Introduction and Background

Doctor Stephen Gabriel has a background in microbiology and molecular genetics. He did his residency training at UCLA in emergency medicine. Later, he went on to become a fellow in anti-aging and regenerative medicine.

He looks at aging from the genetic level and has a passion for creating a more youthful and passionate life through science. Welcome, Stephen. I'm really glad to have you here today on the Telomere Summit to talk about, your experience, in your anti-aging practice, and your experience with, telomere biology and working with to 65, you have, training in emergency room medicine, and, but you transitioned over to a certain extent, into anti-aging and regenerative medicine.

What made you do that and sort of what was your journey getting to this point? Yeah. So great question. Thanks.

Why Anti-Aging Medicine

You know, when I was in the emergency department over the last 20 plus years, I really realized as I was taking care of people, that a lot of what was going on in, at least in emergency medicine as a specialty, was just about patching people up so that they could get through to the next day.

But nobody was really working on the core process of fixing the people. Right. And and how to get people healthier, how to get their cells younger so that they didn't have to keep going through relapses.

Whether it's COPD, some sort of infectious complication or whatever other myriad of things, people come in to the emergency department with, and a lot of the diseases related to aging, which we're all familiar with cardiovascular disease, neurodegenerative diseases, things like that.

And I really started thinking, why, as physicians, aren't we looking at how to actually get the cells younger and healthier in a way? How do we get them vital like they were when we were in our 20s at least?

Is there a direction that we can go in? And as I really looked at that, I started becoming more and more passionate about looking at cellular biology, what was going on and thinking about how to actually get people, you know, healing themselves to a certain degree and being able to function and have a life like they did before that everyone really is passionate about.

So that's sort of one end of the spectrum. One is all hell is just breaking loose in the emergency room too. Yeah, way before I, I had a similar experience because I was practicing internal medicine for a while there prior to switching over.

And, yeah, you see that? It's a broken system. Yeah. How would you sort of define the goal of of anti-aging medicine? And what's the philosophy around your, your, your practice and your approach to it?

Yeah. So one thing I think that always comes up, and I love that question because I spent so much time thinking about this like, what are we really trying to do here?

And I really thought about it. And, you know, a lot of people get scared because they'll say, you know, some of my patients have said even some of my my parents have said, yeah, my goal is, you know, I don't want to be 120 years old, right?

I don't want to be 110 years old. That doesn't sound fun to me. And my answer kind of came back to them when I thought about it and I said, look, you'd want to be 120 if you felt and look the way you did have 40, right?

So you have an image in your head. And I don't just mean visual, but just in terms of how you feel, how you look, how you move at 100, let's say. And that doesn't sound so fun to a lot of people.

But so then I thought, so what is it that we really want? It has nothing to do with numbers. It's really all about what is like a young, passionate, vital life.

And I and I came up with, you know, I put a little bit of this on my website is what is it? I actually went down. I live here by the beach. I'm fortunate to live by the beach here in Laguna Beach.

I went down, I just walk on the beach and look at, you know, kind of people at the prime of their life and say, what is their lives about? And I came up with this idea that it is essentially sleep.

And I'll elaborate on these sex, spiritual, social movement and nourishment.

The Six Pillars of Vitality

And when I say when people say this, they say, well, what do you mean sleep? Sleep? I don't, I just mean not just sleeping and the power of sleep, but the ability to turn it off.

If anyone's ever been around a small child, it's 10:00. They close your eyes, you can pick them up by their leg. They're still sleeping. Adults. That doesn't work.

I mean, I think for most of us, we know we get in bed at night and our brain is still turning most of us to taking sleep Aids. You know, you can't seem to just turn it all off when I say sex.

I don't mean just the act. That's what people think. I mean, if you go and look at young people, there's a sexual energy, tension, vitality to this. You know, movement is just.

Do you move fluidly? Do you feel comfortable? Are you the person who jumps in the pool in the puddle, or are you the person who steps over it? Right. So there's kind of there's kind of a different feeling.

And so I set out in my mind and said, hey, this isn't about numbers, this isn't about age. It's not about that. It's if what I'm doing doesn't move you back on those pillars to where you felt good, at least make some progress there, then we're not doing anything right because that's how people feel.

Good. Just go out and observing your own life and take a look at people. And that's really the things that it's about. And so I then took an approach and said, there's trillions of cells in the body.

How do I how can I focus on getting the cells to act more the way they were before, or so they you feel that way, that you can move that way, that you have a little bit of sexual energy, that you are inspired to go to the party and be social and be around people rather than, oh my God, I can't believe we have to go to this thing tonight.

That's all a feeling of our cells and our brain acting the way they did before. I'll say. Right. No, absolutely. I've never heard it broken down into those, those pillars, but they are really, really great ones because you're right, I've had that conversation with patients as well, and they're like, I don't want that 120.

I really think, yeah, they have a misconception of what it is to be healthy and 120 or that they're depressed and just life isn't treating them well. So anybody that is feeling good about life, you know, wants to continue living, how do we help them do that?

So at a, you mentioned sleep, is there a particular approach you take with patients? Is there a, yeah. So sleep. Sleep is a big one. I and it's great you said that we're talking about 65 and actually don't have it on right now, but I wear, or a ring normally to track my sleep.

Yeah. There you go. So, I don't know if you've done this with yourself, but I done with myself and multiple other

people, patients, family. So one thing I include on sleep is if you do to 65 at night, you know, and I actually think two pills works better than one, but I found different things with different patients.

Two pills, two capsules for 500. Capsule. The 500. Yeah. If I do two capsules at night, my REM sleep goes up, usually over two hours. Okay, if I don't do it, it goes.

Let's go ahead and try it yourself. So there's something going on there and an immediate effect with to 65, but seem to have some effect on the pineal.

I combine that with melatonin. If people really have trouble sleeping inducing sleep, I'll throw in Benadryl because I find that it doesn't have any effects on deep sleep or on REM sleep.

You still get good sleep, whereas if you use any of the sleep aids, the pharmaceuticals, if you've ever tried that or alcohol basically wipes out all your good quality sleep so you're unconscious, but no real development is going on there.

So yes, I do. So sleep. I basically hit pretty hard with melatonin to 65. May use some Benadryl. I also don't have it on, but I sell, some melatonin patches that all night long use melatonin in.

And it seems to work pretty well for the people who wake up a lot at night. And for myself, I love it. My numbers get better on my ring. I wish I had the stuff on right now, but, the melatonin right now.

Yeah, I don't want the melatonin right now, but, yeah. So that's essentially where I come in with. Then maybe I may add on some meditation, but a lot of it, the cornerstone of all of it is, you know, cellular aging, all those things I talked about sleep, sex, social, spiritual movement, nourishment, as I put it in there, is the last one.

But all of those things, one of the cornerstones is this genome senescence that's going on inside your cells. So as much as everyone is always trying to do all these supplements and exercise and different things, the bottom line is your body, your body is programed to age.

And if you don't kind of try to interrupt some of that programing, it makes it challenging. That's what I'll say to to hit all those other things. You know, just eating broccoli won't won't reverse a whole lot.

Right. So, with the other ones. So for instance movement you prescribe exercise to your patients. Yeah. So go to go to the jungle gym and start running around like a gym.

Yeah. So, so I kind of, I, I do have an approach that so one is you know it's funny we're on this talk. But really I will say that 65 is a huge cornerstone.

I also do some other there's some other telomere stuff too. I'm also really into analytics, but it could be a different topic. But don't forget to start on Linux in a bit.

But let's let's let's let's focus. So for movement I do combine some supplements. But the key way that I do a lot of the movement is to do very small amounts of simple things that I tie to something else that you're already doing.

So I'll give you a simple one that I started with myself. It's every time I get in the shower I do now, I do 50 push ups before I get into the shower.

Okay, I actually started with 30 and then added two a week. And I'm good with 50 right now because I added some other things, so I tie it in no matter what.

If I'm late, no matter what I'm doing, if I get into the shower or I have this exercise that takes two minutes and it's almost linked up like a brushing my teeth, because it's hard to get into something like movement or exercise.

If you haven't done it before, all of a sudden you're signing up for the gym. I'm going to be there for four days a

week. It doesn't last. So then later on I tied in.

I'm going to do 50 sit ups before I go to bed. So I linked them up with things I know I do every day, and I put those things on the patients. Then I tie in some stretching, but everything's tied into a daily thing.

And then if the person wants to move on from there, they can. But at least you get something in, because doing something is infinitely better than doing nothing.

No question. It's consistency is very important as well. Do you have you have, do you end it with a cold shower? A Wim Hof? Yeah. There you go. That's interesting.

You said so, I do, and this.

Sleep, Movement, and Cold Therapy

Me personally, I do, do. At the end of my shower, I blast it with cold for about a minute. But that's, you know, I don't put that on everyone. It's certainly not pleasant, but, you know, it's a great eye opener that really kind of wakes you up, get you get you going?

Yeah. Do you do that too? Yeah, I do, I do, I mean, in the winter time, sometimes I don't do it as much, but I try to do cold therapy as, as frequently as I can.

But you're right, it sometimes you just. You don't feel like it. Yeah. The, so in terms of, your use of tumor biology in your practice, do you do any tumor testing?

Have you done you and yourself. So I have done it on myself and, and I was pretty heavy to 65 year. And, I did have an increase in telomere length, but I personally now have stopped doing testing on patients.

And the primary reason is that I'm going to do telomere. What I what we know is telomere therapy no matter what. So like one it's relatively expensive.

And so for my patients I say look I've done this on a few people. I've done it on my cell. I have the data, let's say with 65 I have data with analytics, I have, you know, whatever influence, let's say a milk thistle may have and or omega may have or whatever anti-inflammatories may have on your DNA.

I know all those things are good. So wherever your numbers are, you need them. You need these things. So let's just focus and look at how are you feeling with the six pillars.

And let's move forward. And those types of places. Because ultimately it's not as relevant the number as are we moving along. You need this therapy I know you do.

Even if let's say you're a patient who has CMV, who loses telomeres at a faster rate. Okay, I know you need to 65, okay. Even if your tumor is a little bit shorter next year, I still know you need to 65.

So what am I changing in terms of therapy based on those numbers. So that's kind of where I've gotten with that. Oh okay. And and you said, so we talked about the sleep pillar, the movement pillar, the spiritual pillar.

I mean, interesting that all these things, various aspects of them had been shown in, in studies to correlate with slower telomere attrition and longer term.

In terms of the spirituality part, as you're talking about meditation there or interacting with other people, that that's the social side. Yeah. So, so, so in terms of the spiritual side, the big thing I say there is kind of seeing the world outside of yourself.

There's another thing young people do this great, even if this is not church now, if it's church for you, that's great.

So whatever spiritual aspect works for you, there should be some component of it.

That means could be meditation, could be a long walk on the beach at night, some introspective moment. It could be church on Sundays. It's funny you said Wim Hof, my spiritual time a lot of times doing a Wim Hof, breathing.

Because I think it's very spiritual. But whatever kind of shuts off the world lets you kind of see a bigger place, I think is bring some spiritual perspective.

Any any one that sounds good to you. I'm not here to dictate what let you see. So I, I for the most part, when I talk to patients, when I talk to people about this, say, here's a smorgasbord of things that would work.

You know, telling someone to sit down and meditate is sometimes frustrating for some people. So and I don't think that's what you have to do. I can tell people, hey, get out in the woods, go on a trail for 30 minutes, take a walk on the beach.

If you really like to do something, do the Wim Hof. It's great. So, you know, all these things are good. And in terms of, nourishment, I mean, yes, just eating broccoli is not going to cut it.

Any other, any other approach, is there? Do you have any other testing that you do? I mean, I know a lot of people test for. Yeah, I have a background in microbiology and like genetics, you do much with the microbiome.

Yeah. So I don't do the microbiome I do, you know, look at cardiovascular markers, crp, you know, all the small inflammatory particles, LDL, those sorts of things.

That's kind of the main areas, that I hit there. I will say that in terms of nourishment, I do believe in not long term, but brief periods of keto to get people started, because I think that momentum, you know, when people see results and get some momentum, they tend to go farther, because you just see something happening.

So I do like keto for that. I do like staying away from animal if you can, intermittent fasting, if people are open to that. I use prolonged quarterly, you know, or if you can just I don't know if you know that. Sure.

So I'll use prolonged quarterly, but some people will just say, hey, I can do the five day fast. And I say, you know, have at it. Yeah. I mean, absolutely.

And you don't need protein if you can do the five day fast. Yeah, you can do the five day fasting. You should just do it. If you done a five day fast or only through a prolonged no, I've done a five day fast.

So what I find with that is three days. The first three days are brutal. The last two are pretty easy. As a matter of fact, when I'm on the fifth day, I'm always thinking I could go five more.

You know, it seems to. But dang, that first and second day there, you know, you it has to be someone who can. But I say almost take a couple days off, because if you have the stress of work, I think it's pretty tough.

Yeah. I mean, it is a little tough to do. I mean, I mean, I have done fast in the office seeing patients. But I don't have an emergency room type of practice, so.

Yeah, but, but I think you're right. In some ways, sometimes being in the office is a little easier because, you know, thinking about food. If you're thinking about getting your work done.

So, that's, do you have you done any DNA methylation testing, too? Because I know that that that absolutely helps with, autophagy and, you know, which is sort of a major goal with, fasting, particularly longer term fasting.

Yes. And that is, that has been shown to improve DNA methylation ages, in patients. Yeah. So I don't do, methylation testing. I mean, I know the benefits of the fasting and it's kind of like what was what I'm saying about the telomeres. Yeah. Okay, I know this.

Telomere Testing and Practical Use

I know this is good for you. It absolutely, absolutely is. And that that is true. And, social connection. Yeah. So social connection. I believe that once somebody I find does, let's say a fast gets on to 65, improves the quality of their sleep, people tend to have more energy to want to be social.

So this is like a tough thing to just say, hey, just get out. I mean, social I think as people's body looks better, their energy levels rise, right? All these things happen together.

You start to feel more comfortable, more like yourself and more proud, and you feel kind of yourself again. And as you feel yourself again, people tend to all of a sudden say to me, hey, you know, I went out to dinner with the neighbor a couple the other day, and, you know, I was feeling great.

Yeah, the outfit fit me, I look good. My my hair looks a little bit better. I, I got, you know, I was giggling a little bit more. Usually you start to feel yourself more and I tend to feel, you know, I don't like to say, oh I focus on weight, but as you do all these things, as you improve your sleep, right?

Thyroid function becomes better, hormone function becomes better, weight comes off. You're doing a little bit of movement, especially at the beginning.

You know, just do something. A little bit of momentum tends to feed to the next thing and the next thing. That's why I personally never really push like, oh, you got to get to the gym for 40 minutes a week or some.

I'll start with, hey, all we're going to do is how many pushups can you do? You can do ten. You can do ten push ups before you get into the shower. And a matter of fact, next week you're going to 12.

And that's all we're doing, nothing else. And then the people tend to move from there. How's your sleep and put you on to in some melatonin. How are you feeling inside the morning with that?

Okay. Let's just add on a Wim Hof. Let's just do that okay. Now the person starts to say, you know, I didn't feel like having dessert and oh my God, I lost 3 pounds and my pants feel better.

And that made me want to be intimate with my wife last night. So you know all this, you know, I talk about it. All of it. So a lot of it, I think is understanding wants and then movement forward from there.

Yeah. So it's a yes. Great conversation you have with patients to work within their parameters and then have them graduate to, to sort of improving themselves.

So are we missing a pillar? Let's see. Food, social sleep, spiritual and that was do you say sex exercise. Right. So we I think we covered most of them.

You mentioned that you like to use analytics. Tell me about your experience with that. And what are your sort of favorite, satellite substances. Yeah.

So that that's, you know, powerful to, as you know, because as much as we're working on telomeres and keeping the telomeres long, and we're trying to keep the telomeres for as long as we can for as long as we can.

Right. But as telomeres get shorter, as we know, the cells can go into kind of three different phases. You can become like the zombie cell and go crazy and wreak havoc everywhere you can apoptosis and die, which is kind of nice.

You can just become senescent and sleep and take up some space. And we're trying to say, hey, so there was all this work before on telomeres, but telomeres will get shorter.

And when telomeres do get shorter, as much as we're working on them, how are we handling those cells. Right. So

you know there's lots of different ones they work on.

You know if you look at a lot of the pathways, you know nerve two related related. Some, you know, potential rapid logs. You know, if we go down that avenue, which I'll leave for a different day.

But I really like I generally start people with like quercetin, quercetin and zinc. You know, I like berberine. I'll sometimes throw in, like, Jenna Stein or visiting in, for people as well.

If I really think that they're older, they've had problems with other chronic diseases. I look at people's tolerance of how many supplements can you take kind of thing.

You know, I, you know, what's my biggest bang for the buck? I won't take more than three. Then here you go. Maybe I'll get you on an omega. Get you on to 65 or maybe three on a berberine or a nicotinamide riverside, or something of that nature.

Nutrition, Fasting, and Methylation

But for the most part, is somebody, like, really passionate about it. I'm going to have you on what I think saves your telomeres, which might be like a, you know, to 65 is always my start.

I always say that's the cornerstone thing that you should be taking of, you know, to 65 then I may avion milk thistle the OG man. I may then have you with alpha lipoic acid is, you know, some support there.

Then let's tie in some analytics. Let's get you on some quercetin, maybe some berberine, some visitin. Kind of hit a few different areas. There and let's go and do all the lifestyle things that I'm talking about.

And that's, you know, the I'll go and what, what doses you typically use with quercetin and visiting. You know what I've got to go look at, my bottles for that, because although I wrote them at the beginning when I picked the products that I recommend now I'm just like, hey, this is the. This is right.

I take two and I can't remember the number that's on there, just like I don't remember the number that's on the 65 bottle. At the beginning I knew all that, but off the top of my head, I can't tell you the exact numbers.

And you don't, some people with subtle lyrics sort of pulse them or do cycles of them. I mean, particularly with rabbit logs, there's, you know, obviously side effect concerns with. Yes.

And, and immune suppression, you know, with something like physician or certainly quercetin, which is a sort of a milder physician. There's there's, probably not any problem with, continuing it.

You know, some people say we'll do it for a while and then let it go. You don't have a protocol like that. I don't even like that. I say you just do it every day.

Because I actually think when I look at the literature for some of this stuff that it's not 100% clear. I know that they're good. The stuff, the stuff, especially all this stuff that's from nature.

You know, I feel very comfortable with. I always say that it's funny because when someone's taking like an omega three, they'll say, oh, can I take too much?

And I say, no one ever asked me if they can eat too many French fries or have, you know, too much ice cream, or how many gummy bears they can have. For some reason we're not worried about that.

But if I take two omega threes, am I going to get sick? You know, it's like I you know, I just try to put it all in perspective. The stuff that really comes from nature, your body is really designed to handle. And the amounts inside those pills are not some massive doses if you look at it relative in terms of food.

So I'm not too worried about it. Right, right. I am worried about when I put somebody on, you know, a rapamycin or metformin. You know, I'm not going to tell that guy, hey, take 2000mg, 3000mg of metformin because this stuff is all more synthetic.

So we have to go with the data when stuff actually comes out of nature and is organic, you know, like what's in to 65? We don't we don't just don't have to worry as much.

So do you do other forms of, anti-aging for, for for medicine such as hormone optimization, hormone replacement therapy, testosterone or any of that stuff.

Yeah. So actually 65 with that. Yeah. So, so I like to see where people will get just doing some basic beginning stuff because a lot of times we just start, hey, you're exercising a little bit, losing a little weight.

Do you know week of pro on get on to 65 and we look in a month, usually just making yourself healthier. It's like, what? What can your body do if we, you know, unleash some of the bad stuff that's slowing you down, then from that spot, let's say it's somebody with hormones.

You know, the guy's still saying, hey, I'm worried or whatever. And you look, then I will generally I'll go with like an HCG, like that in that context.

So yeah, you try to go at the higher levels to sort of fix the problem. Yeah. Yeah. I like to try to induce your body to make stuff rather than supplement with exogenous.

I just, I think it's better for your glands, internal controls to handle some of this stuff. That's the approach I take. So it's a stepped approach working at the lifestyle.

Yes. Diet and then supplements as needed. And pharmaceuticals. Any other pharmaceutical other biologics that you employ in your in your practice. You know, I like metformin is probably one of my more more top of my list in terms of use.

If I was going to say, in general, I try to stay away with a lot of people from a lot of, you know, synthetic drugs, but yeah, pharmaceuticals. But, metformin, I do think the benefits outweigh the risks.

There's so much there. And and sometimes a car is for people, there's so much data on insulin spikes are bad, right? I have I have this joke that I tell people and I say that and everyone kind of like what I say.

Food is bad for you. What? What do you talk about? They're telling you food is bad for you. You need food, but food is bad for you. And it's kind of like I say, like with the car.

Yes, the car won't run with gas, but running the car is when it ages the car. Well, so. All right, so same thing. We need food because we need to run this machine, right?

Because ultimately all you're doing is oxidizing glucose. That's how the old machine runs. So you do need to put something in there. But that stuff you put in there is what ages you.

So I'm not saying you can't eat because you have to eat or run the car, but big picture food's bad for you. So yeah, I mean, we are certainly an overfed society, that's for sure.

Social Connection and Patient Momentum

We're like the have lived in rat rats and mice in the caloric restriction, studies and the ones that are actually, you know, doing what you do in nature, which is going periods without being able to eat much.

And, you know, I think, you know, humans were optimized to, to really be in that fasted state for relatively long periods of time. That's why we store fat.

So you taking that stored fat and burning it and then, you know, not keeping it at a level of, enough stored fat for a year, which is. Yeah. Yeah, which has a lot of adverse, consequences.

So, yeah, I've never heard it kind of put that way. Food is bad for you, but I think you're, you know, certainly instant spikes are bad for you for the most part, unless you're trying to show amino acids into your muscle when you're a bodybuilder.

But, yeah, you could actually, if you had a couple of pearls here about with regard to things to say to patients, particularly like the one where you said, nobody ever said ask me if it's too bad to have too many French fries, then that.

Yeah, go to supplements. So, tell me any other sort of things that you do in your practice that, that our listeners might find interesting, that, that help you manage your patients, and any other sort of marquee supplements that you like to use.

Yeah. So other marquee supplements, you know, I personally, and, I have my own. I like I do look at, I do like nad stuff. So you know, it's really popular right now.

Nicotinamide riverside. Right. This is by the, kind of Sinclair and Elysium and that type of group. I actually like changing the ratio of NAD to nad with accel acetate.

I think it might be more important than total NAD pools. So I use that. I actually have an salo acetate product. I do have a few patches that, you know, slowly, you know, you can get antioxidants or you can get things like curcumin and, you know, resveratrol and things like that.

I think that there's some benefits there, kind of. Yeah. So kind of yeah, it kind of slow absorption into the skin, small amounts through the day. It's tough to say.

I mean, there's no doubt things like resveratrol are hugely beneficial. The question is can you actually get it into your cells. Right. I mean, there's no doubt that if we paint resveratrol in cells in a petri dish, it works.

The question is, hey, when I, you know, swallow some resveratrol, does it go anywhere that matters? And that's the problem with a lot of supplements. Right.

So that's why I sometimes I like transdermal stuff. Almost all that stuff ends up inside your body. I have some interest there. I do like anything that seems to slow telomere.

Shortening. So, you know, people die. Okay. Can we activate telomerase, which is what we're all about, age 65. And why? I think that one's so important.

But, you know, people need to understand that slowing shortening can be just as powerful as activating telomerase and lengthening, right? I mean, you get to do both. Yeah.

Yeah. You want. Yeah. I mean, if I never shorten I don't even need to 65. Right. But we all do shorten. So we do need it. I do think that there's also some importance with, you know, the effect of chronic infections in our body.

There's kind of another phraseology that I use that, essentially what's aging us is, inflammation, oxidation, glycation on top of chronic infections, toxins, poor diet, poor diet, poor sleep, lack of exercise.

And so I do like to say for like chronic infections that I have tried with some people. And here's another pharmaceutical like saying, hey, you should be on daily Valtrex.

I think people are, you know, there's lots of different it seems to mostly work on herpes viruses, right? But possibly some effects on some other viruses.

And you probably are having some low viral load of things much more frequently than you think. So I think that's interesting. Well, I mean, just sticking with the Valtrex, I mean, I that is something that I employ in my practice as well.

Analytics, Supplements, and Hormone Support

Particularly people who have carry a fairly, heavy burden of herpes viruses, you know, one through six, particularly CMV, you mentioned, which is, which is heavy.

You know, Valtrex is not going to have an effect on CMV, but there is good data. They have some. It may. Yeah. I mean, yeah. No, but I like the ones that are used typically that are more toxic, like encyclopedias and fast cars. Yeah.

But the way it has, I think a potential beneficial effect is by keeping your immune system from being too busy with the other herpes viruses. So you get say and then there is an emerging set of data showing that, you know, herpes virus one is perhaps, a major player in Alzheimer's disease risk.

So if you can keep those from coming out regularly, then, I think overall you're probably doing a good, a good, a beneficial thing for the patient, from the telomere length standpoint and then potentially from an inflammation standpoint.

So it's interesting that you mentioned that. I haven't seen any I've seen observational data where they they've seen that people that get treated for outbreaks frequently have a lower incidence of Alzheimer's versus those who don't.

But I haven't seen sort of long term, you know, any kind of controlled trial, of course, where you're looking at giving antivirals such as, you know, yeah.

For how long do you when people have CMV, do you treat like if you just do a test and then. Yeah, I mean, I check everybody for CMV, because, well, it is relatively ubiquitous.

It's about 60% in the US up with age. There are quite a few people who are not seeing the parts of myself. Luckily, I'm in that category, trying to stay that way.

But, so, I will treat not CMV because the drugs directly or to to talk, but if they have particular they have high titers of CMV, which means there's more shedding, more reactive taking place.

And they have other herpes viruses, which almost everybody does have, you know, if not, if not one, you know, or two, they have most people have three chickenpox and many people have four sheebah.

Http six is quite common as well. So to keep that burden down, and I have seen titers get less with that approach. And I don't think there's any sort of long term adverse effect from a so I do.

But you know, I wish there were better drugs for CMV because it's a it's a big bad actor. Yeah. So you just use the Valtrex. Yeah. So I also will throw in, like, full Vic acid, because there's a lot of stuff with that about affecting viral binding to the receptors on the outside of the cell.

Oh, I'm not familiar with that. Do you have any idea what, phobic acid is? Yeah, it comes like, from, like, soil. And if you just take it, take a look at it.

Humic and phobic acid. Are you talking about the stuff that, Zach Bush uses? I don't know, Zach Bush. I just, you know, I just look at literature and then when I find the stuff that looks like it will support it, I'm like, okay, is anyone making this, right.

Can I get some? And then I'll use it. So I use that to I think that chronic infections, definitely, you know, plays a role. There's no question about that.

Yeah. Chronic infections are load either viral or, you know, bad players in the microbiome, or, you know, intracellular pathogens like Lyme and the other.

Yeah. Because it's etc.. Certainly I think increase inflammation and cause the immune system be working and keeping short. Yeah. So that's a cell burden.

So yeah, I think that medicine needs to be more proactive about that. And looking at sort of it's good to get exposed when you're younger. So you get your immune system can develop some tolerance.

But later in life, which we weren't really evolved to be alive under, that chronic burden, I think really, maybe one of the reasons that we see, differential, response to Covid infection, even in younger people, they may have a heavier burden of, yes, infections.

They may have more senescent cells, shorter telomeres and the storm. So I think definitely that's something that I do in my practice as well. Well very interesting.

So any, any, kind of anecdotes in terms of patients, besides, the REM thing, which I'm going to definitely look and see, I haven't been taking to 65 a night.

The company is agnostic about when you should take it. Some people find it a little bit activating at night, but that's a small proportion of them. Yeah.

So it be interesting to see if, I know what I see. You get almost everyone I know who has an oral ring. I put mine on. He's gotten some benefit. Yeah. It's interesting.

I will start hitting two and a half to three hours of Ram if I take, like, three of them. It's pretty interesting. It start, but it starts stealing from my d I just stealing from idem.

All right, so it's interesting. Yeah. So you want both. You definitely want the D. For sure. Yeah. It may be because it's a little activity potentially.

It's hard to say. I mean, mostly it's 65 is fairly inert.

Chronic Infections and Closing Thoughts

Have other in other systems it really it's, you know, we think the d repressing the repressor, the promoter for, for, for telomerase. But there may, you know, there certainly are these canonical, non-canonical off target mitochondrial effects, and antioxidant stress effects.

So who knows? I have a fair amount of data. My patients have some of them. Try taking a night. That would. That's a really interesting thing to give a trial.

Yeah. So, really, it's been great talking to you. And do you have any closing thoughts, about where are you going next with things? And, do you want to.

Yeah. So I so for telomere biology, I believe really at the end of the day that it's our genome senescence or aging of the DNA that is ultimately aging us or all the theories.

And I don't want to say any of them are bad. There's no doubt we're oxidizing over time. All those things are true. But the real thing pushing you down the rabbit hole is that our DNA is designed to age the cells.

And people ask, well, why would that be there? And it is, I believe, for evolutionary purposes, it's based on how long should people be around with changing environments so that we can pick up, you know, different methylation patterns and different things and some evolution of our species to keep the species alive.

So if we're going to focus on this, it really has to be at the DNA level. I think that a lot of this stuff, I think there's no doubt that the cornerstone of this is really all about keeping the telomeres long.

I think there's lots of data to, to show that. I think that this combined with, you know, some of the cool stuff it's coming off about affecting mTOR and, and you know, how we're going to do that, you know, all combines with this and also how we keep our insulin spikes low.

There's the the clearest body of evidence really surrounds I would say, those three things. And hitting those three things early and effectively, is obviously the most powerful thing we can do in terms of us hitting what is, I would say, you know, having a younger, more vital, energetic light and forget about the number.

Just forget about the number, right. The goals should be about, you know, and I'm going to put it because this is my part. Those six pillars are you moving towards.

Those are those staying vital in your life. And if you're doing things that are doing that, I think things will be pretty good. We'll end with on that very, positive.

Interesting note. Thank you very much for being on Stephen. All right. Thank you so much. It was great talking with you.