Aging Explained: Telomeres, Stem Cells, and Longevity Transcript

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Podcast Introduction and Aging Overview

Hey there, welcome to the Recharged Biomedical Podcast. I'm Dr. Edward Park, and if you're curious about regenerative medicine, you've come to Hi everybody, this is Dr.

Ed Park, the host of Recharge Biomedical Podcast, and today I'd like to take a dive into aging. So, I'm going to improvise this and hopefully it will be intelligible.

Basically, we're going ask what is aging, what causes it, What can we do about it? And hopefully that'll be of interest to you because it's a topic that truly applies to everyone.

So perhaps we can start with the subjective. Subjectively aging is something that many people fear because it involves decrepitude, illness, and ultimately death.

Well, that's a pretty cheery note to start on. Sometimes I ask people in the audience where I'm giving lectures, who wants to live to 120 and nobody puts their hands up because the association between those is so strong.

But if you couple it with who wants to live to 120 and feel like you're 20, then the equation is totally different.

Questioning Aging Theories

Because we all experience through ourselves and our loved ones, through our pets, aging, I think we should take some time to deconstruct it, shall we?

So let's talk about some theories of aging that are not so great. One I will be agnostic on, which is that there is a divine plan to cause aging, we really don't have the information to reference that.

The second, when I got interested in aging was when my dad was sick with brain cancer. So I decided to find out what causes aging. And in all the theories, the T.

L. and Mary St. Tomari's theory, which eventually led to my stem cell theory were the most obvious. The theories I don't think are so robust are in use or lack of use.

So there's this crazy social science theory that says people get old because they don´t remain engaged with their community. That just seems ridiculous on the face of it.

Let's flip it around and ask, well, who doesn't age? There are many invertebrates which do not age. What does that mean? You know, Jules Verne's sub was attacked by a giant squid.

Well, squid, jellyfish, animals that live in the ocean don't have the container. Like, a small goldfish will stay small. You now, bigger gold fish in a koi pond will get big.

And because the oceans is vast, invertebrates have unlimited ability to survive. So that's interesting. Even though all animals and plants share the same telomeres and telomerase, which we'll get into, Mother Nature has turned off the de-differentiation switch or inhibitors in those large marine invertebrates.

So they are immortal. Of course, somebody will come along and eat them for a calamari snack, but nevertheless, there are effectively immortal invertobrate in the ocean.

Let's talk about the bristlecone pine. They have trees that are thousands of years old. These have the tendency to have high telomerase activity. And although plants use a seven base pair telomere, which is like the wicks on a

candle or a fuse, they used to say mechaism to preserve their stem cells.

Spoiler alert, it's all about stem cell when I get to the what is aging part of this. So I saw a wonderful slide by my colleague, Dr. Joe Raphael, who compared cross species telomares activity mammals, birds, et cetera.

Immortal Species and Telomere Basics

And there's a very good correlation with the higher the Tuberose activity, the longer lived the person is. So let's focus on what is aging. When I wrote my first book, I guess it was like 14 years ago, Tillamere Time Bombs, this was based on a theory I had, which is actually not even a thing.

It should be common sense to scientists, but they'll catch up. Which is that the erosion of telomeres, which is a biological truism, every time a chromosome copies, whether it be in a plant, animal, fungus, fungi have like 21, 22 base pair repeating telomeres.

Every time it copies, the RNA primer can't get to the very end, so you lose 50 to 100 base pairs. You do this over and over again, eventually it leads to critical shortening.

And if you critically short on your telomeres, then chromosome mutation takes place. There are wonderful illustrations in these two books of what that looks like.

It looks two trapeze artists. Once the chromosomes are joined as a double chromosome, they can be torn apart anywhere and that's what causes stem cell mutation and usually stem cells death, which is okay because we don't want mutated cells to be replicating.

So therein lies the key to what is aging. Aging is Telomere shortening, aging is therefore chromosome mutation and cell death. Cell death leads to depletion of stem cells, which leads too weak in immunity, organ dysfunction.

Every single disease we know is associated with shorter telomeres. And so, what can we do about that? Shifting to what we can do, Hay House asked me to write the telomere miracle.

In this, I use an analogy of a six-cylinder engine. Your thoughts have been linked to shorter telomares if they're ruminating on stress. Diet and nutrition can enhance or detract.

Exercise, obviously, and then sleep is incredibly important as the cyclical regenerative part of our day. And a couple other things too, which escape me.

Okay. Breath, mind, oh, breath, breathing, diet, sleep, minds, exercise, supplements. So this is currently out of print, I think, but a great resource, something that I probably forgotten most of what I've written in there, but it's all very evergreen and common sense stuff.

You know, don't overstress, sleep well, et cetera. So I attend a lot of conferences, I give lectures internationally. I have given keynote lectures at aging conference in Korea.

We've gone to, uh, invitation in Mexico and all over the country.

Telomere Shortening and Stem Cell Loss

And I hear a lotta theories and you may have heard them too. One is mitochondria. So let's visit mitochondria for a second. Before I even started taking the telomeres activator T65, I wrote a graphic novel and translated to many languages and it was about a scientist who hacks his way out of aging.

And although no one will probably read it, he actually did something that's quite clever. And if you know about mitochondria, you'd know that they have a species-specific signal that talks to the host cell.

So mitochondrion are power plants. They're basically bacteria that were incorporated billions of years ago into eukaryotic cells. So the scientist in my graphic novel, Maximum Lifespan, engineers the cells with mitochondria from a different species so they can't share the cell suicide signal.

So this is all science fiction, but it's actually science fact. What happens when your chromosomes shorten is they become spliced together like two trapeze artists.

And then the counting mechanism says we have, we don't have 23 pairs anymore. We got to die. And how it kills itself is by poking holes in his batteries, these mitochondria and leaking this acid.

So the thing melts like the wicked witch of the West. So the scientist in maximum lifespan engineers one son with too many foreign mitochondria and he ages prematurely.

And then the one where he mixes half and half, it gets it just right and is effectively kind of immortal. Anyway, I don't expect any royalties for somebody who does that, but that's a great biohack to have.

non-human mitochondria that can't communicate with the host cell and therefore cannot cause self-suicide. But everything is a Faustian barber. So let's go up a level and talk about what aging is.

As I mentioned, it's stem cell attrition through this process of mutation and failure to replenish. Well, how do we know this? Because the oldest modern lady, Heinrich Van Andelschlepper, something like that, was 160 and about eight years ago they checked her blood and her only had two clonal variants.

What does that mean? They only have two types of T cells left out of what you and I would have 10,000 different types black keys to attack new challenges.

So she was just the last person with a musical chair to sit in. You know, whether the music runs eight minutes, 10 minutes or, you know a hundred years is a function of the stem cell ecology, which we will get to.

So there was nothing special about her, her lifestyle, or her blues home. It's just, she, was statistically the least person standing, although she barely had literally two white blood cells to rub together.

Lifestyle Factors and the Telomere Miracle

So if we're talking fast forward, fast-forward to the future, if people really didn't care about bombs and drones and things like that, and they want to stay younger for longer, every percent of that is delivered would be frozen and then years from now they would get replacement parts or eventually in parallel scientists are learning how to de-differentiate and control stem cell ecology.

As an aside, this last summer I went to Hong Kong to the international stem cell research and the ability to de-differentiate any cell to a primitive cell and then stepwise differentiate to every type of cell is astonishing.

It's cookbook. They know how to do it. Their playing God. So what does that mean? Practically you can see in my blogs at Recharged by Medical they've cured type 1 diabetes.

That's amazing. But they literally at the booths, you know, when you go to these conferences they have recipes, cookbooks, exactly which chemicals or which sequences or mRNAs which proteins to make a primitively induced pluripotent cell become any stem cell type you need.

So in the future, your grandchildren will freeze their placentas. They'll have replacement parts that are genetically matching, because that's the problem with getting other people's stem cells.

And in parallel, stem-cell scientists will learn how to suddenly surge the amount of whatever kind of stemcell you'll need in a controlled fashion. Because that's what it's all about, control.

When we lack control, let's say in the 90s they did these experiments with embryonic stem cells, those are too primitive. They cause teratomas. In other words, they have too much potential.

But my experience in last seven years with exosomes tells me that certain cells that these are called niches of stem cell, whether they be in your heart, your brain, Muscles, bones, cartilage, they can be coaxed to de-differentiate through these blockers of blocker.

Mitochondria, Cell Death, and Longevity

And without going too deeply into that, I did a little last week. Basically, there is an ecology of stem cells and it's not really understood. Nobody really understands it.

But we know on the face of it that if you give certain Yamanaka factors, you can cause any cell to differentiate. So the question, $23,000 question is, how does this happen?

What are the signals? We don't know, we may never know. Okay. So let's switch a little bit to a three God model. The Hinduism has a tree murti, three forms, Brahma, which is the creator, Vishnu, the maintainer, and Shiva, who is a destroyer.

And then two of my books, I go into that. Why is that important? Well, brahma is stem cell creator. It has multi-potentiality. Maybe not omnipotentiality, but a lot of potential.

So as we lose stem cells, we loose the creators. Yeah. Vishnu is what I've been taking for 18 years. That's TA65 that's been maintaining. And that is why I don't have much black hair.

I do not need reading glasses. This is for astigmatism. Written by telomere and teloromerase expert Ed Park of Orange County, California. So that has been maintaining the telomere length and stem cells, presumably that create clead lens, which is more flexible, not like a hard, stale gummy, but like, a soft gummy.

We age because our telomer is shortened and our stem cell's deplete. But what if we could support both? I've been taking TA65 for 17 years. It's the only supplement I trust to support better mood, better sleep, and exercise recovery.

And at age 57, I don't have any gray hair, TA65 is available now. Go to rechargebiomedical.com slash TA-65 and enter promo code RECHARGE10 to save 10% off.

So what we're talking about is creation, maintenance. It slowed my rate of aging over 18 years. I'm turning 59 in July. And then finally Shiva, which is a double-edged sword, right?

So Shiva is the destroyer. So when a cell has the wrong number of chromosomes and it mutates, it destroys, that's a good thing.

Stem Cell Ecology and Regenerative Medicine

Just like in tarot readings, death is good because it brings rebirth. But over the course of 116 years, Death without rebirth leads to aging, decrepitude, and you could die from a simple common cold, as did Jacqueline with a perfect physique.

So, what am I really saying? This will be standard accepted dogma. Right now, people are still reaching and flailing for ideas and theories like mitochondria and, you know, non-social engagement.

But at the end of the day, it has to do with stem cell attrition from mutation from telomere shortening. So what's different about the mitochondrial or the cells?

in a jellyfish? Well, we don't know. And if we did know, maybe that wouldn't be even that desirable. Because think

about it, if blockers of de-differentiation, we would continue to grow throughout our lives.

It's said that the nose and the ear grow, but can you imagine being eight foot six on your 90th birthday? So there is a design feature, not a flaw, in the fact that cells stop becoming primitive and stop allowing us to grown massively.

Like your magic carp or your little goldfish becoming a giant koi. So that's pretty much what I wanted to say. Aging is basically stem cell attrition caused by telomere erosion.

And if you'd like to understand in very simple terms, as I tried here, pick up telomer time bombs. That's my first book. And one thing I got very wrong about this and even the founder, the guy who named the mesenchymal stem cell says he later made a mistake and recanted.

The stem cells generally do not go that we can tell into the space and become heart muscle ligament tendon. They generally use exosomes to direct that de-differentiation in what stem-cells are in that local niche.

Or they can even perhaps, and I think we need to be open to this, cause non stem cells like worker bees to become queen bees for a short time. So there is a hidden ecology there that people don't really understand.

If you want to understand more about exosomes, which are songs of healing, if you will, pick up this book, also an audiobook, and that will explain it to you.

Everything I've said to is from 20 plus years of experience. This is future dogma right now. It's kind of fringe. People would argue it's, hey, Park, you're too reductionist.

Have you even done a Western block? What bona fides do you have? But I'm basically operating from common sense and available logic.

Three-Force Model of Aging

So if that's something you are more interested in, yeah, You can mitigate with supplements, lifestyle breathing, maybe light therapy, Maybe sound therapy.

It's all helpful. But at the end of the day, the current human system is currently designed to live 80 to 120 years and not much below. But who knows what will happen if we have Thomas activators, we exosomes, and most importantly stem cell banking and advancement in these understanding of microRNA and the blockers of de-differentiation.

And on a final note, I have a friend who's battling cancer and my friend sent me an article about veterinarians in Australia, allegedly taking $4,500 to look at your dog's tumor, analyze which genes are missing and place them back, which is actually quite attainable goal.

And it makes one wonder why scientists currently who have to pay for grad students and pharma who has small molecule devices are not at all interested in this.

Because if we wanted to, we could create multi-reentrant ballistic missiles and circle the moon with four humans. But we can also easily replace the missing genes in pancreatic cancer, for example, and create bespoke cancer treatment.

So I think that all this science seems daunting, but it's actually quite accessible and it behooves you to just understand. If you want to understand, then pick up my books.

And if you wanna learn more, subscribe and like this channel, drpark65.

Future Therapies, Books, and Closing Remarks

And you can engage with me on Substack at DRED Park, Dread Park. And I look forward to answer your questions. You can contact me and set up a consult as well.

So thanks for your attention. I will post a link to one of the very first webinars I did 16 years ago about premature aging. It's like an eight-minute video.

Basically, it will convince you that Premature aging is basically failure of DNA maintenance. And that is a fundamental, fundamental driver of our aging, I believe.

Okay. So judge for yourself, take a look and thanks for your attention. This is Dr. Ed Park from Recharged Biomedical. Have a great one. Thanks for tuning into the Recharge Biomedical Podcast.

If today's episode got you thinking, you'll love my book, Exosomes, Songs of Healing. It's packed with cool analogies, full color illustrations, and all the science you need to understand how exosome are changing the game in aging and regenerative medicine.

You can grab it in paperback, ebook, or audiobook, whatever works for you. Now head over to www.rechargebiomedical.com to check it out. And don't forget to like and subscribe so you never miss another episode.

See you next time.