and they cannot switch to that protective state.

And they are more sensitive to the chemo as opposed to the healthy cells. And that's why Valter says said, well, this is the reason, probably the reason why the fasting is so beneficial for these animals with cancer.

And it it actually reduced and slowed down tumor growth while it protected the animals against the side effects. Now, we decided to do the same thing in humans and we with because because just because the the biological mechanism behind the effects of fasting appeared soul well conserved and evolutionary terms.

So we thought, well, it would be very strange if the same mechanisms that were that were shown in mice and other all kinds of other animals as well, by the way, would not be operative in humans as well.

So we did this first trial and actually showed that very small trial in women with breast cancer. And we didn't look at tumor growth. By the way we looked in this first trial.

We looked at side effects of chemotherapy only, and we did not sadistically show that the women experienced the less side effects. But what we did show in that very first trial was that the DNA damage in lymphocytes was strongly reduced by the fasting, the the DNA damage induced by the chemo.

So this was a sign to us that it did the, the the fasting actually did the same thing in humans as was shown in animals. And the this first trial was a reason to do a much larger trial in a randomized trial in women with breast cancer, where we treated them with not with water, only fasting, but with fasting, mimicking diet prior to three days, prior to chemotherapy and on the day of chemotherapy itself.

And we looked at two things. We looked at pretty large trial. We randomized 100, approximately 130 patients, or we randomized them to receive either the fasting mimicking diet or healthy dietary face around the the chemo.

And what we could show there, interestingly, we thought, was that again, there was not a significant effect on side effect. So there was a little bit less side effects in the intervention group, but it was not statistically significant as compared to the intervention to the control group.

However, the radiological and so MRI response of the tumor and the pathological response of the in the biopsy showed that the fasting diet had a made the effect of chemo stronger in the.

The fasting mimicking diet actually reinforced the effect of chemo on tumor growth. So there was a very positive finding. And so we were very hopeful that it would also extend lifespan.

However, this study we get was not powered to study lifespan. So the disease free lifespan. And it turned out we just recently submitted a paper that says that there is no difference in lifespan after five years five years survival.

However, there's many, many pros and cons and things to say about this particular finding. First of all, because the study was not really powered enough to show statistically significant difference.

And also, it turns out that the overall survival also in the control group was surprisingly high. So there was virtually no death in it, not even in the control group.

So it's so, well, we decided we must publish this. But there is we are awaiting the referee's comments, and we are curious because there's lots and lots of things to say about this particular finding.

And thank you for explaining that, Doctor Jill, if I want to help people understand why when you say using the fasting, when we can diet right before chemotherapy, like so for days you started four days before, then it starts G minus four, minus three, minus two, minus one and the day of the chemo. Why?

What happens? What happens to people doing a fasting making bad before cancer. You explain that it protects the normal cells of the body, takes them into autophagy.

You alluded it by sensitize the cancer. This is what the pathological response rate you're talking about. Did you see any immune you talking about immune protection.

Did you see any immune infiltration indicate. Did you see any potentiation of the immune attack on the cancer cells? Well, we did look into that, but we're not ready with the results.

So I'm not sure we did study the immune invasion in the biopsies. Actually, this was done in collaboration with the iPhone in Milan in Italy. But we are still awaiting the results.

I didn't. This is something that we I expect. Yeah. So I can't answer your question. Okay. Interesting because in mice I remember there were the studies that inspired this showing in a protection of the immune system.

You mentioned the protection of the DNA of the white blood cells and a potential sensitizing and immune attack on cancer. Interesting to see that happens in humans as well.

So next time we talk, hopefully those results will be out and we can relate those. By the way, we found in the showing the larger randomized trial, we also we confirmed our findings in the first pilot study showing that the fasting and the fasting mimicking diet also reduced the DNA damage in lymphocytes.

So that was an indication that the fasting mimicking died as well as the water only fasting intervention and protected healthy cells from damage by chemo.

To conclude today, doctor, I mean these are we talked about diabetes, one of the top killers of humanity. We talked about breast cancer, definitely number one.

Number two, killer and women, you know, and women's health. How do you see that shaping up? The future of healthcare. We always say food is medicine, but then then we don't really mean it per se.

Like when you go to doctors, they don't prescribe attrition as medicine. How do you see the future of healthcare in light of the findings of the trials around the fasting limiting diet?

Well, you know, I think we need to do more research that, that's for sure.

Future of fasting in clinical practice

But on the basis of what I've seen in animals, research and animals and also the things that we did in humans and

many other labs now also study the impact more and more of fasting and fasting, mimicking diets in cancer.

And the results I've seen. I'm sure that the that fasting is a is going to be a useful intervention in the treatment of and I. My prediction would be many types of cancer, not only breast cancer but other types of cancer as well.

And it's, you know, as an adjunct of other therapies. It may, you know, in the end, it may turn out to be a tool to reduce, for example, the dose of chemo or other cancer therapies, and thereby also not only reduce side effects but also reduce costs.

And I think it's an interesting again, it's an interesting intervention because it has very few and it's certainly doesn't have serious side effects. Also not in these cancer patients.

There were no serious side effects at all. So as opposed to all types of drugs that we prescribe. So I think it's lifestyle intervention in general should be part of clinical practice.

But this is in my view, the fast and fasting mimicking is a very easy to apply intervention for I. My feeling is for many types of cancer in the future of medical practice, so I have good hopes that this will be part of clinical practice in the near future for not only for cancer, but also for diabetes.

And my guess would be for other types of disease as well. Do you feel the data is there is a bit on diabetes? Cancer is a lot of some diseases and needs a big randomized trials.

And I know there's a lot of researchers around the world still studying that. Do you feel in diabetes as an on the chronology? Do you have enough proof and satisfaction to add the fast and being invited to the practice?

And if so, how do you do it? Well, I think in diabetes there has been a long tradition of studies with calorie restriction and also periodic calorie restriction.

Not by passing mimicking diets, but by low calorie diets containing lots of sugar and other stuff, which is not good for people. So I think that given that, and many of even those interventions turn out to be beneficial for people with type two diabetes.

So I think with the data we have today on the impact of fasting mimicking diets, which are, in my view, much more healthy for people with type two diabetes than calorie restricted diets that contain lots of sugar.

In some cases, I think there's enough data to say that it helps in people with type two diabetes. And in my personal practice, I. I tend to advise people to restrict to periodically restrict their calories according to the fasting mimicking principle on a regular basis, you know, to improve their disease.

And the point is that it needs to be taken up and it needs to be incorporated in guidelines. And this is something that, you know, has to be supported by, by professional communities.

And this is something because fasting and life science in general is not something that we are trained in. So it will take some time, I'm afraid, before this type of intervention will be incorporating guidelines, but I'm sure that you know that it will.

In the end it must. Well, thank you, Doctor Hannah, for today. This is I, on behalf of a lot of patients now benefiting from the fasting when we can diet for what we talked about.

I want to thank you because you've dedicated a lot of time to do research for the last 15 years and fasting and fasting, and we can diet. And I can assure you that a lot of people are benefiting from that.

And I want to thank you on their behalf and hopefully more, more trials to come, more proof to come. This is a big change to use food as medicine. And as you mentioned, we're we want to have enough solid proof and shape policy and shape insurance and guidelines to so that it becomes mainstream.

I think it's becoming a big eye opener for a lot of doctors. That will brought me to this field. What brought you to this field, and hopefully many other physicians start considering lifestyle medicine.

Diabetes type two, at the end of the day, mostly is a disease of aging, lifestyle medicine, and muscle loss. And this is why the benefits we're talking about here.

So I want to thank you very much for your time today and for everything you do to change people's life. My pleasure. Thank you. Joseph. Thank you.