Can We Slow Down Aging? The Science of Longevity and Healthspan Transcript

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Why Aging Became the Big Question

What led you to start doing all this research? You know, it really started when I was like 13 years old and I was working every Saturday with my grandfather was like 67 and, and he was slow and old and obese and had bald and white hair.

And when he was talking about his youth, I was like, just a minute, you couldn't have possibly did all the things you're telling me to do. I'm looking at you, right?

When we are kids, we're looking at our grandparents in our thinking. Where did they come from? Right. It's, We don't see ourselves going there. And so for me, it somehow was the biggest question of all.

Welcome to Doctor Talks, the podcast where every episode leads to a healthier you. Join us as we navigate the world of optimal health, uncovering groundbreaking strategies to conquer chronic disease.

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Well, welcome to Vitality Made Simple. This is the podcast that equips you to feel better, look better, and to enjoy better relationships. Well, it is with great joy that I introduce you to Doctor Nir Barzilai.

He is someone I've followed for years. He is the founding director of the Institute of Aging Research at the Albert Einstein College of Medicine. And welcome. Welcome, Nir.

Thank you very, very much. And I think vitality is really a good word where we're using lots of words, you know, healthspan and longevity and anti-aging and rejuvenation.

But I think it all comes to vitality, which is really what we're trying to do. So I appreciate this title a lot. Well, thank you for that because you'll you'd be shocked at how many people told me in the early days, Debbie, nobody knows what vitality means.

Introducing Vitality Made Simple and Dr. Barzilai

And I'm like, well, then they need to know if they don't know. And I love the term healthspan. In my Ted talk, I talked about Healthspan lifespan, so I really appreciated that.

In your book you talk about that. Now, also, I want you to know that my hair is in honor of the Albert Einstein College of Medicine. I didn't tame my hair today.

I just let it go wild like Albert would wear. And so that's to honor you. Now, I got to. I started following you back in probably 2018 with this. You had a research article in cell Metabolism called metformin as a tool to target aging.

And then for our listeners, I really want you to read Doctor Barzilai compelling book called Age Later. It came out in the year 2000, and he talks about the science of longevity.

He looks at aging from the most integrative standpoint that I've seen because it's not just all lifestyle, and it's not just all, you know, medicine or nutraceuticals or or any of that.

So we're going to learn all about that today. Now, near you've dedicated your career to understanding aging. And you were really early to this party. What led you to start doing all this research?

You know, it really started when I was like 13 years old, and I was working every Saturday with my grandfather was like 67 and, and he was slow and old and obese and had balding, white hair.

And when he was talking about his youth, I was like, just a minute, you couldn't have possibly did all the things you're telling me to do. I'm looking at you, right?

When we are kids, we're looking at our grandparents and our thinking. Where did they come from? Right. It's a we don't see ourselves going there. And so for me, it somehow was the biggest question of all.

You know, when when I went to medical school and I learned that you could take a blood test and see the cholesterol level and see your glucose level, I still said, but just a minute.

I put, put me in line of people and I wouldn't know who has glucose or cholesterol, but I would know who's all the news young. And when I went to my residency there was an attending who every time we would present a patient, we would say, this is a 67 year old woman who said, just a minute, does she look younger or older than her age?

And and that became it took time for us to understand. But the fact that there's biological aging, that our biological age is not our chronological age is major.

Also in understanding that, hey, if that's true, if we're not there really the age that we count, that means there is flexibility that we have to understand.

And why don't we make everybody look younger than their age? We've figured out that, you know, there are 67 year old that are so sick that, you know, it looks so bad, and they're 90 years old that, you know, you give them like antibiotics and a little bit, they'll be fine for ten years more.

So that's kind of the reason that I thought the biological age is, is the major thing, maybe the major hope.

Biological Age vs. Chronological Age

And now we're in age that we're really realizing the promise that we're beyond hope. Yes we are. In your book gives gives people a lot of hope, I think.

Of course, you talk about the people that just have these longevity genes. So, you know, I want to touch on that near, but I don't want to stay on that because we can't change our genetic makeup.

But tell us what you've found in that area. So let me start there. The reason that research all over the world is looking for genes for diseases is because those genes can be actually targeted for drugs.

Okay. The genetic study doesn't mean, okay, you have it or not. Too bad. Not at all. In fact, we have two, two, discoveries on our centenarian genes that have already been translated to medicine.

Not not for longevity, but they're out there already to show that you don't you don't need the genetic that you you 95%. You don't need to do genetic transplants, certainly not to diseases of aging.

If you're enjoying this episode, please subscribe and share with someone who wants more vitality. Please leave a review, subscribe and like this episode.

It helps to spread the word. Thank you. Well, and the way you look at aging, you don't wait until somebody's sick. You know that people are going to age as they have birthdays and blow out birthday candles.

So so explain your perspective of of intercepting aging, right. Right. So it's really it really comes back from. There's

no chronology. The chronological biological age are not the same.

But that's one thing to understand. The second thing that is really important, is that, it aging this biology that how we see old and young. Right. This biology also drives diseases.

You can be born with genes for Alzheimer's, but you're not if you're not born demented and you're not demented, that's one or 10 or 50. It takes this aging.

It's is the same for heart disease and cancer and for for other diseases. You need the aging. And that's what brings us to the perspective that we need to target our aging.

We needed to target our aging to prevent the disease. Okay. We're saying why the revolution is let's treat our health and not our diseases. I'll just give you an example for that, because there are now longevity clinics all over the world, and I'm following one.

And I actually send a friend of mine to one and, and he tells me I was sold. And this guy has been always he's the way he looks. He is a little bit of a Nazi.

He's not a narcissist, but I'm saying he's a narcissist from the perspective. He's young, he's healthy, he's doing everything. And he was crushed because he was a year older.

They figured out that he's biologically a year older. And he thought, oh, I'm for sure younger than my age, by the way, became worse when he found out that his wife, who's ten years younger than him, is four years younger than their age.

So he thought, we're coming together. But in fact, now they're 15 years different in age. And and he almost went through all the stages of mourning. You know, he he was angry and then he wanted to ignore it.

But the point is, the reason is that he had things that he didn't realize. And those things can be easily target. He had prediabetes. He has high blood pressure.

Some other things. All of them are treatable. And that's exactly the time where we need to treat you. And I told him, in a year, you're going to be younger than your age, okay?

Because those factors are things that you could do things even either with drugs or with exercise or diet or something. Those are things that you could you could treat.

Targeting Aging to Prevent Disease

The next day I'm going to dinner with him, and there's a television persona with us in which I discovered that she has to go every 15 minutes out because she's smoking, you know, she wouldn't admit to it.

And she says, and she looks great, okay. And shares skin is great. And she said, I don't don't give me this shit about longevity. I'm fine. And I just told her what happened to her friend, who she also thought is like her.

So now she's going to go to longevity. The point is, we can, we can. We need to figure out things younger and and work on that and prevent and prevent diseases.

It's a prevention. I so appreciate that. And I know every single listener appreciates that. In your research from my perspective, please correct me if I'm wrong.

I would say that blood sugar regulation is the key in my own clinical experience near. I remember the moment probably 35 years ago when I was seeing a young man who had just lots of inflammation in his gums and no reason for it.

You know, I didn't see any bacterial problem. I just on a whim, I said, you need to get your blood sugar checked. And he was diabetic, probably 23 years old. So.

So that's when, you know, I learned that the oral microbiome and blood sugar are a two way street. They fuel each other and in as you look at every single area of health span, blood sugar seems to be upstream.

So so I, I'm, I'm the president of the academy of all that people are looking at it. It's aging. Right. And what unites us is we have something that we call hallmarks of aging.

How do you become a hallmark of aging? You show that something goes wrong when you're age, and if you correct it in animal models or in humans, you improve the health, spend and maybe the lifespan of animals, right?

And lifespan. And my job is not to let anyone win. Anyone be in the model like you're saying it's glucose. Okay. Metabolism is the middle. Metabolism is one of the hallmarks.

And the reason for that is when you fix one, any one of them, you improve the other. You don't need to treat all of them to make progress. Maybe it would be great to treat all of them, but you don't need to treat all of them to make progress.

So to use this example of metaphor and by the way, I. I'm endocrinologist, I'm a pathologist, I my research was in metabolism right. So I'm, I'm not disagreeing.

And those are the examples in my book. But since my book something really proves this concept that the, the that those are hallmarks that are connected to each other.

Metformin is commonly believed to lower glucose and to be related to metabolism. But in a clinical study, it was shown that if you take Covid, Covid patients within the first three days, usually the first day when they get disease and you give them it for mean, they have half the hospitalization, half the deaths and half of the long Covid.

Why? Because it's not only about metabolism, it's about immunity, which is another an inflammation, which is another hallmarks of aging. So my job is to say, no, we have hallmarks of aging.

I don't let any one of you mean because if there's any lesson, if you develop a drug for diabetes, you actually might find that it's actually a drug that it's good for immunity or for senescence or for autophagy or for some other, never mind.

But some other hallmarks of aging. That's very logical, because I want to say that it's the oral microbiome is the main hallmark of aging, right? Microbiome. Yeah. Microbiome is a hallmark of aging.

But I'll tell you one thing. That there is just starting coming because you have to show that when you treat them, your animals live longer. Now, it's tricky with microbiome because the microbiome of humans and animals is very different.

But there is evidence from one model that if you treat its microbiome, it lives longer. But what I told you about this drug, metformin, it also changes the microbiome.

Okay. So so is the microbiome changes because metformin changes all the hallmarks of aging. Is metformin changing the microbiome. And that's what affects the biology of aging.

It's hard it's hard to find the cause and effect here. But there. But I agree microbiome is one of the hallmarks of aging. Well. And you talk about in your in your book that metformin is a tool.

It's not the goal. How do you how do you see it used. Like what dosages near are being used. So okay treat this. So two things you should since my book the the when I use metformin as a tool, the tool is how do I convince the FDA to understand that aging can be targeted?

Okay. And we use metformin the tool actually this study is probably going to go it's not only metformin is going to be like there wasn't any kind of drugs okay.

Metformin, Hallmarks of Aging, and the Microbiome

Therefore drugs therefore drugs that basically those studies have been done. They were given to one disease, but they prevented variety of others. They they were given to certain disease and they all decrease mortality overall mortality, not disease specific mortality.

So we have we have several drugs that are doing that. The tool was used as the tool for the FDA to change their IDs, that aging is preventable. So, I'm not I'm not I'm not selling metformin.

I'm selling the, the prospect. I'm actually selling for drugs. You know, every drugs that that were approved for FDA can be repurposed by any physician because they're safe.

That's how they got approval for the FDA. They're safe. So physicians have been repurposing drugs all over. If still, I'm staying on the metformin example.

Metformin was first repurpose for obesity, not for not in diabetics, but for obesity because because metformin is associated with 5 to 10 pounds weight loss.

So they're better drugs okay. But it was repurposed. Metformin is the first drug of choice for women with polycystic ovary syndrome. Metformin is the first drug of choice for prediabetes.

And now I'm telling you it's the first drug of choice. If somebody's got to get Covid, none of those other indications are FDA approved. But still, that's how physicians are using them.

So why not aging? Yeah, well, the interconnectedness of all of it, it's all going to have that epigenetic impact on whatever the person's specific genes are.

And that is another hallmark, by the way. Oh, it is okay. Expound on that. Near. So you're you're you know, you're you had this connectivity and I'm trying to overall it the way you said microbiome you said metabolism.

You said epigenetics right. Those are all and they influence each other and they're drugs that will do all of that. Well it's so it's so fascinating because, you know, I'm a dentist, but as a functional medicine dentist, I'm looking at all these integrative things and testing the oral microbiome.

And when I see that we correct some of that inflammation in pretty simple ways, then all these other markers of hallmarks of aging improve. I mean, their blood pressure improves, their blood sugar improves, they start pooping, they start having better sleep.

They start having, you know, less brain fog. I mean, on and on near. It's so exciting. So, so also, you know, in your book and I know you've done a ton of research since your book, but you you have some very compelling stories that I think our listeners would enjoy.

I appreciate your commitment to storytelling. You made it so interesting. You talked about a woman named Lily Porte and I, you know, we didn't talk about this ahead of time.

Folks at NIRs had a lot going on since talking about Lily, but do you remember how she was just such a an active hundred year old? Well, she lived to be 106, right?

And when she was 100 years old, she she decided to celebrate in Machu Picchu. Okay, so Machu Picchu, I mean, when I was 60, I decided that's off my that's off my bucket list.

Not for her. And she traveled all the time. And in Machu Picchu. So she we come back, she comes back from a trip

to China. Everybody said, so how is how is it climbing up?

And she said, you don't realize, but climbing up, it's not a problem. It's actually going down. That is really difficult, she said. But she since then, you know, she had the plan.

You know, we say when you have more plans than she means, you just going to live longer and, and, and and she did. And she died at 106. Her last year was kind of tough.

But the amount of but the 105 years that she was healthy and fun and having fun is really is really this model you know, our centenarians. She's an example.

But our sentences don't only live longer, they live healthier. They live healthier 30 years more than other people. Not only they live healthier, they have a very compressed morbidity.

They're sick, very little time at the end of their life. So we can do it. Okay, we have example. We can do it in our capacity. We die at age 80, but we we are not using our whole capacity now.

And we should. Oh, absolutely. And and it seems like people have a plan when that happens. Because Lily climbed her stairs like 65 times a day or something.

I mean, she she didn't just go out and hike Machu Picchu. She'd been active on a daily basis. So, so in learning about these people near what what has it caused you to do in your life differently?

So there so first of all, I, I exercise, okay. And I basically exercise every day no matter where I am. And I have a Fitbit that kind of punishes me. If I don't do 10,000 steps, at least 5000 of them are kind of running or peloton or something like that.

So that's crucial. I think exercise is the top movement at any age. Movement at any age is good. And and, you know, if you're kind of old and lazy and tired, you just have to make this thing of getting up from your chair something that is is a bonus for you and not and only thing I like whenever, whenever I can go and get something, I do it because in my mind I just, I just thought aging.

Okay, a second is diet. What I'm doing is I'm doing intermittent fasting.

Longevity Stories and Healthy Centenarians

I can explain why, but that is very personal and it has several components. For example, obesity is part of what we have to avoid because obesity drives aging. But, people are reacting and that's individual.

They like Mediterranean diet or they they do low carbohydrate or they do, vegetarian. It's kind of personalized. And there's always trade offs between them.

The the third thing is sleeping and sleeping is kind of difficult. So on one hand, the young people, they're problem is binge watching okay. They, they binge watch and then oh it's 2:00 and they have to wake at 8:00 and then they're tired and then they're eating more and there's lots of consequences for us who are older.

It's just falling asleep and staying asleep. And and the thing you want to do is you want to be an eight hours in the dark room without your electronics.

And I'm trying to do it every day. And I'm still on six an hour, six hours and 40 minutes on average every week, which is fine for me because I know that's that's who I am.

But if I don't do the eight hours, I don't get to the six hours and 40 minutes and social connectivity, you know, for both of us it's not an issue. Right?

But some people are very lonely and that is an underlying biology. They also die younger. I really think that's key. You know, I appreciate it in your book that you dedicated it to your parents and grandparents who didn't actually have a chance to know these things that you've you're teaching us.

But then you dedicated it to your wife, who helps you stay young. So I knew you were someone that I was going to like. And because relationships are the key.

So tell us about, you know, research into that fascinating area. Well, so so I'll tell first of all, it's true. I think I think the basic of my marriage is being great to me.

And by the way, this is in spite of the fact that my wife has is impressive career as I did. She's she's a corporate lawyer. She was in the executive committee of one of the biggest firms in the world, Sidley.

She's she was the head of of their global, corporate tax group. I'm saying all that because we were two people with careers that made our, life really to where two kids really, really kind of of juggling and, and but it was so, so, so part I mean, but it's just so part of who I am, and I'm, I'm totally indebted to her.

I, I, I didn't, I didn't, I don't have anything of my research that supports that for the simple fact that all of most of not all, but most of my centenarians have lost their spouse.

Okay? And they still continue to write. And I think what gets to them because they leave so long is when the children of their friends start dying, then it hits them that they're they're old.

So I, you know, I'm just telling you everything you said is right. But I hate to talk not about my own experience or research, but but definitely part of the social connectivity is a good relationship.

I can tell you one thing that is really kind of interesting, and I've been thinking a lot about it because in human evolution, 100,000 years, a life expectancy was between 20 and 30.

And and let's even go. Let's not take all of human evolution. Let's take even 3000 years ago when when polygamy became less popular or people started actually to get married or to have commitments.

But if life expectancy was between 20 and 30, tell me how many people during that until 150 years ago, how many people were married for more than ten years, right.

If life expectancy was 20 to 30, one of them already died anyhow, how many were married for ten years? So in evolution, this marriage thing, it's not only that we exceeded ten years.

People are married for 70 years. This really is incredible. But it also shows you the complexity because we in evolution, we're never planned to spend those years with just one person.

When we're changing environment, they're changing. They're changing, you know? So it's it's kind of incredible. To think about it. Well, and I've seen it so consistently among my, my clinical patients as well as friends that the people who are married and committed, I mean, they have less stress and know, of course, stress is probably is that a hallmark of aging?

It yeah, it's it's kind of a new hallmark of aging. Let me explain to you why stress. It's it's also, you know, that usually the laypeople the more laypeople say stress should be in the middle and stress is funny, in a way that if when it's chronic, okay, if you have a chronic pain and you're in pain all the time and you cannot beat, that will kill you, okay.

Lifestyle Habits for Healthspan

But there is a theory in aging that's called for meeseeks that you have to have stress because dealing with stress up regulates your biology. That eventually is important for your aging.

Okay. That's the concept of for Mrs.. In my book I give the example of my great uncle who was he was an uncle, not a great uncle who was who actually died since then at age 102.

He was 16 when he was taken by the Germans in Czechoslovakia. And as he say, they took me to the Grand Tour. I was in five concentration camps and they paid for everything, not enough food, but they paid for everything, right?

And then he goes back. He survives the war. My grandfather sends him to medical school in Prague. He became an anti-communist. And during the the spring of Prague, the Russian, you know, the Russian didn't like the liberal movement.

And they conquered. They came to Prague, they conquered Czechoslovakia. And he was a refugee again. And he went to Vienna. But they didn't let him stay there.

So he went to Canada, to Quebec. And separatists have bombed the house next to them. And then he went to Houston. And in Houston he twice rebuild his house after hurricanes.

And he is like, bring it on, you know, but but you just wonder somebody who's survived so many things, is it wonder that he has an ability to kind of be resilience and say, what the heck and move on?

Now? I think that's huge. I think that's huge. Viktor Frankl has been one of my, heroes through the years and just, you know, talking about you just need a purpose beyond yourself, you know, an eternal perspective and a few good friends.

And nobody can change what you think. They can do anything t but they can't change, you know, what's going through your brain. So that to me, that totally epitomizes what your how your uncle handled all of this.

Right. So so yeah you know stress but but but realize that that stress has those touches within, you know whoever whoever wrote what doesn't kill you makes you stronger.

This was written by the survivors, right? You write how many got there, you know, and it's really it's really how you look at it. You look at people who've never had people who say we're, you know, we say born on a silver platter who never had any challenges.

They don't do well in life, you know, mentally, physically, relationally. I mean, generally that stress does make you stronger. So interesting. Well, now, what research are you working on these days near?

Well, one one of the really important questions is kind of rate limiting is the fact that you, you know, we can look at each other and see if we're aging slower or quicker.

But there's a no, not not a test for that. Right. And I wish that we could have a test. And by the way, it's not going to be just one, one, one measure.

It's going to be a combined measurements, okay. Because it's that complex. But a measurement that will really say what's your age? But more than that, that will say what?

You not only say what your age, but if you if we start treating you, if you start exercising or dieting or something, it will really show in a three months that you're making progress just like any other drugs.

It's also important for biotechs who develop drugs for for aging to have a phase two study right where you when before you go to phase three study and spend $1 billion to show that actually you're aging is moving.

Okay, we need this test. And I'm in. I'm busy on both the politics of how to make that happen. And I have a bunch of drugs that have shown to target aging studies that are already done, that we can now do huge amount of measurements and find those that are telling you your age and that it changes if you do something. So.

So that's one thing. But from a scientific point of view, I like of those biomarkers. I liked a measuring the proteins in the blood. And we've been measuring in one of my studies a 5000 proteins in thousand people.

So that's a huge amount of data. And we found we already describe which are the proteins, the change between the age of 65 and 95. And we can make those clocks that tell us what is actually the age.

And we showing the clocks that we can tell you basically when you were likely to die, or how many years you're going to to leave. So those are important tool.

But the more exciting part is when when we started doing that, we discovered that a lot of the proteins are of a breakdown. You know, things are breaking down.

We can find pieces of a of of of cells. We can we can find a collagen and other things that makes our, our body that is breaking down.

Relationships, Stress, and Resilience

And so we went farther and we found, we found out that because cells are breaking down, we can measure actually the age of your brain or your liver or your kidney.

Now, they're very much correlated to each other. You know, if you're young, if you're overall younger, all your organs are younger or in if you're older, all their organs are are different.

But we have now a bunch of people who seems to age slow by their biomarkers, but their brain seems to to age fast. So we can maybe so a is the aging is the brain leads.

They're aging. And B can we do something about the brain. Or should we look at the brain or if it's the liver okay. So are you alcoholic. You know, do you have do you have appetites?

Do you have do you have cancer? You know, we can see which organ kind of leads your aging. And it will help us find the best drug for you. So is that an is that an ongoing study that people can be in at this time?

No. No. Will generally no, this study is not recruiting any more. It's a longitudinal study. So we're not recruiting anymore. What we are recruiting is if you have or if you have or you know somebody who is 100 years old, you we have the Super Agers project that is on the web of the American Federation for Aging Research, AFA, and we're trying to get as many centenarians as we can in order to find as many longevity genes, genes that slow its aging as we can.

And so there's a web for that, and it's all through web. In other words, if you have 100 years old, they'll get the tube to spit. And this will have enough DNA for us to know a lot about them.

We want we want also one of their children. They're not children. One of their offsprings. And another, we three from the same background. So, like, if we have an Indian sent an heir and one of his son, and he's and and the the woman he's married to, if she doesn't have longevity.

Those are the triplets that we need. But our research has been so fruitful that we want to make we'll make the most out of it. There are lots of hundred years old that I have secrets that are really important to know.

Oh, that's that's thrilling because people want it. People want to know what's what are some few things I could do, I would think, are you looking at things like forgiveness and anger and friendship and even those non-biological markers near em?

Not in that study. And let me tell you why it's a problem. So I met so, you know, some people are coming to me and saying, you have to meet this person. You just have to meet the person.

And I know they're really they're really terrific. But I'm going to meet this 104 year old guy who's just amazing, okay? He's amazing. He's like really nice person, very considerate.

You know, his daughter in law was always great to him. There's nobody that is a problem. And I have this wonderful talk with him. And I get out of the room and I bumped into his son.

He's 82 years old. Right. And and I tell his son what I just told you. And he looks in my eyes and says, you should have seen this son of a bitch when he was my age. He was a terrible, terrible person.

And then you realize that we we think personality, personality don't change and we have date until like 60. But think of what happened since then. You retire, you move, your spouse dies, you're moving to another place in the middle.

In the meantime, your brain is aging too. And so actually the adaptive personality that you get doesn't mean anything to what happened in your life. That's why we have a longitudinal study where we're trying to follow that.

But our centenarians have a really great personality in the sense that they're outgoing and optimistic in other things. But is that what led them there, or is that the consequence of their life?

Well, we're not sure. Probably both, but we're not sure how much. Boy, it could just be that they've learned to do things differently. And, you know, that's helped him unwind a few years.

Maybe. You know, I we always tell our patients the goals to live to be 102 and have two bad days. And and you're really helping people do that near with your research, I appreciate it.

I would compel our readers to read your book. Age lighter. I like age lighter because it's not anti-aging. You know, I'm in this whole world of anti-aging, but that's that's a misnomer.

Biomarkers, Aging Clocks, and Super Agers Research

In my opinion. Now, is there another book being planned to share this new research? Will only only in my mind. Okay. I think there's really lots of things that are happening in the book.

Will look a different or no, it'll be part two. It was okay, this is what it is. And now we know better what to do about it. I just want to tell you about this age later.

That I wanted the book to be called How to Die Young at the very Old age. Okay. And, and and that's the title I wanted. And when they came with the age later, I said, how do you know that this is a title? I'm.

I'm giving the lecture. I think it's a better title. And they didn't give up. So I did my own study. I asked people for names for books, and I sent to all my friends to rank, okay, where where books, where age later and how to die young.

At the very old age where part of the choice and to my surprise, the majority was for age later. So I. I got it wrong, I got it wrong. And age later is good.

Then I mean it. Well, you got it right. I mean, you were so close to it all. And that's exactly what the book's all about. It's it's, you know, getting old, slow, more slowly and feeling young longer. So.

So I really appreciate your research. I appreciate your time today. And listeners share this far and wide this this is the kind of information we love on Vitality Made Simple because it's all about feeling better, looking better and enjoying better relationships.

And I thank you all for sharing this podcast. We're now in 136 countries and I think over 5300 cities in this. Because you guys have shared near, is there a place people can follow you?

I mean, I've kind of dug you out through research, but is there a specific place there? There's a there's maybe my but I'm trying to hide a little bit.

But, you know, I think you'll get a lot of information through this academy. It's called the Academy of Health and Lifespan Research a sorry HLR and and and that highlights also other members. So, they're lots of expertise and lots of great stories.

And that's how you can, you can get me probably beside my, affiliation with, I'm saying, where I'm leading one of the biggest center in the world for the biology of aging.

Oh, exciting. I'll put all that into the show notes. And and I thank you for your time. You all join me on Instagram. We're talking about ways to age fearlessly and feel better and enjoy our lives.

Doctor, thank you so much. Thank you for your time. I know you've just come off a long trip, and it's a big deal that you would take time to be with us.

I will continue to appreciate it. Thank you for, you know, spreading the gospel as I think it's very asymmetrical. We actually know a lot and are ready to do a lot, but actually our clients don't.

So so it's really helpful that people like you are taking that. And so I think, you know, not not me. Well it's it's a joy because I get to meet people like you and and it's a joy for our listeners, this family we've created.

Blessings. Until next time. Thank you. All the best. Hey. Thank you. I'll close it there. Thank you so much. You're. You're just. I knew you would be such a nice person, and I.

That's really important to me. Thank you, thank you. Best wishes. Okay. Talk to you. Talk to you later. Bye bye. Thank you for tuning into Doctor Talks.

We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your well-being.

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Real talks from real doctors on the issues that matter to you most.