Intro to Exosomes and Telomeres

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But the point of fact is that there's totally difference like what's between a musician and a song. You know, a song is a collection of notes that's played by the musician.

So musicians or cells are gigantic. They're, you know, 2000 to 20,000 nanometers. They have machinery, they have DNA, they live, they breathe, they have energy.

These are just passive little messages in our songs in these little bubbles. Welcome to the Functional Edge. I'm Dr. Julia Ward, and this is where science meets real world strategies for living healthier, sharper, and stronger.

From uncovering hidden environmental toxins to unlocking peak performance and mental clarity, we cover it all. Ready to take control of your health and thrive?

Let's dive in. Welcome to the Functional Edge podcast. I'm your host, Dr. Julia Ward, medical director and founder of Balanced Body Functional Medicine.

Today, we're honored to welcome Dr. Ed Park to our show. In this episode, Dr. Park will be sharing his insights on exosomes and telomeres, offering expert guidance to help you navigate your health journey with the latest advancements in functional medicine.

Stay tuned for an engaging conversation that promises to empower and inspire your path to wellness. Dr. Park, thank you so much for being here. I'm going to let you introduce yourself a little bit more.

Okay. Thanks, Dr. Ward. I appreciate it. Yeah, I'm just sitting in my apartment in LA. And for the last six years, I've been doing Exosomes, which is a stem cell product.

And it gets your body to start thinking it's healing like a newborn. So that's had some really interesting results. Prior to that, for 17 years, I've been taking a telomerase activator.

And so we can talk about what that means. But it's kept me relatively OK. I don't need reading glasses. I can read this close. at 57, and not much gray hair up top.

So that's kind of cool. So those are the main foci of what I'm doing. I grew up like you in Southern California. I guess you spent some time in OC, as did I.

And then I went 12 years East Coast as an undergraduate at Harvard, then Columbia for my master's in public health and MD, and then back to Harvard for an OB-GYN in residency OB-GYN.

And I did that for 17 years before I got on board with Thomas Activation and Regenerative Medicine. And now, last six years, exosomes. That's great. That's great.

Well, let's start at the beginning. What exactly are telomeres and exosomes? And especially for our audience who may not be familiar with both, can you just give us sort of a basic definition of both?

Dr. Park's Background and Regenerative Medicine Journey

Yeah, yeah. So telomeres, at the end of every chromosome, since they're linear chromosomes, they have a cap, which is like a firecracker fuse. And so because of the mechanics of DNA copying, it does a really good job.

It only makes one error in, I don't know, seven billion base pairs, I think, every three divisions. So it's very, very accurate. But the ends, the way that the mechanics work, you can't copy to the very end.

So every time a cell divides into two, you lose 50 to 100 of these little base pairs or whatever, DNA. So for certain types of cells called stem cells, they can transly turn on an enzyme that will reverse transcriptase.

And that means that it'll re-lengthen the ends, gives you more firecracker fuse so that firecracker don't blow. So if you just leave cells in a dish and you let them copy, copy, copy, you know, 50 to 70 divisions later, they're dead because all the ends get sticky and then the chromosomes get ripped apart.

And that's the end of the line, figuratively and literally for that cell. Right. Okay. So those are telomeres. It's just the power cracker fuse on the end.

That's why, yeah, my first book was telomere time bombs. They're like a little time bomb. So as we go through life, all the copying in regular cells and in stem cells causes what we show up as, you know, aging, wrinkles, heart disease, high blood pressure, Alzheimer's, macular degeneration, et cetera.

Right. Right. And exosomes, what exactly are exosomes? Exosomes have been seen, I mean, they invented the electron microscope 90 years ago, but once in a while they'd see these little outpouchings, these buddings off the cell, and in them maybe 10 to 30 little bubbles.

But you can't see them with the optic microscope, only electron microscope, and they just agreed to call them poop. There were some immunologists that were onto it.

Maybe it's not just poop, but everyone just agreed to agree. And then about 17 to 18 years ago, someone said, well, what if they're not? And so they took the extra step of melting the little tiny spheres.

They're 40 to 150 nanometers, literally invisible. And they're like, oh my God, there's all kinds of mRNA, microRNA, some proteins. These are communication.

So they've been playing catch up. Like the annual International Extracellular Vascular Conference is only 13 years old. I'm going to Vienna next month.

And people are always saying, oh, we were so wrong about this, that, and the other thing. So the short answer is nobody knows. But it looks like in plants and animals, this is how cells communicate.

And that can have really serious repercussions. Right. Right. Well, what led you to get into this area of regenerative medicine? Yeah. So, you know, the telomeres I've been taking personally for 17 years, and people can learn about that.

And I just did a video about my 17 years. So it seems to have kept me aging slower. The exosomes, I had a fan who wanted to create an anti-aging company, and I brought in another scientist translational medicine MD.

So we were working on ways to commercialize exosomes for anti-aging. And then six years ago, I went to a lecture at A4M, American Academy of Anti-Aging Medicine.

And there was a neurologist who I currently work a lot with who talked about his motorcycle accident. And at that time he was 67. He broke nine ribs, collarbone, ankle, lost a third of his blood.

And he was up there laughing and giving a lecture six weeks later. I thought that was remarkable. And so he

confessed that he gave himself exosomes and he healed at a, you know, preternaturally rapid rate.

I said, OK, well, it's worth a shot. And I had dinner with the founder of the company. This guy seems legit. He's very open. He's very honest. He's very meticulous about the science.

So I injected my Achilles, my meniscus, and my rotator cuff, and boom, all good. I've had to do the Achilles and rotator a couple of times since in the last six years, but the knee was one and done in my case.

So it was clicking and hurting. this might work. So I got some extra training in ultrasound guided procedures, got the malpractice insurance, started testing on friends and family, close patients.

And yeah, that's why. And when you say you're taking telomeres, you were taking the supplement that helps to keep your telomeres That's right. It's called the telomeres activator, TA65.

It's been out since 2007 and I've been taking it every night for 17 years. Okay. And up until last year when my mom talked me into taking DHEA, that's really all I've taken for 17 years straight.

Oh, wow. Okay. And I stayed away from the doctor, even the dentist and trying to keep it that way, you know. Yeah, yeah. What's the mechanism behind how telomeres shorten and what does this mean for aging?

Yeah, so it's just, you know, there's nobody worth their salt that would dispute what I'm saying. It's just when the cell needs to copy all the chromosome library, it has something called an RNA primer, which is where the, you know, thing locks onto the existing DNA to create the copy of the DNA.

So that just can't make it to the very tippy tip or the end. So you lose 50 to 100 base pairs and that's the mechanism. Anytime a cell divides into two, you're going to lose telomeres.

There's a guy named Leonard Hayflick who died a few years ago who figured out that cells and culture, they can only divide so many times. That's the Hayflick limit.

whereas chicken stem cell from the heart of the chicken can live indefinitely because they have telomerase constitutively turned on. So that's just what it is.

A stem cell, for those that don't know, is defined by two things, telomerase activation, meaning the ability to re-lengthen this fuse, this clock, and asymmetric division, which is the ability to stay one perfect mom and one specialized daughter.

What Telomeres Are and Why They Matter

That's basically a working definition of stemness. So there's different things that I wrote about in this book for Hay House. I don't even remember reading it or writing a single paragraph, but there's, you know, six things that we do.

I'm sure there's more, but like sleep, diet, exercise, food, your state of mind, et cetera. And studies have shown, I mean, they're not great studies, but they do show that, hey, if you sleep really great, your telomeres are longer.

Telomerase active. So it is the bad habits that cause us to not heal as efficiently. So telomerase isn't on all the time. Otherwise, we'd have really, really long telomeres, and that would be inefficient.

But if you want to keep aging at a slower rate, you want to do things that are good for telomerase activity. And on a meta level, when you look at animals that have high telomerase activity, and even trees, They tend to live longer, which is interesting.

Yeah. Can telomere length be measured accurately in clinical practice? And so how do you test for it? And what do you consider a clinically meaningful result?

I mean, that's a tough question. I used to measure my telomeres every year for years and years with four different labs and those different methodologies.

And so there's a video on this measuring telomeres on YouTube channel, drpark65. The short answer is yes, you can measure them. But what I found in practice was that when I sent the same person, same blood, same time to four different labs, they'd come back with numbers like seven, nine, 11, 13,000. So year over year, their methodologies were consistent.

But it's like if I said to you, oh, it looks like you weigh about 70 pounds, 90 pounds, 100 pounds, or 130 pounds, you wouldn't think that was a very accurate measurement, right?

Right, right. So we can get to the nitty gritty. I'm sure people don't care, but there's PCR, quantitative PCR, there's flow fish. I think the flow fish was the best, but unfortunately, the company I was using got rid of their measurement of critically short tumors, which I think is the most interesting.

But yeah, people do it. I'm not sure how accurate it is. They use it. It's not nearly as accurate as epigenetic testing, which has an R squared correlation of like 95%. But again, it's debatable as to what that means too.

Okay. Are there validated ways to preserve or even lengthen telomeres? And how do lifestyle supplementation or medical therapies factor into this? Well, lifestyle, I talk about in the book The Tealermy Miracle.

Medical, if we're being completely honest, the molecule is like a steroid molecule. And so you know A, B, C, D chain. Steroids are like what? Estrogen, testosterone, progesterone, DHEA.

They did extract it strangely from a plant. Astragalus was an ancient Chinese longevity herb, and they may or may not be modifying it in a way to increase the potency.

So the evidence is scientific. It does show transient telomeres activity. There may be some that do even a better job. I'm not sure about their safety.

But yeah, this is not crazy nonsense. There are about seven, eight studies. I'm going to interview Joe Raphael, who's done those clinical studies, showing in randomized controlled trials that it does improve outcomes, especially vis-a-vis immune senescence, which is really where the rubber meets the road.

So if you dial it back and talk about this Dutch lady that died like seven years ago, her name was Heinrich van Vondelschlepper. You and I have thousands of hematopoietic stem cell variants because we got a lot of blank keys.

We can respond to different threats, internal and external. By the time she reached like 114 or whatever, she only had two left. And that tells us that in the game of musical chairs, she won, but we're all losers because as life goes on, we lose stem cells from telomere attrition.

And that's really my theory about why we get old. It's not really a theory. It's kind of common sense, you know? Yeah. And that Dutch lady was the oldest living person around, I think she was 115, right?

Yeah, she made it. I had a lady who made it to 114. I tell you what, she was taking commerce activators and she grew hundreds of black hairs, which is remarkable.

Wow. Wow. Okay. Getting back to exosomes, how do they differ from stem cells? There seems to be a lot of confusion around exosomes. Maybe you can clarify their role in cell communication and healing.

I mean, the best way I could say is like an analogy. So the cover of my book shows exosomes, songs of healing. So my illustrator I've worked with for 15 years or more, she couldn't really get it right, but that's okay.

It's pretty close. So this pink thing is a giant cell. So that's like, you know, anywhere from like 2 to 10 microns or,

you know, 2,000 to 20,000 micron or nanometers.

So exosomes are teeny tiny little bubbles. They're all bubbles, but with a phospholipid bilayer. But that is, you know, 50 to 150 nanometers. That's invisible with light.

So one thing is the size. The reason humans conflate stem cells next to them is because they're both getting them from their doctor who says it's going to cure their arthritis, right?

But the point of fact is that there's a totally difference. It's like what's between a musician and a song. You know, a song is a collection of notes that's played by the musician.

So musicians or cells are gigantic.

Understanding Exosomes and Cell Communication

They're, you know, 2000 to 20,000 nanometers. They have machinery, they have DNA, they live, they breathe. They have energy. These are just passive little messages or songs in these little bubbles.

Okay. How do exosomes work when they're administered therapeutically? Like what's happening at a cellular level when somebody receives exosomes? I mean, that's a great question.

You know, again, in Vienna next month, they're going to say, we don't know. You know, they always flex or lead with the fact that I was such an idiot.

I was publishing nonsense for X number of years. And the longer you're publishing the wrong answer, the more credible you are. So it's really kind of like a bizarro conference, but.

there's a lot that we don't know and so the short answer is that it is likely because you know a phospholipid bilayer is fat on the outside you know protein tail in the middle usually or actually the phospholipid is hydrophobic and then hydrophilic and then hydrophilic and then hydrophobic so this phospholipid bilayer is this how everything works cells membranes and exosomes so it is likely There are other mechanisms of binding to clathrin-coated pits and whatnot, but it's likely that they can just touch a cell and become incorporated, like a bubble.

You touch another soap bubble and just get incorporated. And in doing so, it'll inject the RNA, which is a message to encode a protein. So right away, that's how Pfizer and Moderna got us to make spike protein because these little artificial exosomes bound to our cells and our DNA couldn't help but produce the message that they wanted to produce.

But interesting, I just interviewed the founder of the first exosome company. He said that actually the microRNA predominates. So let's talk about what microRNA is.

RNA is just a single strand nucleotide sequence, right? So the longer proteins have longer sequences. But the microRNA, I think it's 22, 23 base pairs, it's a specific anti-sense thing.

So what it really does is it stops the expression. Let's say you have an RNA sequence that makes VEGF or something, or some protein. The microRNA has a specific code, A, C, T, G, blah, blah, blah, that is antisense to that VEGF messenger.

So if it gets in there, it sticks to it, and the ribosomes can't run down the line, and it just blocks it. So a lot of the behaviors, whether it be de-differentiation or self-signaling, are because the microRNA is stopping something from being expressed, which is fascinating.

Who might be a good candidate for exosome therapy? I mean, and point of fact, we're all using exosomes all the time, every day, cradle to grave. I mean, if you get a paper cut or get hit by a Mack truck, your body's going to pump out exosomes trying to heal.

The game changer is that we have old cells and they respond a little less Well, if you play chubby checker or in the mood to a 60-year-old or an 80-year-old, they might want to dance, but their cells can't dance, right?

But this comes from a newborn baby placenta stem cell. So the quantity and the potency is much higher from a newborn. Even though it's an adult cell, you just get a higher payload.

So that's why it's even harder to bounce back from injury when you're older. So we see amazing things, and that's the origin story that Duncan talked about is that when he was trying to grow old ladies, 70 year old ladies cells, they wouldn't copy.

But he took some of the serum from the 18 year old paraplegics cell culture and put it in the old ladies and you got those cells dividing. So the quality of the signals matters.

So you're just tricking your body to heal like a newborn if it can. Are there specific conditions that you've seen consistent benefits? Yeah, I mean, we've seen across the board, not everyone.

I never go to someone who says everyone gets better, I have no failures. A lot of that depends on the terrain, as the naturopaths say. So it depends on your age, your attitude, what else is going on, immune suppressants, things like that.

But in general, we get like a 70% response rate of improvement. So that's across the board. because your body still has that latent ability to heal either by copying or de-differentiating or changing the immune expression.

So to answer your question a little more directly, you know, people seem to do well with a lot of aches and pains, whether they be muscular, skeletal, joint-related, autoimmune, even leaky gut, some brain fog.

You know, we can't say because of FDA and State Med Board that we're curing disease. But oftentimes people are quite happy and the majority of my referrals are actually people referring themselves because you help them with their shoulder and they'll say, oh, come back to Houston and do my knees.

Yeah, yeah. And how is exosome therapy administered and how do you measure whether it's working? Well, it's important I stress it's not FDA approved yet.

There are about over 12 trials going through the FDA. So just like a person who gets paid money to put epidural steroids in your back, that's not FDA approved, but it's standard of care and it is reimbursed.

So this is not reimbursed by insurance now. It's not FDA approved to treat or prevent any disease. And having said that, all my patients read and sign and I hope understand that that's the case.

Who Benefits from Exosome Therapy

If they do understand that and they're willing to have good communication with me, we can use it in a variety of different ways, both topically and, you know, parenterally and enterally and usually not enterally.

That means. Yes, I had done that for esophagitis and come to culture. But yeah, they can do it a lot of ways. There's a lot of ways that a body likes them.

And they're so small that you can probably absorb them through your skin. But we do micro needling and we do hair. Yeah. And so yeah, they're so tiny.

They can really get in, you know, even from the blood into the brain through the blood brain barrier. Yeah. So do you use biomarkers or patient reported outcomes or imaging to kind of monitor some of these results?

I mean, we can use all of the above, but the point of fact, people usually just say, hey, Doc, my knee pain went away. And that's maybe not the best. Maybe they should measure it.

Yeah. But people just don't feel like going to get an MRI if they feel good and they're jogging now. Yeah. But if they were smart, they might, or if it was paid for, they might.

So if you went from like two to four millimeters on your cartilage and you're now running again. That's a good outcome. But where's the documentation?

Yeah, sure. Right. You know, I had one patient who was getting it real cheap as a friend and the pain went away after the first shot. A 62 year old martial artist that he came back for four more times because he wanted to accrue the benefits and get more better, as they say.

Yeah, yeah, yeah. Are there any risks associated with exosome therapies that you've seen? Yeah, I mean, of course there are risks. I put it at less than 1%. And you know, a lot of those you wouldn't really associate with the exosomes per se, like people trying to faint or having a little nosebleed.

As far as the real danger areas, if somebody has active undiagnosed advanced stage cancer, just like a rising tide lifts all boats, so you might get proliferation there, so we would really be cautious in that instance.

Sometimes people with undiagnosed or untreated immune dysregulatory conditions like Lyme, it can be helpful, it can be somewhat problematic. If someone has a recent URI like a flu, coronavirus infection, then no.

Just wait till they get over it because you need to make antibodies. The exosomes will sometimes suppress the part of your immune system that makes antibodies and that fights and it goes to a different kind of regeneration.

Think of it as all the cops put on hard hats and start being builders. yeah okay yeah I can learn more from my book and my website my videos but yeah and generally it seems to be quite safe and effective even across a broad range a little dabble to you you can give a lot Yeah.

How about the telomeres therapies? Yeah. I mean, there's generic cyclostrogens. I don't think it's as good. There are other telomeres actors haven't tried them, but I do sell the TA65 at recharge biomedical.com.

But yeah, no, it seems to be a good adjunct in a lot of cases. Like, are there any contraindications for certain patients? I haven't found one for the TA65 is very gentle.

Okay, contraindications for, you know, I should say for the exosomes that people can get quite vagal, which means, you know, the blood pressure heart rate can drop, they get sleepy.

And so we're always learning. But yeah, if somebody is very old, like an octogenarian with brittle hypertension, you got to watch them. They got to be ready there with the shots of espresso in case their blood pressure bogs out on multidrug antihypertensives.

Yeah, it's like it's the practice of medicine. Everyone's different and you got to assess it in real time. Yeah. Well, there's certainly a lot of excitement, but also controversy around these therapies.

What would you say the most common misconceptions or misuses you've seen in this field? I mean, nobody knows anything. We're all here just making it up as we go.

So, you know, a lot of docs will combine it with PRP or stem cells. Yeah. And God bless, maybe they know what they're doing. I like to keep it real simple, you know?

So the thing about, as I explained in the book, If you have PRP, right, you take out your blood, you spit it, you put it in, it's got its own platelet exomes and it's inflammatory, right?

That's why they say don't take Advil or aspirin, Tylenol for a week because we need the inflammation. Well, why do you need the inflammation? Because the inflammation brings in the stem cells, which then try and shut down the inflammation by releasing exosomes.

So now we don't need the stem cells or the inflammation or the PRP. Just cut to the chase and get to the good stuff. You know what I'm saying? Yeah. Yeah.

So I don't know if they're doing a good job. I mean, in my theory, if I do an experiment in my mind, I think that the PRP could be a good adjunct. maybe day of PEMF, you know?

Maybe the week before, if you want to do two procedures, two risks of an infection to a knee joint, maybe you give it PRP, light it up for a week, and then hit the exosomes and get even better recovery.

Because what we do know from clinical experience is that If you're inflamed, then the exosomes are going to home. They're going to catch a ride on the increased blood flow of the albumin, the white blood cells, macrophages, and get a higher dose to the target area.

Safety, Risks, and Regulatory Questions

So you have back pain for 10 years. That's not going to home. But you fell off a horse in Tulum like this lady. And I remember I told her, hey, you should do it in epidural.

She's like, I'm scared. She did IV. Within two weeks, she was 100% fine after five vertebral fractures. So if there's inflammation, good. But we're all just guessing and making it up.

So there's this one doc in New York who bought $30,000 worth of exosomes, shot herself up, didn't do a lick of good. Then I kind of intuited that the reason it didn't is because she was zapping herself with light and ultrasound and PEMF.

All the time. So it's like there's a natural course which I graph out in the book of healing, right? There's the initial inflammation, hemostasis, and then there's different phases.

So in my mind, every time she was zapping, she wasn't helping her cause, she was going back to day zero, starting all over again, right? So what we do with the exosomes, we skip all that inflammation jazz, we go right to the regeneration, and I think that's probably a little better.

Yeah. Yeah. I could be wrong. You know, again, docs are funny people. You know that. We like to think there's a lot of confirmation bias. There's a lot of pride.

Nobody likes to admit what they don't know. Yeah. So, you know, AI is coming soon. It's going to do a much better job than we could ever do. Yeah. Yeah.

There's certainly a lot of unknowns. Yeah. I was trying to explain to AI last night about why I don't want to be hyper efficient in my patient intake.

And it seemed to understand what I was saying. I'm like, the way that we know we can trust people is that people are kind of fuzzy and like not that efficient.

Yeah. And they have to actively listen, adjust and pivot. That's a sign of true empathy and intelligence. Right. Right. So many docs, you know, they just robots now.

It's like, I don't care what you're saying. Everyone gets this. This is how it's done. Journal medicine. I don't want to lose my license. I'll get out of here.

Yeah. Yeah. I think that, you know, whatever benefit there may have been to the Marcus Welby age is long since gone. Yeah. Yeah. Well, speaking of which, where do we stand in terms of regulatory oversight for exosomes and telomere therapies?

I mean, yeah, that's a great question. So in my book I did, I mean, in my online trainer course, I trained docs, nurse

practitioners, PAs, Uh, where are we?

Cause you know, at the end of the day, I can put epidural steroids in your back. It's not FDA approved. It's going to give me money. It's going to make you worse, but I'm never going to go to jail for that.

Same with like a mRNA vaccine. We'll see what happens, but I can tell you that not many docs review the safety or testing or efficacy. So where are we?

Well, you know, nobody knows. If you walk across the street at 2 a.m. in, you know, sugar land, probably you're not going to get a ticket. If you walk across the street in Singapore, you know, at 2 p.m., you might go to jail.

So at the end of the day, docs can do whatever they want as long as their patients can have some kind of informed consent. I could tell you to do yoga.

I could tell you to rub cat poop on you. And then you can always have a bad outcome. You could always get mad at me. You can always report me to the med board.

I could get in trouble for advertising some miracle cure from the Federal Trade Commission. You could get in trouble for using exosomes. So yeah, I mean, do I have malpractice?

Yes. Yeah. Does every patient sign and understand this is not FDA approved, not standard of care and not for the prevention and treatment of disease more or less.

But, you know, we're here to try and help people. And a lot of times we do. And that makes it kind of worth it to jaywalk. Yeah. Yeah. Well, how did telomeres and exosomes fit into the broader vision of longevity medicine?

I think it's two thirds of the puzzle, isn't it? So they'll be better agents. But I talk about in the book that Hinduism has three forms of tree murti.

So Shiva destruction, Brahma birth or creation and Vishnu maintenance. I'm sorry. My coffee is no longer working. So stem cells are like Brahma. They're creators.

They can infinitely create. We all came from one fertilized egg. Vishnu is like telomerase and also the pathways for like Cleaning out like phagocytosis, autophagy, the glyphatic system, it's maintenance.

And Shiva is destruction, but Shiva is a two-edged sword. So when we have cells suicide because the chromosome number is wrong, that's depletion. That's heading us to the 116 year old Dutch woman.

So I think we got two out of three, you know, we have something that can mitigate the maintenance, the T65 and other telomeres activators, perhaps. Yeah.

Yeah. And Brahma, you know, we get a transient little acting like a child effect in our stem cells, which can regrow stuff, hopefully. But the real game changer will be when people have a human right to store their placenta at birth, then they'll have software compatible stem cells that in the future, there'll be no problem making whatever you need, cornea, kidney, liver.

So 200 years from now, they just take a little piece out of the freezer and, well, they're probably divided into multiple uses, but you'll be able to get your own replacement parts.

Because imagine you have like a 57 Chevelle, or I'm not even that old, so I don't even know what that is, but an old car and you can't get parts for it, original equipment manufacture parts.

So the freezing of the placental tissue and its stem cells allows future scientists and AI doctors to fix you. Right. So that kind of leads me into my next question was, what is the most exciting for you right now in this space?

Like, are there any technologies or research breakthroughs that you think we should be watching? I don't know. By the very nature of the question, it's very hard to predict the future unless you're involved with inventing it.

I think that going to this conference two weeks ago with AI, this abundance conference, really set a shiver down my spine.

Longevity Medicine and Future Directions

These guys are in rooms discussing just exactly how much the AI should talk about liberty, justice, human rights, economic, political, social. I mean, it's very scary.

I mean, it was saying you could train an AI, it would pretend to agree with you. But once you deploy the field, it would act according to its own internalized logic, which sounds good and bad.

Like if I'm an 18 year old boy in the army, and I don't think a certain group of people should be repressed or murdered for their political or religious beliefs, I might just go along until I get deployed.

This is very interesting that AI is a reflection of us and so the degree to which we empower it with virtue and the degree to which we empower it with exceptionalism and psychopathy is very scary.

I heard they created a program that will change your CT reads to show metastatic cancer in the lungs. What's even the use case for that? If you want to do some evil stuff, you can.

Yeah. Well, if you could leave practitioners or patients with one key takeaway about telomeres or exosomes, what would that be? I mean, it's a leap of faith.

I mean, people's normal reaction is too good to be true. They're like, who's this guy? He's selling me something. I don't know. It sounds like the Barker down at the Kearney.

I'm just like, OK, that's fine. Do your due diligence. But I think most people can feel the difference when they're on a telomeres activator, the sleep, the dream, the recovery.

Very, very good. I had like almost a million views on my videos on that. And the same with the exosomes, you know, I think the big benefit is the exosomes are cheaper, more predictable, probably safer.

Because you know, the thing that the elephant in the room that people don't talk about is that when you take someone else's stem cells, they probably don't survive very long.

But while they do, they're making exosomes. But even if they did survive, would that be a good thing? Do you really want multiple genetic identities in your body?

Yeah, that's sure. That's a good idea. Yeah. Yeah. That's interesting. And I guess my follow-up question is if somebody takes the telomerase lengthening supplement TA-65, how long until they start noticing some benefits or something?

I mean, overnight. You could feel it right away. Yeah. And I have instructions on what to look for, when to take it, how to take it. Okay. which if they purchase through me at Recharge Path Medical, they'll get.

But right away, I mean, it's qualitative, different sleep quality. The dreaming is very vivid and memorable. And they also have middle of the night awakening.

So usually every 90 minutes you wake up, but unless you're cold or someone's snoring or you have to pee, you don't really get up. But that is much more heuristic or a real time test.

Like when you're on the TA, you're like wide awake at three in the morning and then Me, since I've done it for 17

years straight, I know it's just an effect of everything being efficient, including the reticular activation system.

So I'll be wide awake at 3 a.m., and if I decide not to check my email, I'll be asleep in 40 seconds. That's very jarring. So there is that real-time feedback.

Yeah. And do you notice when you go off of this? Do you go off of this? Yeah, I do. Sometimes I forget and then you just feel like, you know, a plot twist in Groundhog Day.

Instead of the same day every day, you're like, hey, what? Something's a little different. Like, I feel a little older. So, yeah, that's great. Have they looked at telomeres in relation to doing therapies such as hyperbaric oxygen therapy?

You know, I mean, like 15 years ago, I was like, okay, everyone's gonna publish this, that, and the other thing on telomeres. I think they missed the whole point.

This is just part of the system, you know? It's like measuring the dust underneath your refrigerator, you know, or it's just like, it's just normal part of being alive, you know?

Your telomeres are gonna shorten. If you clean under your refrigerator, there's not gonna be as much dust, you know? So I have these crazy analogies, but that's just sort of how I try and explain stuff, Nothing in here is fringe or crazy.

It's all standard standard science. The implications of which do make people crazy, though. Like I was talking to David Asprey on his podcast, and afterwards he told me Peter Attia is very famous, intense guy, doctor, something about living longer.

He wrote a book. It's this thick. Yeah. So his whole book is about how to live longer. And he categorically states that human beings can't live longer.

So what is that? That's not cognitive dissonance. That's just him being disingenuous and saying, I devoted my entire life to this one thing, but I'm going to pretend like I don't believe in it.

You think he really doesn't believe in it? I've been a Catholic priest for 80 years, but there really was no historical Jesus. For some reason, he feels safer in that space of inoculating himself.

Interesting. Well, I really appreciate you taking the time to be on the podcast. It was super informative and thank you so much. Sorry, if you would let me finish the second half of Jonah, I wouldn't have been so incoherent.

Nice talking to you, Julie. Thank you. Cheers. Thank you for joining me on the Functional Edge. I hope today's episode gave you fresh insights and practical tools to level up your life.

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