Telomere Biology And It's Application To Environmental Toxins And Chronic Inflammatory Disorders Transcript

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Introduction and Guest Background

Hello. This is Doctor Josef. Rafael, the host of the Telomere Summit. And I'm happy to have on the show today for this episode. Doctor Gordon Crosier, welcome to the show. Doctor crosier.

Thank you very much. It's great to be here. I'm going to tell you a little bit about Doctor Crosier. Quite an accomplished physician. He is an in-demand speaker and lecturer and bestselling author.

He's recognized as a leader in both the research and application of integrative medicine, and a pioneer in the field of genetics based medicine. After graduating from Des Moines University and College of Osteopathic Medicine and Surgery in 1994 with a degree with a Doctor of Osteopathy, he completed his internship and residency in obstetrics and gynecology at the Michigan State University Garden City Hospital campus.

Doctor crosier went on from there to practice in the area of hormone replacement and women's health. A board certified physician in the state of Florida.

Doctor crosier is the medical director of Crosier Clinic in Orlando, where he is also a practicing physician. Doctor crosier founded Crosier Clinic in 2014, and the business quickly became one of the fastest of its kind in the US.

Doctor cruiser combines his life experience with his formal education to help patients from around the world. In addition to seeing patients at his private practice in Orlando, Florida, he accepts patients remotely and travels around the world giving lectures on the power of natural treatments and genetic based medicine and integrative medicine.

He's appeared and been featured on multiple national television and radio programs, and Doctor Crosier holds fellowships in anti-aging, regenerative medicine, and stem cell therapies.

He's also embarked upon a PhD in toxicology and submitted his thesis. So he's been a very busy man, and I'm looking very forward, looking forward very much to picking your brain about some of these areas.

Thank you. Yeah. It's great. It's awesome to be here. So I, I know that we have certain areas of overlap in our practice, but there's, quite a few that, I don't, have much knowledge about, so I'm really looking forward to hearing about some of that.

But to start, why don't we talk a little bit about how you got introduced to telomere biology and, and how you utilize it? In optimizing telomere length?

In your practice? Well, I originally got into, telomere telomere medicine through my anti-aging portion of my practice because I had to take some of the pressure off from all the chronically ill people that I see all the time, because that has a lot of stress.

And it really, really does a lot to that individual position. So what happened was I got into the anti-aging aspects, and I kind of began to realize about telomeres and the aging process.

After that, I realized, no, everybody needs this because it really does. It's so multifaceted in the things that it controls. And, you know, people are always trying to optimize their, human microbiome.

Well, you know what it comes about that actually, telomeres actually plays a role in your human microbiome process. So actually what comes first? You need the proper human microbiome or you need the telomeres.

Well it comments about that. Actually telomeres actually help control the human microbiome by eliminating the bad, the Sibo or a small intestinal bacterial overgrowth, the bad bacteria that are overgrowing.

And it allows the good bacteria to continue to grow. So you know what it does. And I and I've been involved with genes for a long time and genetic expression and you know, people don't understand that genetic expression.

But the telomeres because of where they are, the end caps, this chromosomes that actually is going to have a larger effect. On on your expression for your genes.

And so because of those multifaceted things, I began to realize it's for everyone, for everyone. So that's why I really got, so much into it. And, began to study more and began to give more applications.

How Telomere Biology Enters Clinical Practice

And I began to see changes, in the patient population and how well they actually did with this product. That's. Yeah, that's really interesting. I see that in my practice as well.

Do you have any specific instances where you've seen, changes when someone is, what do you use to, to get started on optimizing telomeres? And do you do telomere length measurements in your practice?

Yes, yes we do. We do do telomere, length analysis. But we also, I also look very because they have a lot of people with immune problems and immune deficiency.

So I always look at their T cells, I work their CD4, CD8 cells, I look at I look at that, aspect to see really kind of how they're responding, to, to their supplementation, in lengthening their telomeres because I begin to see that they're, they're even just their plain white blood cells most of my people have below, the normal range, even the normal range of what we consider not just below five, because below five, there's lots of studies say that there's probably, incidences of toxins affecting your white blood cells pushing it down.

Well, when you begin to, give things that are going to optimize your telomeres, you begin to see the white blood cell come out, to a normal range. Then you look at your CD eight CD, CD for CD eight, those different cells, and you begin to see that the, the T cells are optimized to be able to have a good immune system.

When they begin to have that, you begin to see. And the other thing I do test is a lot of toxins, a lot of toxicology. And so I begin to see that as they are optimized, their environmental toxins, that toxicology report becomes more normalized.

So it's it's multifaceted. You know, not everything works. Everything kind of works together in our human body. And you have to really optimize in multiple ways.

Our human bodies, to begin to, control, different things. So we know that, that your telomeres really affect your, your genetics. So, you know, back in 1999, the first article said telomere length had nothing to do with optimizing your genetic expression.

Well, then in 2014 came out with an article that stated differently in 2016. Another article recently well, not real recently, but 2018, they came out with another article.

And that article actually, really said and, you know, I can quote it right here, it says we recently described a phenomenon where genes are regulated or regulated by the telomere length.

They are dependent on telomere loop dependance. So we know that the length of the telomeres are actually controlling our genes. So genes mostly are in a turned off state.

We don't want them to be turned on because you can turn on genes associated with diabetes, genes associated with chronic illnesses, Ottawa immune diseases.

And I have a lot of those in my practice. But also genes affecting your inflammatory response. So telomere length actually helps control your inflammatory response to things.

And that's what I see a lot in my, my, my practice because I see people with really high crp, people who with high homocysteine as people with high tiff beta ones, MMP nines, all these high inflammatory markers in their body.

And you can actually see that, the interleukin aspects become more controlled so that that pro-inflammatory markers come down and they have, a better, better status and a better homeostasis so that they can actually become, better people.

I'm not saying that we can cure anybody, but they can live a better life, even with their autoimmune disease, when they're optimized correctly. Yeah. I mean, that is that is something that, is been well described.

I think a lot of people when I myself, when I first got introduced to or reintroduced, I guess, to, to younger biology, in the early 2000, you know, we learned about it in medical school, but then we didn't really think much about it, because there was no way to measure it.

And there was no, you know, no therapies for it. And then, of course, there was this explosion of, of information and publications about it. But people think that tumors are only important to the extent that there are a molecular clock for telling, you know, how many times a cell phone divide before it becomes senescent.

But there is that whole phenomenon that was, you know, as you said, more recently described, called the telomere position effect, where the degree to which it loops back, onto the sub telomere region can control genes up to, you know, ten, ten, megabase pairs away from, from the, from the end of the chromosome.

So if you just get a slight shortening, that's going to change gene expression. It doesn't have to be down to critically, a low level. And I think, you know, other other people like Michael Fossil, who has written a lot about, t on your biology, is talked about the fact that you want to maintain sort of optimal telomere length for you, which is sort of what you were when you were 25 or something like that, for your gene expression to say stay the same.

So you brought up, the CD4 to CD8 ratio. Do you see that it's inverted or less than one. And in your, your patients that come in, and then you see it shifting back into the more youthful or healthy range after therapy?

Yes, I do, and, and it's amazing because a lot of my patients, you know, if you're, if you look at a serious patient, chronic inflammatory response syndrome, people that are sick with, mild illness or sick with Lyme or whatever, you look at those factors and you notice that they are, they're, they're in a that are critical.

And, as you begin to lengthen their telomeres, you can see that reverse to a youthful age and suddenly they're not getting sick all the time. Suddenly they're they're better.

They're well, and I, I don't know, but I'm, I'm kind of starting to look into, more of a psychological influence of telomeres as well because of, they, they become, more alert.

They, they feel, well, they have a better outlook on life.

Immune Markers, Inflammation, and Telomere Optimization

And, and I know a lot of it's because your immune system does drive a lot of these things. So when your immune system is suppressed, you you're sick all the time.

You don't feel well. But, when they begin to feel well, they have a better outlook on life. And, and that has some psychological influence. Because we're one entire person, our psychological influences affects our health and our health.

It affects our psychological influences. So and that's what some of my papers recently have been on, on how,

they're interrelated and how they work together.

But I'm kind of interested in, in, in the aspects of psychological diseases and the telomeres. So that's another aspect that I'm kind of moving into and researching more and, and I think that we need to have more research science in that basis as well, because I really believe it's an important aspect.

Yeah, I agree with that. There is there is a, a, a growing body of evidence, Melissa Appel, who has worked with, you know, Elizabeth Blackburn has published a series of studies showing that there is a faster attrition of telomeres with chronic stress.

I'm not sure that I'm aware that they published anything. Looking at what happens when you have stress reduction, but one would think that, potentially you can get, at least a slowing of the attrition, if not, some, some potentially some, some lengthening.

You know, cortisol, which is sort of the stress hormone, chronic elevations of it is a known telomerase inhibitor. And telomerase is the of course, the enzyme that makes telomeres longer, that's suppressed at birth.

In your work, have you seen in some of the papers that you've been working on seen, changes, directly? I mean, do you directly measuring toxins versus, and, T cells or as I mentioned earlier, any telomere length measurements?

Yeah. So, I probably have I have quite a few patients now that I've actually been, comparing, their, toxicology report, their environmental toxins, along with their, T cell functioning and, comparing it, against their telomere length.

So, it's kind of something, I always like, you know what? I like science to back up what I'm doing. Because if somebody is going to come at me, I can actually prove the science there.

So I like science to back me up on what's happening. And, what what I'm seeing is that, as their T cell functioning becomes correct and corrects, actually, their environmental toxins, come down.

And I think part of that is, is as your immune system functions normally, and as your T cells come up, we know that the T cells are going to expect, you know, affect, the inflammatory, genetics, of our body.

So then you begin to, the inflammation come down and your, your, your genetic expression for detox pathways begin to correct themselves. And you, that all becomes corrected.

It's not an overnight process. I have to say. And it usually is taking, you know, three months depending on where they're at and how much, environmental toxins they actually have in their body.

People with, for, 4 or 5 environmental toxins don't have that much, and it can reverse very quickly. But people with high amounts of, environmental toxins say they have 15 different environmental toxins.

They, they take a longer time. But it can be reversed. And I've actually had my first one. Now, that was actually because I've only tested one person that has been negative for glyphosate and, and out of all the thousands of people I've tested, I've only had one.

And that person actually had, a telomere length, of a 16 year old. So I was like, oh my goodness, here you are, almost 40. And, you have a telomere length of like, you're 16 and you're the only one I've tested that doesn't have glyphosate in their body.

And we're actually it's quite interesting. So I think, you know, you look at that is, is, it's important for you which, which telomere length measurement, company did you use for that?

Why? You used, one out of, Spain. And I had several of them. Yeah. So that's you mentioned, Sears. And just for our listeners, for our listeners and for me, since I'm not that versed in it, you just tell us a little bit basically about

what Sears is, and, and sort of how you approach it.

Yeah. So Sears, is chronic inflammatory response syndrome. So that response syndrome affects every single cell in the body. It affects the mitochondria.

And they these people have no energy. Usually when they come in, they're, they have mental fog. They have all types of chronic diseases, probably a plethora of them.

And they've already been diagnosed with multiple ones from other physicians. And they've gone everywhere. So chronic inflammatory response syndrome can be caused by environmental toxins.

So usually it's by mycotoxins, the gases put off by molds, but it can be by, parasites, by spirit kids such as Lyme, and there's over 30 species of Lyme.

So it doesn't necessarily have to just be long, for, for Borelli and Bergdorf Frye, but it could be one of the other ones. And, so all those things can, in fact, they affect, inflammatory markers.

Those inflammatory markers, actually will be elevated, such as C3, a C4, a TGIF, beta. I look at all those numbers. When those numbers become normalized, they become, they they people gradually get well, and but what I found is that actually introducing, optimization of telomeres.

So if you, you give a product to optimize their telomeres, they actually these numbers, these inflammatory markers come down much quicker than they do in their, in the regular patient compared to somebody that's just doing, traditional things, a lot of antioxidants and, and other things to try to get them better.

That works partly. And it's great, but it doesn't work in total. So that's why I've introduced a lot of to 65, for, for these people, most of them only tolerate a small amount to begin with.

So I have to give them smaller amounts to begin with. And then gradually, as they get used to it, build them up on the amount up to 65 that they can tolerate.

Okay. So they're hypersensitive to everything that that chronic response from you. So what kind of, when you say they're, they're, they're, they're not as tolerant of it.

What kind of, symptoms they have when they start taking it. That makes you have to use a lower dose. Well, they'll have increased aches and pains. They'll, some of them will have nausea.

Some of them have have diarrhea. Some of them they have headaches. Some will have yeah. Increasing mental fog, decreasing clarity. So they, they can have a lot of those different things.

So what's interesting is they begin to tolerate it. So, I'll tell them, listen, you know, these come in these caps, so take that 100, and get a veggie cap and put half of it, take half of it.

Milligrams. Wow. That's interesting. And we can see start. A lot of them can only start at 50. So I can start with that. So then you have to kind of slowly integrate them.

So I just slowly increase them, up to, you know, what they can tolerate. I think 250, units is the optimal, myself, I take 500, but, So. Yeah. Yeah. You know, in my practice, I deal with a largely a relatively.

Well, population is trying to slow down their aging process.

CIRS, Toxins, and Treatment Sensitivity

And it's fascinating to me because I don't typically see, that kind of sensitivity to it. I start patients on 250, and a, you know, some of them feel a little bit more energy or they feel maybe a little activated at times.

In terms of, just maybe I would my might keep them awake at night, but not nothing like the gastrointestinal or aches or anything thing like that. So, what do you think's happening, you think that you're having, some when we've shown that to 65 does reduce senescent cell burden, just causing them to go into apoptosis, maybe, there's there's some cytokines being released.

I mean, I'm just curious about you, and it takes about three months to see that first effect, up to 65, a little bit longer, probably for the, for telomere length to, to be actually like, right.

But you see, you're seeing this kind of a almost a similar reaction, which sounds like you're talking about, from, from dusty. But yes. And I think that is yeah, I do think that has a lot to do with cytokine release.

And I do think it has a lot to do with, decreasing the senescent cells because that senescent cells are it's so critical to get rid of these senescent cells in our chronically ill patients.

The skin cells are what is keeping them ill, and, and it affects all the cells around them. We know that. We already know all the studies on that. So, decreasing that senescent cell load, in those chronically ill people has to be done kind of on a gradual basis.

And we, we even noticed that even with doing i.v. Protocols, you know, we had to kind of decrease the things that were killing up the senescent cells, like if you use Foxo for, or what need, you know what?

Whatever it is you have to be very careful, on killing off those senescent cells. So that's been, kind of my, theory, and and how and why that's been going on.

But it's my theory. And but, we know that that does is the process associated with, to 65? It does exist. Very interesting. So what are some of the other I mean, seer seems to have somewhat of an overlap with something like chronic fatigue syndrome.

Are there specific criteria in terms of, clinical symptoms or laboratory tests, such as C-reactive protein that would give somebody the diagnosis of serious versus chronic fatigue syndrome?

Yeah. Well, to actually, you know, it's an ICD ten actually really, have a true ICD ten, Sears, you have to, have at least three markers. I prefer a five markers, that are abnormal, such as your C three, a C for a tip, eight, for your MMP nine.

Crp homocysteine. Akt MSA. So I look at all those markers, and, if if they have, 3 to 5 of those markers and that I qualify them as serious patients. So some of my fibromyalgia patients and my chronic fatigue patients, not all of them, but some of them will be, actually positive in series.

And they will have other bio toxins that we can find out, find that are actually probably part of the lead cause for them to have what they have. And, and then you just began to, help them in those rounds.

But, to 65 happens to be one of the major things that I think that everybody needs. I'm trying to get more and more of my patient population on it. I can't force my patients to do anything, but, you know, if they will take it and if they will do it, we are seeing results.

And some of them might not feel good for a couple of weeks, but, you know, that changes and they begin to feel better. They begin to have more energy as they go along with it.

So as you get them up to a full dose, that 250, they begin to feel better. They actually sleeping is improved with it eventually. I know that sleeping can be an issue at first, and I see that all the time where they say, oh, I can't sleep with this, I don't want to do it.

And I said, give it time, so you have to talk them through it. Yeah, actually have to, dealing with all the chronically ill, you really have to be proactive in, in talking with them and communicating and keeping communications open.

So I probably get, 50 emails a day from, from patients. Just with questions on what's going on with them. And, you know, and you have to talk them off that off the cliff and talk them back into, reality and what's going to help them get better and how they can see an and that is improved in the end.

Yeah. The, the, the wonders of email, you can be great and efficient, but also, kind of a difficult thing to keep up with. And, and a, a little bit of stress, but there's, a few papers by, Sahin and de Pinho looking at the effect of, telomere length on mitochondrial function through the master regulators PCG one alpha and beta.

And I think that, you know, in chronic fatigue and perhaps in your, in your, series patients, another way in which it's benefiting them is through lengthening telomeres so that they are allowed to have improved mitochondrial biogen's, and mitochondrial function, which, you know, of course, is what gives us all energy and allows our cells to function.

I wonder if you see, do you see any other types of patients, sort of the, well, aging that are athletes and see any, any, any benefit from that? Yeah. So, yeah.

So because I, I got involved with powerlifting myself, so I started powerlifting and, I got kind of involved with the whole athletic community. So those people really do notice a bigger difference.

They have, improved energy function. I have, one of my, one of my patients, he's a heart transplant. He's very young, but he's the strongest heart transplant patient in history.

He can, bench close to 600, you know? I mean, just like he's he's a powerhouse, but he's really noticed a big difference, with, to 65 and his energy, also his recovery.

So after he works out, his recovery time is improved. Taking, to 65, and I. And I love that for him because, every day matters for him. He feels like he's living on borrowed time, and he's, he's such an asset to the community, and to the other athletes in, in our area because, you know, he's he works at our local gym here, and he's just, he's an inspiration for anybody, anybody with chronic disease.

You know, I just tell him, listen, this guy came back, you know, he's a heart transplant, and he is. He works out and he does well. And we all can do that, you know?

And I think that as we work out more, we actually improve our health as well. So I think it's, multifaceted. Yeah. I see that in my practice. Like, you know, you know, you always want randomized, controlled trial data, but some of these, master's athletes have so much data on their times, their training regimens.

And then, you know, for them to see an uptick in recovery or an improvement, you know, 60 year old, you know, marathon runner or, you know, a six, ten K runner seeing improvements at that age.

They're real. They know they're actually seeing them because they're they've been tracking them for years. Right. That is fascinating to see. Yeah. In your practice. In my practice, for sure.

You do some you there a fair amount of genetic testing as well. Can you tell me a little bit about, what genes you look at and how you integrate them into your practice?

And if there is any relation to tell here, biology. I used to looking at a plethora of genes. I used to do a lot. I, you know, I used to use is it was by Rutgers University.

It was a gene, that actually you could develop it into a pyramid thing. So it looked at all your, genes for detox pathways, your genes controlling your mouth are, your to your all of those.

So I kind of cut it back and I don't really look as mad at as many. But I also was looking at apple trees. You know, if you're an apple E3 for you're a bigger risk for cardiac disease and cognitive decline.

Athletes, Recovery, and Genetic Testing

And so I looked at a lot of those different genetic aspects. But, I began to realize that, you know what? Half of those genes, we don't even know if they're working correctly or incorrectly.

There's some that you you perhaps can because you can measure, like, different amino acids, or you can, measure different, your B vitamin B levels. Some of those that you can actually measure, you can look at liver enzymes to see if, specific genes are working correctly or incorrectly.

So yeah, I, I began to see some of that correlation, but then, I began to realize you don't really know if genes are acting correctly or incorrectly. You don't know if they're turned on or off.

So most genes are supposed to be in a turned off state. They kind of react to, an insult or, situation and they get turned on. So some of those genes, you, you can actually notice that gene expressions through chronic diseases or different things like Crohn's, other things like that, that they become, turned off as the inflammatory and inflammation come down, because there's, there's several things that really affect gene expression.

One is telomere length, and telomere cycle. So, so inflammation, peptides, and the human microbiome. So balancing balancing all those things correctly, I think actually helps you to cause genes to express correctly.

It's not going to change genes, but it's going to cause them to express in a correct function. So, you know, epigenetics is a big thing. A lot of people are doing it.

And everybody keeps yelling out RMT, RMT for where you can give all the methylated BS you want. And they can perhaps over methylation possibly. You don't know, but what you can do is help with the telomere length.

And then you, you can see a change in how people are absorbing their B vitamins and if things are working correctly. So it's not just giving the correct supplements.

It's actually going a little bit deeper, which a lot of doctors are not doing anymore. And I don't understand why we don't dig deeper. I'm always about the next thing.

Let's dig deeper. What does this mean? Is there a deeper aspect that we're missing? So, you know, like what genes, are affecting? We were talking about the mitochondria, what genes are actually affecting that mitochondria and is our telomere length going to affect that gene expression in the mitochondria so that we can actually, help, to have better mitochondrial functioning so we can have energy and, you know, that mitochondria does help to interpret, your DNA.

So we want proper interpretation as well. So, all of that matters to me. So I want to find the deeper length. I don't want to just push a bunch of supplements at somebody and say, here it is.

But, you know, we have to think about what we're doing with each supplement. Sure. I mean, I think the, you know, the promise of, you know, the whole genome sequencing and looking at all sorts of different genotypes.

I mean, of course, ApoE4 is an exception because it's very well characterized. And we know what's going on with that. But, but, you know, people looking to see, you know, what polymorphisms they might have, you know, ultimately what we're learning now is that that is important.

But really, what's most important is the epigenetics. What gets turned on, what gets turned off right? Rushing genes load the gun, lifestyle pulls the trigger.

Well, I would say lifestyle plus other therapies, peptides, exercise, diet, various things. Because what really matters is how, genes are expressed. Which sort of brings me to, the question, do you do any work with, DNA methylation testing and, and have you seen any effect, of that of some of your, on those measures in some of your patients?

So, yeah, we do some DNA methylation, testing. I've done some, not all of my patients want to do that because they, number one, the expense and time, too, they feel like they've already gone through a lot of testing, so some

of them won't do it.

But when they do do it, you can't see, a change and a difference, when, when they're optimized and you can you can tell the difference with that. DMA DNA methylation process.

Yeah. I'm just starting to, measure it more regularly in my practice. And, and I'm curious to see whether or not, to, you know, telomere, lengthening therapy such as d65 or whatever you're trying to do in terms of lifestyle and optimization of, sort of slowing down telomere attrition, whether or not that correlates with, change in epigenetic age.

We haven't seen that yet. But I don't think we have enough data quite yet. But one would think that it would, and, you know, my patients come in, they're all about, you know, data, I have a lot of biohackers that come in and they, you know, they we have a software system that helps them track all their data.

But, they want to know, you know, am I a year older or you're younger? And because, you know, I call myself a longevity physician. So I should be able to, to tell them what's happening with that.

And that's another tool in our toolbox, right? Right. Speaking of tools in the toolbox, I saw in your, in your bio that you also, do some work with peptides.

Any favorite ones? And any, stories about, effects on patients? Well, you know, for a while, I used FSL on, I just felt like FSL on, didn't help, with the lengthening as much as, doing, to 65.

And it's just one less injection the person has to do to. So, and epithelial, if you've ever injected it, has a little bit of a burn to it. So I, I kind of went away from with and went back to, to 65 for that.

But, I, I also, I love to one, so I'm, it's not the one which, we don't know. It's probably going to be on the chopping block from the FDA. We don't know.

We're just waiting for the FDA to make their final word on that. I won't be able to use it any more than, but, because it works pretty well. The it's hard to take it away.

I mean, yeah, the 16. That's that's ridiculous to think about taking that away as a supplement as well. But but what experience have you had with, thymus and Alpha Alpha one.

Well, it's really helped in, a lot of my, autoimmune patients because it's really helped them, in a balancing, their to 1 to 2, it helps to balance, I mean, it's one to, so that that the, inflammatory pathways, I really think it balanced quite well with Taiwan.

And I've also noticed that their, their immune systems seem to be functioning, much better. So I've seen that there's been improvement, in, their white blood cell counts and more normalization, even the differential counts become more normalized with that.

So people with high, inflammatory monocytes, they become more balanced when they're on to one. So the monocytes, you know, you might have a monocyte, percentage of ten, which is too much, which can, you know, there's articles that lead to, that tell us about, high monocytes and bowel inflammation, which I've seen in my current Crohn's patients.

Peptides, Autoimmunity, and Chronic Illness

And I kind of have some Crohn's patients, probably because of my own history with Crohn's. But, it's just, it shows that that, that they, they come down and they can, actually be more normal size.

So, that's why I like it for my, autoimmune patients, but I, I use it in a lot of patients with, inflammatory issues because I really think it helps to balance that.

Yeah. I mean, I think, you know, the thing that I find interesting about telomeres and 200 biology is that it's an integrator of all the slings and arrows that get thrown at your body, other viral insults, parasites, toxins, chronic psychological stress.

And so that's sort of the most upstream thing. And it's sort of your ability to, to, have the reserves to fight off these things. You know, when you see, I guess, a fairly, what sounds like mostly a relatively not sick, but chronically ill with, with things, population rather than a healthier population.

Have you seen that in general, their telomere lengths are shorter than average. Yes. Yeah. That's so they have they have very short, even for some of the young sick ones.

And but it's kind of amazing how, they kind of revert back to more of a normal stage. Even my young high school students, you know, some of them, you know, their, their age is is much older than what they are when you, when you look at them, and, but they do revert back, you know, and, I'm so excited for some of my young people because, I actually have three that are now, in residencies because I treated them, they weren't able to even attend medical school, but they were able to get through medical school.

And hopefully those will be physicians that kind of go into more of an integrative medicine line, doing, all forms of, medicine in and encompassing, all things, not just, traditional western medicine route.

So but I and that's what I, like about being able to treat some of these chronically ill people because some of them, go back to their normal life. I had, a, a woman who, she she had to hire a housekeeper.

She had to hire a, a nanny. She had to hire a a cook to cook for them. She could no longer do any of those things. And, actually, we optimized her. She went back.

She, she was from Washington, DC area. She actually fired all of those, and she says, I can do this all on my own. And, so she began to really be, integral in her three children's lives again.

Went back to horseback riding, and really, is enjoying life. And so, and I think that's probably a key part, of why we do what we do. We want people to be well and enjoy life and, and really have a hope and a future for their life.

And, and that's why I like doing this, because you can see, that 90% of the people really do get, to a better part in life. And, they can really perform better and be better people and, you know, contribute to society.

Yeah, that is very, very gratifying. In my practice. This is most people aren't that I love to see is, I have a lot of creative people or, business people that are giving to the communities in their 70s and 80s in and they're continuing to do it at sort of the level of a 60 year old.

And so I feel like that's that's one of the most gratifying things you do to sort of give back by helping these people continue to do what they do. And you're being bringing people back from illness.

You see, a fair amount of sick people, but, is there a since I'm not familiar with this area, are there sort of a, a top 5 or 10, toxins that you test for that people may not know they have even, you know, they don't they're not particularly ill, but it may be keeping them from being optimal.

What do you look at? And how do you test them? So, I is, test by and and the reason I use this one, use this one because it gives you a ton of environmental toxins.

I mean, a lot of environmental toxins. So I use this one by vibrant. But there's other ones out there. I'm not saying that's the only one. But I look for, glyphosate, phthalates, plasticizers.

So things that are in plastics, you know, and it gives you all the list of all of them, and it kind of gives you an idea. You know, people don't realize they're still cooking on nonstick pans.

And so those nonstick pans are putting a lot of toxins into our bodies. People don't realize that they're drinking out of plastic bottles all the time, even though they say BPA free, that they're still getting, toxins from those plastic bottles.

A lot of times. So, you know, trying to drink out of glass as much as possible for my patients. And I see that those things can inhibit them. Glyphosate.

Also, I see, in a lot of people, if it's, moderate levels, I don't see it causing too much of an issue. When it's, becomes, what we call in the red zone or the high risk zone.

Then I see, then I see issues. But there's, you know, I, I look at all this toxin loads. And the reason I do that one is because, you know, I can't remember the price of it right now, but for whatever amount of dollars you get a three pages of different environmental toxins that could be affecting you.

So that's that's the one I use. Just because it's easy for me to use vibrant, vibrant labs. Yeah, yeah. Yeah. So, speaking of glyphosate, do you feel like it's in more different regions or where mean, do you think urban livers or dwellers are or at risk for that less than people in suburbia or rural areas?

I wish that was so. But actually some of the people that live right here in Orlando, I'm, I'm seeing really high, high levels of it. Now, I've seen my highest levels in people that are in that live in and around farmland.

So, some of my people from, you know, Kansas and Nebraska and Iowa, I've seen some of the highest in them. But I still can see in some of my people that even live in cities, that they still have kind of a pretty high level.

But some of the glyphosate, they're actually put into the seeds of products now. So, you know, there's people I kind of encourage them if they have a really high level, if it's if it's low, moderate, I'll tell them, don't worry about it.

But if it's really high, I kind of get to the point where I say, you know what? We probably need to try to do things to get rid of this, and then we probably need to look at where you're getting this or how you're getting it and and change what you're doing.

So perhaps you may maybe need to get more, holistic in your eating approach, more organic vegetables. Because I, I find that some of them are. And some people don't even wash their stuff when they get it.

That's people all see pesticides and herbicides and all kinds of things in them, that don't wash any of their vegetables. They just, you know, if I'm in the grocery store and kind of up and use them and I'm like, well, the ones that are in the bags, is that a problem?

The ones that are, you know, already pre-washed in a bag because I a like better, I think that's a better. But I personally I still wash them. Okay. Okay.

And you also talk about mold or the, the, the specific. I had a patient who, who have been treated for a long time but was complaining of some post nasal stuff and some other symptoms and went to see him, old specialist and, got, diagnosed with, a micro toxin.

Tell me a little bit about your experience with that and what tests should be used, because, I mean, I think these are all important because it's again, it's another stress.

It's putting stress on your body. That means your your immune system has to respond to it right short. So, I'm always looking for, for things that to, to fix that to keep from stressing our biological 401 K, which is what I call our telomeres, our tumor.

Yeah. Right. So, mycotoxins, actually, you know, can affect a lot of different things. And they are associated with, 94 plus diseases.

Environmental Toxins, Mold, and Practical Testing

You begin to realize how widespread, mycotoxins are and what they can do. So some of them are going to be through foods. So you can get some of these mycotoxins through foods.

Make sure that you're washing things that you're not eating, things that are high mold. For me, I had to stop eating cashews. Cashews were an issue for me.

But not for everybody. I'm not saying that's for everybody. But a lot of people, you know, the first, sick building syndrome when we call it sick building syndrome, the first one was actually in Connecticut.

I actually had some patients from that building that have been sick ever since then, and that was way back in the 1970s. And they've been sick for a very long time from that mold exposure and really never able to get.

Well. But you have to understand that part of that is because of genetic expression. So, do they have the inability to, or a decreased ability should be able to, get rid of and detoxify their bodies from mold?

If that's the cause and that's their true problem, then as we increase their telomere length, that should be, in theory, should be corrected. But, we also have to be proactive at making sure that they're, really getting rid of these toxins from their body so that they can live healthy.

And, be, live better, because mycotoxins actually, I've seen 90% of my, fibromyalgia patients. Actually have mycotoxins. And as we remove those mycotoxins, they actually get better and they respond better.

They respond better to, telomere length. They respond better to, all of those things. So, that is, that's one of the key things I always look for in those patients, because I see it's, very critical.

You can look at and there's lots of them out there. Vibrant has a test to test for mycotoxins. Real time labs. And there's there's some other ones out there.

Doctors that I believe has one, tests or the, nasal swabs or. What are there? Those are a urine test. Urine tests. Okay. Yeah. So those are they're simple because it's just a urine test that you just test the, the urine to see these mycotoxins and them, and that's one way to test.

But I always do that, you know, in conjunction with my series markers, you know, looking at all those inflammatory markers and seeing what MSA it's the IP, 88, all those different things because those are affected by mycotoxins.

Mycotoxins affect. And they like to, affect the fatty, layer of every cell. So the, the lipid layer around every cell in our body, those mycotoxins like to reside in there.

And they like to hide in there, including the fats in our brain, including, you know, the bi lipid layer in the mitochondria. That's where those mycotoxins like to be.

That's why they affect everything and every part and every organ system. So when you're doing these tests, I think you mentioned that the blood test plus the urine test is a situation where you could potentially have mycotoxins in your urine, but you're not responding in an inflammatory way to it.

And sort of like, you know, some people, a lot of people I'm sure have Canada but don't necessarily have candidiasis or right. So it's a subset that responds with, with illness and inflammation.

Yeah. It's not everybody. And that's why you have to be very, wise in what you're doing just because somebody has mycotoxins in the urine. It could have been something that they ate yesterday, you know, and that's just going to go out.

So we have to be smart in what we're doing and how we're doing things. Just because, some people show certain

things on their labs doesn't mean they're, they're actually have that.

You have to be careful. And what's what's what's going on with that? Especially in the mycotoxins realm. Yeah. So is there any other types of things you want to, to tell me about that you're doing your practice or tell our our audience, before we wrap up.

Well, that's, you know, that's a you we hit a lot of what I do, a lot. So. And I still like to do I, you know, I'm kind of getting more into the anti-aging realm, because, I'm 64 now, so I got to, I have to cut back on some of these chronically.

Okay. So, I've been, opening up more, doing more anti-aging things and, and really opening up that realm. I, I, I love it, and, I love to optimize people.

Anti-Aging Practice and Closing Remarks

I like people to be optimized in every way. I think hormones actually have to do a lot with what we're what we're talking about today. We didn't even talk about hormones, but hormone optimization is just part of that little factor.

How people respond, to, nutrients and respond to their telomere lengths as well. So, yeah, I mean, that's a big part of what I do in my practice as well.

And that's very, very gratifying to to help people get their hormones in, in an optimal place so that they can function better over time. Right. You know, I practiced internal medicine for about five years, and I, I know, you know, it's treating ill people is it can be very stressful.

And you've been doing it for a long time. So, I understand that there's the switch of I love my practice where just helping people stay healthy longer.

I mean, I do have some chronically ill patients, and they are great as well, but, but it's, you know, as a doctor, apples work shows taking care of ill patients, whether you're the, the spouse or the parent, or the doctor is, is, can be can be quite stressful.

So. Yeah. Look, it's been a pleasure to talk to you and learning about an area that I don't, I don't know much about. And hearing your your, your, your, stories about, telomere biology and how you're utilizing it in your practice.

I want to thank you very much for taking the time out to speak to us today. Well, thank you. It was great being with you. You have a great day. You to take care.

All right.