The Immune System Secret That Could Change How You Age | Dr. Rafael Gonzalez | Ep. 144 Transcript

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Introduction and Guest Background

The difference between bacteria and virus, a lot of people have no clue because what you don't know is that the virus requires a host, bacteria does not, and you're the host.

There's been some scientists that have disappeared, that haven't worked for NASA, they're talking about UFOs. As a scientist, you believe that there's something else out there.

Cannot be the only ones here. I mean I've seen we have Rafael Gonzalez Today's guest is dr. Rafael Gonzales senior vice president of research at the bio box PhD cell biologist and regenerative medicine expert with over 20 years of experience in stem cells Longevity immune health and anti-aging science his work is helping shape the future of human healing and aging Your immune system is challenged daily with you go outside and if you expose yourself to sunlight too much, you got a mutation, something's got to clear it.

The immune systems, every single disease out there, everyone including genetic ones now we now know, have an immune component to it Do you feel that the future of medicine is going to be more focused on prevention or actual treatment intervention?

The way this country is set up now, you know how much it costs us to run a clinical study for a patient? How much is that? About $150,000 for one patient.

One patient, that's a study that lasts how long? And this is a studies that last about two years, this study is about 2 years long, but multiply 150 times, right now it's an 80 patient study.

That's lot of money. Lot of Money. When you were going through schooling and doing the research, how would that have been if AI was available? You know that is funny you say that.

Welcome to another episode of a Healthy Point of View podcast. I'm your host, Sam Tahata. And as usual, we're bringing experts from all over the world to talk about health, wellness, beauty, and mindset.

Today's guest, this is a researcher, a scientist, They're very, very well known in the industry.

From Childhood to Military Service

We're going to be talking about your immune system, but not just about the immune systems, we're gonna go deep into the regenerative medicine side. You guys have heard us talk about exosomes, stem cells, now we are going take it a step deeper into your system.

Today's guest, we have Rafael Gonzalez. All right, amazing. Excited to be here. Dr. Gonzalez, man, it's a pleasure to have you here on a Healthy Point of View podcast.

Thank you, honor to to here here, Amazing man. Amazing. So we've covered so many topics on this show. We go into regenerative medicine and we're always talking about joint injuries and all this other stuff and spinal injuries.

The one thing we haven't talked about is going deep into immune system, which that's your expertise. But before we get into the meat and potatoes, what I'd like to do is I want people to get to know who Dr.

Rafael Gonzalez truly is. Let's go way back from when you were a kid, the upbringing, around age five. H5 was a fat little Cuban kid growing. I was born in Brooklyn, New York.

Parents trying to feed me as much rice and beans, arroz con frijoles and steak because they didn't have steak over there, so they privileged themselves with having steak in the States and fried bananas.

You know, grew up there and at the age of 13, moved to California. Moved to california because a little bit of the rough neighborhood there. My parents were like, oh, we gotta get out of here.

We gotta put you in a better position, better place. And then at 17, when I was in high school, believe it or not, I dropped out and took my general high school test, what's called the GED, passed it, and joined the military.

I went to the Army. Nice. Yep, decided to join the army. wanted to leave, I wanted a change of scenery, wanted more independence, joined a military, served in the US Army, was called a combat engineer and a demolition specialist.

and was served in, I was stationed in Fort Hood, Texas, and then I went over to Germany, was station at the Abrams Complex in Frankfurt, Germany for the remainder of my time there.

So it was a great experience. I think everybody should join the military. Or do some form of civil service. Yeah, some kind of form civil services. You know, 100%. I agree with that, man.

It's, you know I come from a family of military and first responders. Obviously myself, my oldest brother who works for company as well, he was Marine Corps, first ground troops in Iraq.

So I agree with you. So then what happened from there? You know, because we haven't got to, you get into PhD yet, right? So you're in the military. Yeah.

I mean, I got out of the army, came back and actually went into sales, but I was always fascinated with health. And then I injured my spine and became fascinated by how do I make myself better or how I become healthier.

Was selling real estate and was crazy, making a ton of money, doing really well and decided I'm going to quit everything, downgrade everything and I am going focus on going back to school.

And my original path was to become a medical doctor. you know, when I was studying biology, but then I just fell in love with research with more of the focus of what we call from bench to bedside is develop something, a therapy, and have it applicable to human condition.

And for me, that's where it actually took off. My mentality was completely different. I don't know if it had to do with the upbringing of, you gotta help people, gotta be a good person, which is the way my parents always been.

You gotta have, be, Be a great person.

Research Career and AI in Science

There's nothing more important than that. And I just focus consistently on how do I get, produce something that can reach the masses and help the mass and fast forward 20 something years now and that's where I'm at.

Amazing. So you went to school in California? Went to school in California, yeah, I got my bachelor's in biology at University of California Irvine, and I stayed there because I was doing a ton of work already as an undergraduate doing research that then translated into my PhD, which my Ph. D.

deals with interactions of the immune system and spinal cord injury. And I part of a group that did the original clinical studies at the Christopher Reeve Paralysis Foundation at UCI.

that did the first stem cell and spinal cord injury studies in the United States, probably in world I would think, because that's when the term stem cells became somewhat big in 2000 around there.

I was part of that group, left that in 2006 after I got my PhD and went into industry. Wow. And so how was it like going through school in research, right?

Is it something like, you know, when you're going to the lab and whatnot, are you kind of like geeking out when your a student like that? I've always wondered that because I know when I'm very passionate about something, like I'll go home and keep on researching it, and I like really geek out on it.

I mean you pull a lot of papers, you read a lots of what's called peer-reviewed publications, not like what people call white papers and all that, but peer reviewed scientific publications and then from there you dig into mechanistically how things work, think about how thing work and ultimately, especially in a PhD, our job is basically to think and think critically and to find novel things.

How do we prove it? And, you know, it's, yeah, I mean, and you can say, Yeah, we geek out. We work a ton. I means, sometimes it gets so bad that you're just like, always spend nights in the lab.

You know? I'd have studies that we'd be doing, animal studies, that would be going. And I spend the night in a lab because I had to take care of the animals, had take whatever.

and it wasn't worth driving home to then come back to finish an experiment. Experiments a lot of times are timed. Did a ton of experiments in the spinal cord injury in their brain trauma sector.

So let me ask you this. When you were going through schooling and doing the research, you're in a lab and stuff and had to do a lotta reading, how would that have been if AI was available?

You know that's funny you say that because I have kids now that they use a ton of it and and I started using it recently more for imaging and putting presentation together.

I don't you know for me personally I I dont think it would change. Yeah, I don't think so. Because I think, you know, now that I know it I can throw in several articles and ask for a summary of it, which I've done, in like ChatGBT or something like that.

But sometimes the breakdown in what it reviews is not necessarily the point that'll capture your mind onto, wait a second, If this happened here, hypothetically, what happens if I tried this somewhere else?

It's not going to give you that. Even nowadays, I still travel with paper copies of… I don't do them on a tablet. I'll still print out a paper, and I will take it and focus, that I need to read these three papers, read this book.

Because I do like to mark up my stuff right on there. but I just still prefer the old style of learning and doing it. And I still do, you know, in our lab, I'm in California, Corona, California in out lab.

You know what you would say, geek out, me and the scientists, we meet every two weeks. I have two different groups. One of them is the cell therapy, the stem cell group, and then the other one is NK, natural killer cell, group.

We'll chalkboard. We'll sit down and you'll go there, you gotta come sometime. You'll see formulas on the board, experiments on board and then know is there something wrong here?

Are we missing something here, what are we doing? How do we reach, I look at things as far as how do I reach the goal of, for instance I'm trying to find something that's somewhat affordable that can wipe out an old cell, which is something we've been working on for a long time.

But how do we do it that the investment is not such a massive issue? And then what's the fastest from A to Z that we can actually get there? That's more of my, I don't know if you wanna call it the street mentality of how to get their, because all of us scientists come up with brilliant ideas, but then if we take a step back and think of the arduousness of taking this through the FDA, it's not that easy.

It sounds expensive. It's crazy expensive. Yeah, like we have clinical studies. I mean, we're millions and millions of dollars into it. But when you start, you know, for instance, modifying cells, gene editing, getting that stuff through is just like a really long, an animal study and then a safety study.

And then how do you integrate it sort of in vitro system, in a Petri dish that you can actually show this works. Then how do we move it forward to doing the human condition and the clinical studies which are really really expensive?

And that's why things take so long in in the u.s Ultimately, it's a good cause, you know as far as showing safety and showing that there's no problems with it But but is it you?

Know what one of my partners dr. Christopher Davis who's our chief medical officer? he always says that science is actually 25 years ahead of actual medical practice and because you're doing things and cracking the code in the lab so early on that by the time it gets taught in schools, a doctor can actually then utilize it in a practice of medicine.

It's already like 25 years old by they start using it. So is it realistic, the system that we have currently, where it takes so much money, so time to actually get the science out to the masses?

I would say currently, no, because for instance, one of the examples of what we just talked about, we did spinal cord injury studies back in 2000, and granted, there's not an approval for any of that yet.

That's 26 years later. And then you're now looking at, for example, I don't know if you are familiar with inducible pluripotent stem cells, those came out in early 2000. You have your first clinical studies that started maybe four or five years ago.

It took 20 years to get that into clinicals studies, into approvals. I think there was a recent approval I thing in Japan or something like that. Japan is moving quicker on these type of things than the United States is.

But ultimately the costs here are just exuberant. We have clinical study.

Clinical Research Costs and Regulatory Barriers

As I was actually talking, I wasn't at the VA today because we're trying to up some clinical studied with the V. A. in Miami. And I was talking to my colleague and he's like, are you serious?

And i was like yes. He's, like you know one of the studies that we have is an autoimmune disease. It's not an immune disease called idiopathic inflammatory myopathy.

it affects muscle and skin and then eventually lung. And our per patient costs. You know how much it costs us to run a clinical study perpatient? How much is that?

about $150,000 for one patient. One patient? And that's a study that lasts how long? This is a studies that last about two years. This study is about 2 years long.

But multiply 150 times, right now it's an 80 patient study. That's alot of money. A lot of Money. So what are other countries doing to move the process along a lot quicker versus what the United States has as its SOPs or its systems and processes, whatever it is?

Yeah, for instance, do you have countries such as, I know Japan set up what's called the Regenerative Act. Meaning that if it's from you, it is usable, even if you put it in a petri dish, culture expand it.

As long as you've garnered and shown a safety profile on it, then it actually usable. So a lot of countries are trying to establish that type of setup, including the UAE, which I've talked to recently with with, show me a product that, you know, safety studies in the United States are normally 10 patients, 15 patients.

Establish that it has the product has a safety profile, which is not as expensive because you're not looking at full exploratory aspects of it, just safety of Then if that's there, then have it available to, mechanistically how does this work, have an available and have a different system of some kind of informed consent or a waiver that a patient signs at the waiver.

The patient just basically says, okay. I understand there's a safety profile here. I Understand the risk and I, understand the rewards which is pretty standard in an informed consent when you sign to anyone There's always a risk, and there is always in a reward aspect to it that they talk about Going with something like that is a lot quicker approach while you continue to do clinical studies is A smarter approach especially for companies such as ours as a private company is you know you got we got to come up with millions of millions Of dollars to get this thing approved You know, including the funniest thing about it, especially in the US, it's crazy.

You run a phase one study safety, you run phase two showing some efficacy, then a larger scale phase three to finalize the efficacy. Then you submit an application you spent In regenerative medicine, it's not as expensive as large pharmaceuticals, because they have to run thousands of patients.

You know, you're talking about $100 million, whatever you may have spent. Then you have demonstrated that you hit your endpoints, your primary outcomes, You have apply for a license, and that license costs you millions of dollars.

And you'd have pay the FDA millions to get this approved. So this is where, a lot of times, genius that can most likely work doesn't end up working. You know, the other thing is companies focus on, okay, we spend all this money and you have a patent, you patent a product.

For instance, there's this gene cancer, virus cancer platform that I learned about recently from a cancer patient I was talking about, I'm trying to help this poor kid.

And they said, the problem we have now is this drug is crazy expensive, but the company's no longer manufacturing. They had phenomenal results on their Phase 1 and their phase 2. But we can't do it because it costs about a half a million dollars for it, But worse than that, The company abandoned the entire platform because the patent's off.

So why are they gonna spend the money on continuing studies and showing that this actually works? They don't own the rights to it. Anybody else is gonna copycat it and then what?

That's another issue. There's a lot of little issues with this and it's what makes things harder in the US versus other countries. Yeah, that's interesting.

They can't redo the patent? No, normally, no, patents have, I think it's like 20 year lifespan. And there's an expiration date on it. There's a couple things that you can extend a little bit.

You can do some modifications to it to try to extend it, but it is really not that easy. Oh, wow. That's interesting when you start. It's, you got to kind of like create the whole formula.

Yeah. Algebra formula that have to figure out, does it even make sense to study this and invest all this money? Because are you going to get the ROI? Exactly, yeah.

Wow. So let me ask you, so what do most people misunderstand about regenerative medicine? Great question. They think it's a cure-all, a heal- all, and it is not.

It's complete misunderstanding. Consumers or people in the industry, or both? No, consumers. Absolutely consumers, the word that's out there. It's not the cure-all, it's the heal- all, its for specific individuals, and ultimately it boils down to the properties of what the product is.

Every product out there is different in its own way, every product has its' own benefits. It is like an active ingredient,

just like a pharmaceutical, is what you have to look at.

What is in the products and how is it going to work towards specific disease that you are going target. That's what we have look. So you're saying that there's different products out there, and are we talking about stem cell derived products?

Stem cell-derived products. So what are some of the stem-cell- derived-products, some the most common ones for the viewers and listeners to understand?

Well, you look at stem cells in the context of you can obtain them from anywhere in So we talk about fat, you know we can get it from you, we talked about bone marrow we could get from it you.

We talk the better sources are younger, what's called perinatal tissues, such as an umbilical cord, the umbalical core blood, right? The amniotic fluid.

The placenta, the amnion, teeth. You can obtain them, but they're hard to get. It's a really, really small little piece of tissue. I've heard hair also.

And bacteria. Hair, you can get stem cells. Men, I published a paper, and you're gonna love this, published in paper in 2010. Its a mesenchymal stem cell from testes.

Really? Yeah, so do you know that the interesting thing about men, us, is we have what's called the pluripotent stem and it's call the germ cell in our testies.

This is why a man at the age of 80 years of age can actually conceive a baby or remember a woman cannot do that Wow, so we do have a true pluripotent stem cell That's actually hard to obtain and maintain that pluri potency, but there's a lot of research on that cell Really?

Yeah, what about like stem cells from like other animals? You know, I've heard of like bovine Bovine stem cells animal stem. So as you can do but you got to be cautious.

Remember, we're not we are not animals I mean, you know, We do a ton of research in in mice rats and only less than 5% of what we do research on that's the other problem 5 percent of What we research?

On in a mouse or rat model ever translates to a human condition. They're completely different I me even though the weird thing about it is and you think about these like really a Mouse has about 96% homology to human being It's only that 4% there that's so vastly different in humans that makes us a lot more complex.

At what point, when you're doing those animal models, just because we're on that topic, at what is it that you get to the point where you say, okay, now we have to take this to humans?

Well, number one is you show, okay, you did an animal study. You pick a particular model, for instance, there's a rheumatoid arthritis model. There's the spinal cord injury model There is a traumatic brain injury models.

They're all different models for all these different ones. And there are also ones that are genetically modified so you can study specific genes, all that.

Once you've shown that there is an effect, and there's a safety aspect to it, then you progress to a much further safety aspects. You produce a human product and that human products goes into a mouse model.

It's mouse a model that for instance in cell therapies you have to suppress the immune system to be able to go into that mouse models. You have to show safety in a mouse model.

That's what they normally expect, is show some form of safety and a model, meaning you'll inject various different doses of a product into a mouth model or rat model and then you actually look at a bunch of different organs and

you look a toxicity, you will look for cancer, mutated cells, tumors, etc.

on them. Then you're ready to apply to submit this to the FDA.

Regenerative Medicine Misconceptions

It's still not even that easy because you have to produce what's called a chemical manufacturing composition of what you're basically producing, meaning you and show sort of every single ingredient of what it consists of, how you manufactured it, and how have a consistency in that manufacturing when you're doing it.

You also have to show, for instance, the cell therapies, all the aspects of cleanliness. One of the things I mean, I remember when I was talking to my regulatory team and we're like, wait, why are we testing for parvovirus?

I thought that was only in dogs. And they're, like no, this isn't apparently in humans too. We look at genetic stability of cells, like all these type of things.

Because ultimately what you're trying to do, and the one part of the FDA's fantastic is the safety aspect of it. You know, do no harm, be safe, let's show something that's safe.

And they're really good with that. But it does take a tremendous amount of work. So with the animal studies, you said that the mice are about 96% like a human, right?

Yeah, 96%. Yeah. Genetically. Is there any other animal that's closer to a humans? Yeah, I mean apes. Apes. Yeah. You guys don't mess around with those.

Non-human primates. I don t mess with that. Why is that? It's too close. Too close to home for me. It s harder to work with non-humane primate. There s a study.

You know that there's a new longevity study. Well, they're calling it a longevity studies, but it's for blindness. I'm sure you saw it online. Oh, we have a first ever aging longevity studied.

And they actually worked on non-human primates for blindness. and now they are applying it to a human condition. But they say it is a Longevity drug. Man, those labs must be very interesting.

Even like the mice labs, I've never seen that. I'd never been into one of those type of labs. After probably around 2000 and the movement, of course, to get away from animal models, a lot of companies, even pharmaceuticals, went away form animal model and went what's called in vitro.

In vitros are great model, meaning I can take any cell, like I take a skin plug for my skin, and I grow up these cells. And I can transform these cells into, you know, I could induce specific genes, and I transform it into almost any different cell type I want and study that cell.

I mean, yeah, could form a neuron if I wanted and can study central nervous system, brain disorder, spinal cord injury disorders, all that, in a petri dish.

Like we have, for instance, on our exosome product that we actually have that's topical for skin, we produce skin models. And with the skin model we can show you the regenerative effects, effects that actually the product actually has.

That's pretty cool. I like that. When did you realize that this type of science could be very life-changing for humans? I mean, step one was when I had the opportunity to do, you know, we published a paper in 2008 and I worked at the spinal cord injury sector and when you look at these patients, unfortunate individuals, it's devastating.

To understand that you get an injury and You're messed up the rest of your life. Not so much so that we think that it's a thing of they wanna get up and walk again, but that's not what they want.

They wanna actually improve their quality of life, and we talk about that. We talk improving bladder function is one of the key things. Sexual function, is those are the top two for them, especially the bladder-function part, because when you lose control from the waist down, So just think of you had no ability to feel that you have to go urinate.

What is going to happen to you? I mean, your bladder is gonna extend out and at some juncture, you're bladder's gonna want to burst. And you get this thing called like an autonomic dysreflexia where you can actually stroke and die.

You have no sense of your blood or feeling filled. So you to be on top of. I need to cath. And think about it, if you're a coffee drinker, how often in the morning when you drink coffee do you have to go to the restroom way more frequent than you do later on in evening?

So they got to be aware of all these type of things. Then many of them lack, because of the injury below the waist, they lack sexual function. No more kids, no more enjoying the feeling of sex, none of it.

We take that, and when I saw that when, I started working in that sector, was when i just said I gotta find a way to help this, you know, embark on doing studies on this and how do we move this forward and help, And we published a great paper in 2008 on it.

that we saw benefits. We thought we were gonna get a better result, which a lot of times happens with science, but one of the key things that found in this publication was we know that can help bladder function.

And these were specific to paraplegics? Yeah, we did paraplegics and quadriplegic. Oh, wow. And did they get a certain function back or not all of the function?

Yeah, they gained some motor movement. So spinal cord injury patients look at what's called motor movements and sensory function. And you look in the context of below the injury.

Normally, if it's a complete injury, then there's nothing, absolutely nothing below, meaning no sensation, no nothing. No movement, not absolutely anything.

Everything below is gone. There's this specific scoring system that you actually look That'll tell you you know you can do specific testing like pinprick in specific areas when they're blinded And you'll look at you specific motor movements what type of motor movement and we found that we can help some motor Movements we had individuals that were wheelchair-bound for about 15 years that were able to stand.

They had never done that before. Able to sit up and control their trunk, get trunk stability, which they didn't have before, but one of the key things we found was the bladder function.

And another neat case was a lady that could not get pregnant for many years. She had a spinal cord injury. If she was in a complete injury, she couldn't get She actually ran through what we did was sort of a crossover with her.

A lot of times what do now is design studies at their crossover. Because a lot people worry about you go do a clinical study and you're going to be the placebo.

Or like, where the hell do I want to go into a clinic study? And maybe I'm going be because it's a blinded study. I might be a placebo, I am not going get the drug.

So what a we do is we have groups that will be placebo and will cross over into drug and then the drugs will crossover into, you know, into the placebo too.

So when the drug crosses over to the placebo, if we see that they get worse, which is pretty common now, then you know the drugs working. And when placebo gets better, than you the know drug is working, so we did this with this one individual and about a year later she got pregnant.

Yeah, and she had two kids after that, which is pretty neat. So mechanistically, I mean, the only thing we can explain is cell therapies, stem cells can increase blood flow, Which makes sense that would help, you know, with her getting pregnant.

Increase inflammation. Yep. But her issue, was it an inflammatory issue that she was in? No, no, she had a complete spinal cord injury. It was a completely spinal injury, and how that complete, spinal, cord, injury just for the viewers and listeners to understand what part of the spine caused her to, her reproductive systems not to function properly.

Stem Cells, Sources, and Animal Models

Hers was, she was what's called a thoracic five injury, so it's around right about here, right a little bit above chest height, and it was a complete transection.

So I mean the cord is completely severed. You guys, when you guys do a lot of these different type of cell therapies and the regenerative medicine studies that you have done, are you combining it with any other type therapies?

You hear about in the world of bioquantum a different frequency medicine where people are utilizing microcurrent to stimulate different nerve pathways, etc.

Are you doing that in conjunction with these? No, we can't because that's another variable. If I have a group of patients, I'll have to add another group.

Right, right. Because is it that plus that or is just that, or just the other one? It's adding another group, too much, not cost effective. Obviously we're talking about the reproductive system and one of the things that we do out of our longevity clinics is what you're familiar with, I'm more than sure, is the Gains Wave, the shock wave.

And part of the treatment, you know, is in combination with doing like a P shot. Yep. And then we do the low frequency shockwave therapy that causes that micro injury, if you will.

Yeah. It's with our patients, it's become very effective. Right. That helps increase a lot of blood flow too. Which is what you want. Exactly. So, There's still a lot of skepticism with regenerative type of treatments.

But at the same time, we see a high profile individuals going to different countries to get these regenerative treatments done, right? And I'm more than sure that a lot of these individuals that fly out to these other countries, they're doing a lotta research.

They have many different doctors and PhDs in their corner that are advising them on what they gonna get when they go to other these countries. So why so much skepticism?

One of the things is the concern of, you know, the manufacturing aspect of it. Is it truly what it actually is? Which is a hard one to decipher because somebody can give you a piece of paper, certificate of analysis to tell you this is what is when it really isn't.

We've spent time studying other products that are out there, other things that're out in a lot of times. A lot stuff is a little bit disappointing. And then when you discuss manufacturing, which is actually common, actually here in the United States, I go, and I've been to labs, a lotta labs around the U. S., and an individual tell me, yeah, this is what's called a current good manufacturing practices lab.

I'll walk in there and just walking in and understanding the system, no it's not. you know and they'll say oh yes it is I had one like six months ago I was like oh come check out my lab we're doing production here and he opens up his cleanroom door and He's like no come on in I said how can I come in if I haven't even qualified with a You know to go in your room is one and two with the gowning requirements to going your he's Like no no just go into the pre-gown area.

I'm like I can tell right there is not a correct quality system or something's not right. You're asking for trouble and this is being produced the right way.

So those are a lot of skepticisms. But there's a lotta good stuff. People are, you know this, including yourself, your doing the testing and you're seeing the results.

Some people, especially in our sectors, they embark on, we do too much. So it's hard to decipher what works and what's not working because you did a combo of 15 different things.

What is actually helping me? That's the hard part about it. We have clinical studies in the United States and we know for fact the product that we're using works.

We have some good evidence that it works. You know, one of the things you just said is like when people go all in into the functional medicine world or regen world, or biohacking, how a lot of people say, it's like, when you go in, you're doing all kinds of stuff.

Yeah, you're taking every single supplement you could think of. You're in the hyperbaric chamber, red light therapy. And it's just like, OK, yeah, I fixed my knee pain, but what fixed it?

Yeah. It was probably the icy hot instead of everything. But that's where the science guys like you come in and can actually, zone in, and figure out exactly what is working and what's not.

So now I'm going to get all a little bit off topic because I'm with the scientists, right? You're a scientist, you believe in God. I believe God, I really believe there's a supreme being.

Okay, there are a lot of scientists that don't. I believe that there is a Supreme Being. You know it's funny I was asking my grandkids the other day because they were saying is there really a God as I said Regardless of whether you think there's one or not.

Do you pray and do you have faith? Then if you're praying who are you praying to right and who's your faith and if You don't have Faith, what do You have?

Because when you go out and tackle when You go on tackle something that you need to do or something you to accomplish. I think if you don't have faith in yourself or in faith that your gonna get it accomplished, how do you actually get accomplished?

So I do believe there is, you know, I have, people talk to me about this religion, that religion. And I said, You can have your own religious preference and I love everybody the same equally.

You know I believe as long as you have face and believe Everybody pray. Yeah, you know you can tell me that you're an atheist and I When you are sick as sick can be and you've seen everybody has seen this I guarantee you gonna pray who you praying to but if you don't believe in in some form of supreme being There has to be a higher power.

And sometimes we see miracles obviously. Everybody has see them. Like how do these things happen? And as a scientist, when you see that, a miracle, you can't even repeat it.

So there has to be an answer to that. The higher power. Now as scientists, right now it's been all over the news. There's some scientists that have disappeared, that worked for NASA, worked with a lot of these government agencies and stuff.

They're talking about UFOs. They've had some very well decorated, you know, US military guys that have seen stuff, very high in the ranks. As a scientist, do you believe that there's something else out there?

Oh, it has to be. It cannot be the only ones here. And I mean, I've seen some. I have a colleague of mine that's all

into it, that goes to Vegas, goes Arizona.

There's two specific areas that you can go see things. He's shown me videos and images that are They're hard to refute. And I don't know who would think that we're not the only planet.

There's gotta be, there's people outside, you know, There gotta other people out of this planet for sure. Yeah, I think the same, you know, even being a Christian, believing in God and this, that, and I there is something else out there.

You know where my mind goes, being in the medical field and seeing a lot of new technology and science develop, sometimes I question did something get here and there's a few scientists that are reverse engineering things and that's where a of our science come from.

What do you think? Do you any of science comes from somebody reverse-engineering something from elsewhere? No, that I don't. I have that chain of thought.

That's going on. There's other people out there, and there's aliens out, there are possibilities of people being far more advanced than we are. And I do believe that is there.

So who knows if in our lifetime, we'll actually see something like that. I think we will. Oh, man. That's going to be a scary thing. But the reason why I say sometimes it's like a scared thing is that if you do end up having a communication with some of these, you know, different beings, if will, and they are smarter than us and their technology is more advanced and the start communicating and saying, hey, Our planet was just like yours and we messed it up the same way you guys are.

And this is really what happened before. It could easily debunk a lot of the religions that are out there. Where all of a sudden now, religion has put a lotta structure into civilization, society, and all that stuff.

So you go to some of these countries where all the sudden everyone now feels like the religion is false. I mean, that's nothing but chaos at that point.

Yeah, you know, I think even if there was the individual that comes here and says, hey, we're XYZ and superior and this that. I think you're still gonna have your core faith individuals, I'm positive you are, that are still going to keep the faith and continue the trajectory and what they believe and their core beliefs.

They're gonna continue that. I don't think that'll change. You'll have the ones that on the border that would then be like, you know I've been thinking this all my whole life and I have been fooled.

But I the one's that the smart ones and the ones that are disciplined are gonna stick to their guns. That's interesting. And you know what? Some people think, they say, you what, it's not even an outer space.

It's the deep blue seas. We haven't been able to explore all the areas deep down. So just interesting stuff, man.

Spinal Cord Injury Research and Patient Outcomes

Its always good to kind of hear from a scientist, what they think. Because I know your mind is always going, because you're always trying to crack the code, the next code.

So, you know, I wanna talk about with Regen, right? We focus a lot on trying to cure something, trying cure a pain, enhance the immune system. Do you feel that the future of medicine is gonna be more focused on prevention or actual treatment intervention?

The way this country is set up now, and because it's a system that has been broken for a long time, it is always going to be… Unless people are adapters, it's gonna be a treatment.

And the other flawed part of this country is the insurance system, the way everything is set up, because you have to be sick to get treated. Yes, they tell you, insurance companies, hey, we'll give you an annual checkup.

At that end, you'll check up, consist of a current blood count, a CBC, metabolic panel, let me check you out physically. They don't run an x-ray. That's extra money out of your pocket.

They're not going to look at your HSCRP, they're going charge you for that, it's an inflammatory marker, tumor necrosis factor alpha, these different tests that are indicative of you having an issue, especially with the immune system and with problems of the system.

They are not gonna look that. It's very basic that it basically tells you if something severely has gone wrong. And when something severely has gone wrong, you're just being reactive, which is the way the system is actually set up.

The ones that are, there's a lot of people now trying to go proactive, but everybody that's going proactive on everything now because of this strong push for health, for aging, it's all out of pocket.

It's an unfortunate thing, But it is out-of-pocket that it what people are doing. And the insurance system, You know, my daughter has all these issues, she's having neck issues now, and I said, sweetheart, forget about the insurance, get your script, you go get an MRI, we'll pay out of pocket, it's the same price as the cold payment.

And people don't even understand, they're like, really? And I'm like yeah, yeah you gotta wait two months to get approval for an MRI that you needed a long time ago.

And then we got people at the same time in this country that don't even understand the aspect of, oh, we want medical coverage for all. Well, then why are countries like Canada that have this, and Spain, why do they fly to the United States to pay for care?

Because it's not good. People will have a blood lab, most likely from that blood, you have cancer, We'll get you a bone marrow biopsy within the next four months.

It takes a long time. Four months, you'll be dead. You know, it's a flawed, a really bad flawed system. That's that sick care system that we have, right?

So, when it comes to regenerative medicine, I would I wouldn't like you know you go to the a forum you speak at the forum. But everyone's always talking about chronological age versus biological age.

And everyone is doing all these different type of tests and what they're saying as well. I'm putting my age in reverse. You think that's actually happening.

I think you can slow down aging and you reverse aspects of it, but the majority of those testing parameters, and we pretty much have proof a lot of epigenetic clocks and all that, are flawed systems.

And the way we see that they're flawed system is basically by, if you take, some of them are accurate, you test somebody, if you took somebody and you tested them, you know, let's say once a week, You will see so much variation, even if they didn't make that much of a change, which we did that with the study we were doing for longevity with cell, the cell therapy that we're doing.

And we we just taken back by, wait a second, There's some improvements and for instance, we saw improvements in which was unusual. We were taken back by an immune function, which is fine.

But then when we looked at aging of, you know, cells and in theory, were supposed to be helping that biological clock. Right. Things going up, then going down, and then up again, down again.

And no true inconsistencies with it. I don't think we're getting there with that aspect of, you know, I've reversed my

biological age. You can slow it down and you can reverse some of it, but the simple method of doing that is just, can't eat right.

You're right. How you feel your body. You know, you're absolutely right about that, man. And I've seen it. I have tested it myself with other individuals as well.

One, just one night by itself, you go try to do the test again. You know, let's say you got out, have a couple glasses of wine and don't get good enough sleep.

All of a sudden your biological age is completely different than I say. It's just like, man, I age six years overnight. So hopefully one day we get to something, it would be more interesting on my end to kind of understand what type of algorithms some of these labs and stuff are utilizing to even create these biological ages.

So, Doc, you are an immune system expert. You specialize specifically in the immune It's the powerhouse of your entire body, man. It is like people don't understand.

You know, we're in this room right now and I'm exposed to your microbes, I am exposed other people's microbes and as soon as you get exposed, you got one system to take care of it.

You know, it can be something different. Your immune system is challenged daily with you go outside and if you expose yourself to sunlight too much, you got a mutation, something's got to clear it, the immune systems.

Every single disease, what people don't understand is every single diseases out there, everyone including genetic ones now we now know have an immune component to it.

And if your immune system is optimal, it'll clear it and it will take care of it. And one of the keys to longevity is maintaining immune health. There's nothing more important.

I mean, look what happened. We're now six years into COVID. Six years. Look what happen with how many people, you know, passed and It's essentially, a virus was introduced, the virus came into the body and the immune system couldn't clear it.

Because the system was challenged. Look at the people that actually unfortunately passed. A lot of them had other comorbidities, other health issues. Well, your immune systems should have took care of those other problems and you would have been fine.

You would've survived the COVID. But it's one of the problems that consistently persists. You have individuals now still to date with long hauling. And these are individuals, every single one we now know, long haulers, is a viral issue.

And, these people have an overload of viruses that the immune system is not clearing. They're specific viruses, that are causing havoc. I asked this question, actually, my kids know this well, we talk about it, and we joke about this, the difference between bacteria and virus.

A lot of people had no clue. It's an interesting point, because what you don't know is that The virus requires a host. The bacteria does not. And you're the host, and if you look it up, I mean, go to chat.gpt, the free version, then say, give me a nice picture of a, going back to what we were just talking about.

Give me nice a picture a virus, like an alien spaceship. And it's the way they really look if you look at them. And then these things just sit there like almost like a mosquito and they'll inject their genetic material into you and then your cells go out and replicate and you've got them fully integrated into your body.

It's crazy. Wow. That's an alien in your bodies. Sort of. Yeah. See, I knew you believe in aliens, those aliens. So how do you measure the immune system?

I mean, standardly, when you go just take a complete blood count, you know what I'm mean? Just do a completely blood account. Looking at the white blood cells?

And then, yeah, look at white cells. You'll look, there's two different. The immune system consists of two components. One of them is the immediate responder, which is called the innate immune response.

And the other one is secondary, the stronger one. It's like the military. That's called adaptive immune responses, consisting of T cells and B cells, These are cells that can multiply, target, do everything.

We spend a lot of time working on one cell that I think is a fountain of youth, which is the natural killer cell, because it's the first responder to viruses, to mutated cells, and then to senescent cells or zombie cells are part of aging.

Okay, so you explain how to kind of test the immune system. Now, how does metabolic disease correlate with a compromised immune system?

Immune System, Inflammation, and Longevity

I mean, if you look at what transpires on a daily base in building up things and breaking things down, which transpire metabolically, the immune has byproducts that have to be processed in there.

Metabolically is where you break down and a lot of times you will form oxidative stress free radicals that then actually causes an immune response also.

So when we talk about sort of like being healthy, you know, one of the keys is, metabolic syndrome is a true problem because it affects the immune system.

They both affect each other. Because you get byproducts of things not being basically composed together or being broken down the right way, and the by-product cause a massive inflammatory response.

That's why, you know, when you overeat, instead of eating a slice of pizza, eat three slices of Pizza. You got to break that stuff down. Your liver works on over time.

The gut spends time destroying it, activates the immune system, the liver then activates The immune System and you get like a vicious circle of you feel sick.

you're not breaking things down, You're you not processing things the correct way and that causes aging. Aging is essentially one thing is Every cell in your body has a finite amount of cell divisions.

You know, cell divides, divides divides until it can no longer divide. That's aging. At some juncture, there's no more cell division. If you're consuming a ton of food, and if you are overeating, because the only proven thing, especially for when we talk about telomeres, that extend telomerase and slow down telameritrition basically, shortening of telameres is caloric restriction.

Yeah, it's because if you think about it, It makes sense. You don't eat as much. Your body has to go sort of into like a semi-starvation or let's slow down the system mode and cells are not going to divide as well.

So you're maintaining, you know, the longer type. It's like the turtle. The turtle sleeps. Turtle doesn't do anything. He sleeps whatever. he lives to 150, 200 years of age and he spends so much time sleeping, he does not have that much metabolic activity.

So sleep is important. Sleep is beyond important, people are not- That's where you're recovering. Yeah. So you mentioned inflammation, right? And I hear a lot about infl- aging.

Inflammaging. And that's how you, one of the things that make you age quickly, a lot of inflammation. So is it safe to say that inflammation is an immune response?

Correct, yep. Right? Yeah, it's part of an immunoresponse, yeah. And when you have that immune-response where you a have a lotta that information happening.

Define chronic inflammation, because obviously sometimes we need that initial immune response, right? You get exposed to some kind of bacteria, virus, any kind pathogen, you're going to get that initially inflammation.

You might get some congestion and stuff from that inflammatory response. But that chronic that's where you start hearing, okay, that where people are really the true killers coming into play.

I published a paper actually in 2015 on using cells for inflammation, so 11 years ago. So I was one of the first to actually publish something like that and talk about it.

And if you look at the immune system, there's two components, two vital components to it, to major vital component to. One of them is the pro-inflammatory response, which is inflammation, Which is target, kill, destroy, eliminate, get rid of.

The secondary arm is an anti- inflammatory response. That is anti inflammatory, response is a healing response the repair response to take care of what that pro inflammatory did.

In aged individuals, when they live longer, and there's a ton of studies, published studies on centenarians, on how do they maintain health to live to 100, 105, whatever it may be, is they have a clear balance of that immune response and that pro-inflammatory kill response and the healing response.

You need that pre-flammatory response to kill, so cancer patients, they don't have this. They don' kill. The system is sort of on trying to heal response, and they have no killing.

That's pretty common with a cancer patient. Individuals that don't have much of a healing response and have a strong pro-inflammatory response, and those are measurable, you can measure those.

Those are the ones that have at some juncture, it's a dull pro inflammatory response that is not really killing correctly and it lasts, persists, persist, persistence.

This is what causes cardiovascular diseases, neurodegenerative diseases like Alzheimer's, Parkinson's et cetera. And it's an immune mediated. Those are immune-mediated diseases, too.

Wow. So, all right. Okay. That immune response, right? That's happening. How do we fix it? How to we enhance the immune system? There's a lot of things that you have full control over that can do easily.

I call them the baby steps. One is what you put in your mouth. If people don't understand, 60% of the immune system is in the gut. When you eat something bad, when you something that's processed, the immune system has to help clear it, you cause inflammation, cause a chronic inflammatory response that has the subside.

You tap your immune systems when if you think about it your system is dealing with so many other things that it doesn't need that extra struggle. That's one.

Two, exercise. Exercise does one clear thing. It increases blood flow throughout the entire body. and it now lets your immune system clear what it needs to clear much quicker.

Not only that, it gives oxygenation to vital organs, which are key to maintaining health. The last one is sleep. Those are the three easy ones that you can do.

You have to get adequate sleep, your sleep is set up to help your system, to your body replenish itself. One of the problems that happens nowadays is you have people that say, I sleep fine and I talk to people about, well, maybe you sleep find, but when did you have your meal before you went to bed?

Like eating late night and unfortunately, as you know, in business and all that, you get stuck on these late-night dinners and that. Probably one of the worst things you can do to actually help yourself rest, sleep, and clear the body.

Keeps that heart rate up. Yeah, for me, I can't do it. I mean, all the time I measure it and it's like eight, 10 beats higher. it keeps it higher because you're processing something when your immune system and your body's supposed to be replenishing and resting and clearing everything out, but you still start processing.

Do you like go all out before you go to sleep? No blue screen, no blue light exposure. You're not on your screen two to three hours in advance. I don't do that.

That's kind of how I am too. The only issue I have is staying asleep a lot of times. because of the when I when i forget and I sort of have a routine of when.

I forget to write things down that I need to get done, then I'll sort. Of wake up with, you know, like in the middle of night, still thinking about it.

Oh, I don't want to forget. That I was supposed to do that. And so and then, You know. Then I'm going to then. Go into breathing exercises while I.m there sleeping.

Or I know how to. Get myself back to sleep and just focus on. Not the person. You. Know, a lot of people say like, well, i couldn't sleep. i just get up.

I think that's a wrong approach. You meditate? I meditate, yeah. Nice. So I'll do that even when I'm in bed laying there if I can't sleep. Even a lot of people talk about, trust me it works, counting backwards, county sheep backwards.

Counting whatever you want backwards thinking of great places that you felt totally chilled. Stay focused on like meditate only on that part right there and you'll fall asleep again You know, even if it's only a short term whatever because you still have other things in your mind, right?

But you can you pretty much force yourself to go to sleep You recommend people to measure their sleep data with any wearables. I do with the context of Take it that if you've lost sleep, okay, you just have to find a way, but don't take it to heart too much because I know people that get consumed in it and it can wreck you.

It becomes like a new stressor. And stress kills, right? So it's like you're doing these things to take care of your health, but all of a sudden, you know, there was a study, I actually saw something about it.

It was overseas, and it was athletes between the ages of 25 and 35. They were looking at a group of athletes, they were noticing that the group athletes that were so in tune to the health.

I gotta use the sauna at this time, gotta take my vitamins at that time. Gotta look at my sleep data. They were showing signs of heart attacks and strokes at an elevated rate versus the other ones that kind of just do it occasionally.

Because they were just stressing out over taking care of the health. Stress is stress. Your body doesn't know the difference. So sleep is a very important part for immune system.

These are the things that we could do. And these are same things I always tell people. It's like, it's so expensive to be healthy. No, it's free, actually.

There's three things, you know, nutrition, movement, and sleep. So, but then, obviously, as a scientist, there's other things that can enhance the immune system.

You have some of the regenerative medicine techniques. Before we go into that, we were talking about that

inflammatory response. And one of the things that we know also that can affect the immune system are a lot of our external environments, things we get exposed to.

A lot the chemicals and the plastics and glyphosate is big right now that they're talking about it. And these things are going into our body, sometimes not even through the foods that eat, but even just walking outside.

When it comes to some of the things that you're doing in the regenerative medicine side, does it also help with the oxidative stress that's being caused into the body from a lot of these external environments, these chemicals and these type of things?

I mean, we haven't directly tested that because you'd have to take somebody that is exposed to an increase of toxins, environmental issues to actually test it.

But we believe that if your immune system is optimized, you can clear practically anything. You know, you definitely can. And we have evidence that, with the cell therapy that we're doing, we can regulate the immune system.

I can make a shift in what we just talked about, especially in auto. We do a lot of clinical studies on autoimmune diseases. I can shift that pro-inflammatory response which is highly elevated and people have autoimmune diseases and the anti-flammatory Response is really low and I could shift it and balance it where the individuals get healthy You know, we've even we even had people that are refractory to all the drugs that out there and have done really well You don't studies too.

So it's it we know that we can help the immune system, but we also talk about I'm sure like things that you know You've heard too is you no prep the system to make sure that you set things up for success.

These are not cure-alls. They are treatments, they're not a one and done. Rarely have we seen a One and Done in any of these, you know, regenerative, any regenerating product that's out there.

It's normally something that your gonna have to go back and do again, and especially if you don't take care of yourself. Like if somebody has pulmonary fibrosis and you're smoking, these are why you smoking?

How did you get pulmonar fibroids smoking. stop smoking, and those are individuals that I'd be like, oh, don't even waste your money doing this if you're not gonna quit.

You gotta make lifestyle changes. The avoidance part has to go into effect. If not, you just continuously feeding it. How important is mitochondrial health when it comes to the immune system?

It's another thing that's studied a ton where there's some evidence to that even some stem cell therapies can actually help transfer and rescue mitochondria.

Mitochondria is a powerhouse of cell. It is where energy is formed. If you have an appropriate mitochondrion within a cell, that cell energizes, it can be energized, can function correctly.

And what people don't understand is every cell in your body strives for one thing, and it's survival. Every cell on your bodies communicates with another cell via specifically not only exosomes, which we know are these little bioactive molecules that go from one to another, but also just secreting out signals and everything.

The reason why a healthy cell does that is to help a neighboring cell, an injured cell. Cells don't want to die. They dont want die on your body because they know the outcome is I'm dead, Im gone.

It's like us as individuals. You can actually see this on a petri dish, which is pretty neat. Because you can starve a cell and you'll see how they'll actually tighten up to their partners.

to try to help each other, and they'll communicate. And then once they're healthy again, they sort of spread their wings again. They'll separate out. You can see this is a pretty neat process that you can actually see.

It's what happens. We strive to survive and strive be healthy, so do the cells, the trillions of cells that we have in our body. That, you hear a lot about when it comes to the regenerative therapies, how it's helped a lotta people with these different inflammatory diseases, people who have autoimmune issues, everything from rheumatoid arthritis, lupus, all kinds of different things.

Is it true that stem cell derived products can also grow cancer in the body? It's a possibility because you look at a product that does two different things.

One of them is it serves to help control the immune system and help the inflammatory system, theimmune system. And secondarily to that, we know that these cells contain specific growth factors that increase blood flow.

So if somebody has an active cancer or has the possibility of mutated cells that are floating around, there's a possibility that you've now added fuel to the fire.

And there are some studies that suggest that, yes, it can add fuel the to fire, there're some that say that it could help modulate the immune system, which can help.

Because there studies I know done in Israel where they look at post-chemo.

Lifestyle Foundations for Immune Health

You know, we always talk about we won't treat a patient that's had cancer within the past five years because of the fear of we reactivate something You know, something like that.

And what people don't understand nowadays is, you know you think of, if you thought of what you would you'd think a million cells is a lot? A million, do you thing a billion cells?

Sounds like a lots. Sounds a like lot, but a millions cells as a speck on this. You can barely see it on the chair. Wow. A billion cell is the end of my fingertip.

At a billions cells what will you normally see when you run a scan and you'll see something small. Right. In the context of cancer. But a Billion cells are a lotta cells.

Yeah. That means that there's possibility of other free-floating cells that are waiting to go somewhere else, target, go into system somewhere. So it's a little bit scary when you're treating patients.

We err on the side of safety that… Be cautious with these type of things. How do you rule that out? Rule a patient not having cancer? I mean, you always ask for family history.

You always asked for past history, and then another thing you can do is there are specific tests you could run. you know, You can always run standard blood labs.

If something pops up unusual, then that's a red flag. But you also say, hey, if you had a history of cancer, I'd like you to run, CEA, carcinomic, embryonic antigen tests.

I want you to run a CA test. There's specific cancer markers that you can actually look at. Just to try to rule it out. So the treatments that you're doing, that, you've researched when it comes to enhancing the immune system, stem cell derived products, how is that working?

And with what kind of patients? We are, our furthest along is we have a phase two, three study in, it's called the idiopathic inflammatory myopathy, used to be called polymyositis, dermatomyositus.

It's considered an orphan. There's about, I think, 50-55,000 patients in the United States. The neat thing about that is for us, it helps us get through the process quicker.

Like we were granted by the FDA what's called fast-track status, orphan status. So we can move a lot quicker, we get dedicated individuals that'll see us through.

We don't have to do as many patients. And then once we got an approval, then you can talk about the possibility of possibly an off-label use for other different diseases.

But we're also doing a rheumatoid arthritis phase two, three refractory. So these are patients that have exhausted all the different medications out there, the steroids, et cetera, all these type of things.

And then, you know, they're able to come onto the study. We have an ulcerative colitis phase two study that we haven't started yet, we're gonna start soon.

Also refractory, were going after the hard. The ones that nobody else can solve because we've been seeing some success when we treat them regularly. Okay.

If you do treatments regularly, and then lastly we have a at Stanford University, We paired up with what's called Solve FSHD. Fshd is facial scapular humeral muscular dystrophy, hard word.

And when I first heard about this, I was like, you know, like I've heard of Duchenne, Lim Girdle, Becker, all these. I never even heard that. It's like a really, really orphan status.

And it's normally an adult onset, so he's open about it, the owner of Lululemon. Chip Wilson has it, he's actually set up a foundation that they fund different studies and we're the first company, they went through over 60 different companies and they've decided to fund our company.

It's a study, a phase one, two study at Stanford University. And the concept of it is, because it's genetic, is to basically slow down the progression of the disease.

Because it a muscle wasting disease and the neat thing, this is why the scientists, we think and see things, In our polymyositis, dermatomyositus, that is a study in autoimmune disease that affects muscle.

And these individuals, when the immune system targets and kills the muscle, the muscles becomes of fatty origin, fat deposit, which is pretty common. Very similarly is the muscular dystrophies.

Right, the ALS, right? Yeah, well not ALs, this is like muscular dysstrophy, muscle wasting. AL s is motor neuron disease, which actually, we were the first company to actually treat somebody under compassionate use now with an IV and a spine injection two weeks ago, actually local here in Miami, Baptist Hospital.

No, AL S, they get the muscle muscular atrophy. They get, yeah, ton of muscle atrophy. they Get loss of motor function, all motor functions. The bad thing about that disease is I mean, it's a horrible disease because can you imagine being coherent and you cannot move and You can't speak but yet your brain is still functioning correctly.

You've lost all motor movement including at some juncture the ability to swallow which a lot of them end up drowning in their own saliva or the Ability to breathe which is where when you go succumb to the disease.

Oh So the products that you're using, what is it doing specifically in the body to stimulate the immune system? So we have evidence, so we took the cells that we, I spent years studying these cells, producing these cell, and we looked at how do we produce a cell?

When is your immune system optimal as adults? It's about 18, 20 years of biological age. The cells we use are about 20, 18 years biological. Because we measure them looking at telomeres and telomerase activity is the way we've measured them.

We put them in a specific condition of, here we go with feeding. So we were smart on the feeding on keto aspect, because we're putting ourselves sort of in keto type of diet, low glucose diet for many years, cause we saw benefits

of different sugar.

Normally when we grow cells in the lab we use sugar formulations, glucose formations. We notice that a lot of people try to, you know, put sugar on something because what does it make it do it?

It proliferates, it makes it grow. The system too works a little more energy quicker. Same thing with cells is the way it's standardly done. But we notice in the cells that we use that when we put them in a specific diet formulation that is very low in glucose, The cells don't grow well, but then they adapt.

They take a little bit longer, and when they adopt, they grow really well and they preserve a young physical feature to them. And then these are the cells that when you put into the body, what people don t know is when put a cell into a body through an IV, the first right of place is the lung.

So they'll reside in the lung. Cells, all stem cells, are much larger than their ability to actually go through the entire system. So, they do this thing called extrovasion, is where they actually, some of them will smash and they will go though and go to the rest of the blood flow.

They go from lung, liver, spleen. they go down to gonads and then they come back up into the brain. In mouse models that we did mouse studies for, when we label, we can label cells.

You know, we'll see very, 5% of them will survive and go up to the brain. The remainder of the are trapped in the lungs. At some juncture, they're eliminated by your immune system.

But the neat thing about that elimination is while they reside, and we talked about them striving for surviving, They release their guidance cues. And those guidance queues are small packets of information, bioactive molecules, that can then go through the system and make a change.

Moreover, within the lung, you have a particular immune cell called the macrophage. And the Macrophages, just as it says macrophage and it's an eater, it eats bad things.

It's one of the predominant ones that helps with infections, everything that goes through the system that you breathe in through mouth, nose, to remove it from the lungs.

That macophage is a pro-inflammatory molecule. But when that pro inflammatory molecule in the long picks up a dying stem cell, It converts into a healing macrophage and it's called an M2 macrophyse.

So it converts from an pro-inflammatory one that was a killer to an m2 killer. And that healer now does similarly to what we talked about is release more guidance cues into the body that helps heal.

The product that we have, we know their specific cytokines, these are cell signalers that they release. So while they stay in the lung, they released specific ones that are strong anti-inflammatory ones and some that actually pro-flammatory one.

Aren't peptides kind of doing similar things, like signaling? Peptides are signalers, yeah, but peptide work specifically on, for instance, one path. The cells that we have are what we call like a polypharmaceutical.

They have multiple pathways that they run. they release multiple different cytokines. So you were talking about injecting these stem cells intravenously.

When it comes to the blood-brain barrier, only 5% actually? Get to that. In the mouse model, that's what we've seen. Before, everybody thought that nothing would go into the blood-brain barrier.

That's actually one of the studies that I have done many, many years ago. And we now know, for instance, the immune system in theory is not supposed to go in to the bloody brain barrier, and that causes havoc and diseases.

There's really no true immune systems in the brain and the spinal cord. It's only one cell type that is in there, called the microglia. And it doesn't act right.

It's what causes multiple diseases that a lot of people are studying, you know, that particular cell type in brain diseases, the ones of aging, Alzheimer's, Parkinson's.

Some cells can actually go through, but it's not that many, very few. You know, I've heard of companies out there that now they have like a nasal itemizer that they use that helps better absorption for the mucous membranes or something.

I'm not sure. Is that accurate? Yeah, you can. Yeah. You can I mean, if you think about it, the theory is you could produce. So every cell in the body produces these bioactive molecules that are it's like it.

It's an exosome and it say lipid bilayer, just like the cell has lipids bilayered. But it one one thousandth the size of a cell. And it contains a cargo.

And it's so tiny, it is a nanoparticle that you can put this possibly into a spray as long as it has the right ingredients, the active ingredients. And you'd be able to spray this in and in theory it should reach the brain because it can pass what's called the cribriform plate that's there.

Stem Cell Therapies, Safety, and Cancer Risk

It can actually go and it could activate things of the, you know, of brain. That must be really good for like these athletes that are dealing with like traumatic brain injury.

That's where the field is going, these type of treatments. Are you guys doing any research on that? Or are you just primarily focused on the immune system?

We're focused the on immune systems, autoimmune disease, muscular dystrophy. We are considering an addiction study that we've been looking into for quite a while now because there's really nothing out there for addiction.

There's not that much out. I mean, yes, there are NAD drips that work fairly well, but we're going a little bit of a different approach, similarly to what you said with spring.

That'd be interesting. The addiction? Yeah. Huh, that'd be a very interesting one, especially here in Florida. There's a hell of a lot of addiction centers, right?

It's like the red zone. Well, I didn't know, so Virginia's the number one state in, and I don't even know that. For addiction or something? Yeah. I know Florida was like for- Florida's one of the big ones.

But then it became very corrupt and a lotta fraud with these addiction retreat centers or whatever they call it. Of Virginia, huh, very interested. So, How do you see all of this regenerative stuff that you're doing, the regenerate medicine stuff, that's happening, how do see that fitting into the big movement that is happening right now, It works in great because you know, we talked about the baby steps the food The integrating daily activity other countries we've talked About it earlier before here.

Oh, they're actually forcing people to you Know not forcing them but saying guys you got to get out. You got exercise guys You gotta eat like this is what you gotta do and it's the movement to maintain basic health It helps set up the cell therapies to do a better job Because if I put a cell into an inflamed environment, it's a harder job for that cell to do what it really needs to.

So it is setting it up for it. The good thing about this entire movement is cells are natural, organic, the movement towards that is going towards. At some juncture, a lot of this stuff, there's already the first cell therapy got approved this past year for a particular disease called graft-versus-host disease.

It's a really, really small indication. Thousands of patients throughout the United States have that. But it's approved, and others are following. We're following, I mean, we think in the next couple years we might be able to get an approval.

It's gonna push, you know the FDA and the government to like let's get this out there more You know, we even had conversations with a lot of people talk about well, that's too expensive Well, guess what?

Insurance is gonna be willing to cover it especially for specific disease because we've had payers right now We've got interviews with payors and we discuss this how much would you cover?

What type of insurance because? We have to know exactly pricing on what how these are gonna. Be priced out That would be actually pretty cool Yeah, you know, because we talk about make America healthy again, but then all of a sudden you see everybody going to Mexico or somewhere else, it's just like.

But recently, July 1st, we had a bill that passed here in Florida. Yep, last year. Specific to. you know, about stem cells. Let's talk about that a little bit.

That was something really big. It was all over in the longevity space. Everyone was talking about it. I mean, doctors have literally left their practice out of New York and other places and have moved here to Florida to start doing more research and getting more involved and bringing business here.

So is this truly a good thing, what happened? I worry about because it's more of a monetary thing there than actually digging a bit deeper. The rules are specific though, what people don't understand, they think it's a free-for-all, it is not a Free-For-All.

Companies that produce these products have to be Florida-based companies is one. They have follow what's called current good manufacturing practices, there's not that many companies that do so.

And they have an approval for having a tissue bank license also simultaneously. Then it only approved for pain, orthopedic, which I mean you can, pain is almost anything.

pain, orthopedic, and wound care. It's those three things that it's approved for. I heard there's some modifications coming to the bill. Utah has a similar bill already.

They've had it for years. But they've kept the sort of hush-hush. Not saying anything. Tennessee just passed one. like two or three weeks ago with my good friend, Dr.

Ethan Kellum, which he actually works with one of the football team out there too. So they actually just passed one too just recently. He was the spearhead of pushing that forward on there.

So yeah, some of the stuff is good as long as they stick to what they state and as Long as you know, I worry about people getting people have gotten injured with type of things and yeah And that's where we get a bad rap, right?

Right, and then they try to regulate it even further. Yeah, they take away You know a little bit of that medical freedom away from yeah everyone so which that that something that we definitely need to avoid These people get involved also for the wrong reasons.

You don't know it's um in any industry where there's dollar signs you get some of the individuals that are playing around, like it's a wild wild westing, kind of doing anything for the dollar.

So, we've been talking about stem cells, but then we hear a lot about exosomes. What's the difference between stem cell and exo-zones? Oh, so the stem-cell is where the exoso-ome comes from.

Well, the Exosome come from any cell, But the good ex-os-omes come form the Stem-Cell. It's like think of, Think of a ball and the little plug that you actually, you know, think of basketball and that plug you inject in to fill the air.

That's the exosome, that little tiny thing. And it's about 1 in 1000 the size of that entire thing and it is just a bioactive molecule. communicates with all the cells in our body.

And it's one of the communication vesicles. You can sort of take a stem cell and coerce it, make it produce almost any factor you want. If you know how to do it the right way in science, that's what we do.

When we talk about geeking out, We'll feed it a specific growth factor, and then stop feeding it, then let it starve a little bit, all of a sudden you'll notice that the cell's so smart in this petri dish, it'll start saying, wait a second, I don't have this, my neighbor, the other cells, need this to survive.

I'm gonna start manufacturing it. And you get a natural factory of this stuff. The neat experiments that we find, for us as scientists, are completely, we're like, wow, this is crazy, So, so now I'm hearing a lot of people talk about new cells.

Yep. What's that what's their difference between their cells X as well. So the new cell is a new sell type that was found about a decade ago. It's an exact stem cell, it's produced from a stem, but they put it in a lot of stress and then there's very few of them that come out of that stress, and they say that those very fewer of the come-out-of-there are better.

The problem is that manufacturing those in large scales is virtually impossible or very cost prohibitive. Like manufacturing that in millions of cells, they say 10 million cells is easily 20, 30, $40,000 if not more in the United States.

It's really somewhat cost-prohibitive and some of the stuff that's out there, there's been people that have have gotten injured because we talk about the manufacturing aspect of it.

There's quite a few because I've had individuals that have contacted me that they have seen some stuff on social media and some people going crazy, like attorneys going Crazy after some doctors.

Yep. Yeah, correct. Because that's 100. They're 100%. The problem is that They are not understanding the Manufacturing aspect. And this is what I talk a lot about manufacturing.

doing things the right way, growing these things, testing them the wrong way and making sure they're correct. You know that particular cell has a protein that's called SSEA3 and that protein is a very young embryonic protein, that maintains a youthful cell type.

And there's very, you know, in the context of if you take, everybody knows the mesenchymal stem cell. There's about 5% of those cells when you start that population that are in there.

So when your manufacture, if take a billion of mesenchymyal cells, which You know, manufacture that as 20, $30,000 the correct way, according to the guidelines and the way you're supposed to do it.

If you took 5% of that, you now have, what is that? That's about 5 million cells, something like that. Yeah, about five million cell is what you gonna have.

Those five billion cells think of the cost for that and five millions cells is not gonna serve as a therapy. That, like I said, a spec that you putting into a body, it's not going to.

You need more cells than that. There's just been a lot of, I guess I'm missing it, a lotta social posts on it. Social media, the influencers, some of the guys that I like, this is some stuff for me is nonsense.

When you say that they're growing in a very stressed environment, what kind of environment? Is that like a hypoxic environment. Hypoxics environment correct.

You put them in hypoxic environment or you put em in starvation mode early on when you started the culture in the

Petri dish. and then you'll grab a certain population of them that can survive only.

And then, you grow those up. The problem with once you start growing those, they revert back to, because we've done this years ago, They'll reverted back their standard mesenchymal stem cell.

You guys do that with your cells? You have to grow them in a stressful environment? We put them into a specific food formulation that initially stresses them, then they adapt.

Similar like when you're on a ketogenic diet. Your body adapts and you feel great. Now for the viewers and listeners that are going out there to get stem cell treatments, regardless of where they're going, are there other type of services and modalities in conjunction to doing stem-cell therapy that can enhance the treatment outcome?

And I'll give you a couple of examples, like red light therapy, IV vitamin therapy. Obviously nutrition, sleep and stuff is important, but a lot of these other alternative treatments that people can pay for, would it help?

100%. IV nutrition is phenomenal. I'm very bullish on IV Nutrition because people don't understand what we just talked about. As you age especially, a lot of times you think you're eating enough or you are taking enough supplements, you don' absorb half of it.

This is a simple method of getting it, goes directly into the bloodstream. That's one, especially if you're lacking specific nutrients, do it regularly.

I'm 100% on board with that.

Current Studies and Future Applications

Hyperbaric is phenomenal because ultimately, you know, your increasing vasculature blood flow, which is something that you need as you age. Arteries, venules, all of them start to become hardened, restricted.

Not enough blood flow, not enough oxygenation to divide organs. That's part of aging. Hyperbaric does well. Red light, I'm 100% on with. It's great. I love PMF, Pulse Electromagnetic Fields.

Yeah. Love those beds. Especially if you have a good bed, they're fantastic. You feel so much better, so relaxed. with them and saunas. Saunahs for me are golden.

I mean I'm in one four days a week. Nice. Infrared sauna? Yeah, I am in an infrared sauna four-days-a-week. Uh, i'll do a little bit longer. iI'll go 30 minutes because it's not it doesn't heat up as they only go to 150. Right, right.

Um, all the evidence is at higher temperatures 180 you know around there but i'm positive I get. You know you can register when you have the ring or whatever.

you Can register your heart rate going up. Actually made a metabolic change on it. and I feel great when I get out of them. But those studies at 180, is that actual infrared sauna or are those?

No, those are standard saunas. The standard cedar wood rocks. Yeah. Okay. Standard old school saundas, yeah. That's pretty cool, man. You got a lot going on, so it's gotta be fun.

The years that you've spent in the regenerative medicine, because right now, I'd say within the last five years, So much has developed, and so much attention and awareness has came to all of this stuff.

My mentor, uh, got into the functional medicine space when I was 19 years old. less than a year away from being 40. So I've been in the regenerative medicine, functional medicine space for about 20 years.

And unfortunately, Dr. Willix passed away at the age of 80. He was the chief medical officer of Senegenics and a lot of these other big companies. When he first got into it, If he wasn't previously a heart surgeon, an MD heart

surgery, people would really call him a quack.

But he was talking this stuff way back then. And if he were alive today, everything that he's talking about 30, 40 years ago, and he has published books about it, it's happening.

So you've been in the industry for quite a while, so how does it feel seeing a lot of these things coming to the forefront? It's great, and then at the same time, it's a little worrisome with, like we said, people are getting injured.

People are just getting into it for just to make a buck. Everybody just takes a course and they're an expert a lot of times. Somebody will take a two or three hour course, then they are expert.

How do you see that coming? You saw it on the computer? Oh, over here. At least you noticed that when I was in Phoenix two weeks ago, we recorded half an hour.

It took him half and hour to finish. We had to go back half-an-hour. Half- an- hour? We went we went back half an hour. He's like he was pissed Dylan.

Gamaldi was he's pissed at the guys like what do you mean? You didn't notice it. They go. I'm sorry I didn' noticed that the the camera wasn't just the audio was going the Camera wasn' rolling nothing was goin So cool I'm with you on it.

A lot of crazy people, even in the IV vitamin therapy space, which is that's kind of like my cup of tea, being the chairman of the association, having our product that we sell to over 5,000 doctors nationwide.

You see people cutting corners with the Ivy therapy stuff and putting stuff in this bag and formulas that can be very toxic. Even though they're water-soluble vitamins, you give someone too much of anything, it can really be harmful.

It can cause a serious metabolic disturbance in the body. You can have a reaction. One of the great things was In 2000, I'll never forget, in 2006, when we embarked on doing this spinal cord injury study, and I was in Ecuador, actually, it's the largest hospital system that's in actually Ecuador that we had embark on getting this study.

I met a colleague from Argentina that worked strictly with spinal-cord-injured patients. And when went and we wanted to start the study we went into the hospital and Chief Medical Officer basically threw me out, said, this is hocus pocus.

This is nonsense. Get out of here. Then I got on with one of his colleagues. It sounds crazy, but makes a little bit of sense. And I, we just, you know, him and I just stuck to it.

Just, and then the person that was taking us to introduce us, to everybody said stick to your guns, discipline, continue to educate, or they'll get it, And it took me four months for them to agree.

These are people that are in wheelchairs. Give them a shot. Let's try this. I think this is gonna help. It's gonna work. And it's funny how after a year into the study when they saw the people describe their changes was when, no much respect.

Good job. We believe in this stuff. You know, we're seeing it. So that's a great part about this sector. When you see that you've made a change for somebody, You know, one part that I just kind of really grabbed onto when you said that is when were in the house, in that facility, it was another doctor, right?

That's kicking you out. Now you're starting to see more of the traditional allopathic doctors tune in to what's happening. Because there's a part of that that they've been so brainwashed by the Rockefellers, right?

The system, and it's not their fault, this is what they've been taught. They've be taught to live in this algorithmic, pharmaceutical-driven system. But I see it all the time.

I've seen it for the last 20 years and then eventually it almost like they come out of their shell and say, man, they were right. There's more to it than just prescribing someone this pill for their symptoms.

So you probably have seen, I mean, especially teaching and speaking in all the different countries, you see a lot of that. So remember when PRP was big, and this was back in, well, it's still sort of big.

But when I first started studying, was in like 2009. And I'm an avid racquetball player and I tore my gastric, my calf completely. I was like, all right, need to go see somebody, see what's going on.

I go get an ultrasound done. They said, no, you have a grade two tear. You gotta let that heal. And I was like, having a hard time walking. He's like hey, the ultrasound, they tell me the office, it's going to be $450 for your visit.

I'm like this is crazy, $450, and you just tell that I can't do anything? I'm gonna go get from one of my colleagues PRP injected into here, and I am gonna come back.

He's like, you're not gonna be able to run, do anything. I know you are David Runner. You're gonna do everything for at least three months, but that's a heal.

Especially at your age, I was 40 something then. At your ages, there's no way you gonna let that heal like that. And I tell him, how about I make you a deal?

I'll come, back I will pay for that ultrasound. But if my calf is healed in two months. You're gonna pay for that ultrasound for me. You won't charge me for it.

He's like, deal, come back. I go get PRP done the following week. A month later, I'm running again. One month I'll go see him and he's, this stuff is I need to start doing this.

Because he was like all I see is a pinpoint of an injury and that's it and you're healed. On a muscle aspect of it, he is blown away. You know, a lot of the medical providers, unfortunately, they don't tap into the first two years of medical training, right?

Looking at biology and physiology and all of They should all of the treatment plants should be based off of it, right? Metabolic pathways the Krebs cycle and really understanding how the body functions, you know and it's interesting because you I had those conversations when I was a firefighter paramedic an emergency medicine and I remember when i started getting into the ivy nutrition world, I started looking at all the vitamins, and there were a lot of the same drugs that we use in emergency medicine, right?

Closing Thoughts and Audience Q&A

Magnesium sulfate, magnesium chloride, calcium gluconate. Even adenosine monophosphate your body utilizes these things. And these were some of anti-dysrhythmics that were using.

We're treating pre-ecliptic seizures with nutrients. There's just some kind of deficiency in the body and that's why we have these type of ER emergency drugs, but they're They're vitamins, minerals, and amino acids.

So believe it or not, any doctors or medical providers out there that are listening to this, a lot of the medications you're using in the traditional world are nutrients.

But yeah, it's nice to see them starting to adapt to it. And obviously there's bigger educational institutes and stuff that are teaching that have created fellowships back by university like the A4M.

Dr. Bob Goldman, dear friend of mine, and I always hear his story of how he founded A 4M and it was only 24 doctors in Mexico that they had to go and started there.

And now you go to the a4m, it's 10,000 plus physicians from around the world. So it is a beautiful thing. Dr. Rafael

Gonzalez, as we start wrapping up here, I want you to take a couple of seconds and think about your answer to this question.

And I wanted to come from the heart. I wants you let the listeners and viewers know what is the true problem with with what you're exposed to? What is that true solution with It's a hard question.

People not understanding that there are things that you can do to change your life medically, health-wise. And then in the context of what I do, how do we get this to the masses?

You know, as far as cell therapies go, For me the solution is always I always say persistence is you know persistence leads to perseverance and Just pushing forward pushing for and it will get out there to the masses It just takes time.

You know it's just you Know for instance we talk about what we talked about earlier is the cell and then the exosome the neat thing about the Exosomes got similar properties and can work similarly at a much lower cost This is when how we talking about trying to get this out to them.

Awesome So Dr. Gonzalez, if someone really resonates with today's message, what is that one last thing that you're gonna leave them with? Focus on your immune system.

Yeah, you definitely have to do it because otherwise you're gonna run into problems. You're going to run to different diseases for sure. Spend that time to, I go out in the morning, get sunlight, take deep breaths, eat right, exercise, and get your right sleep.

Those are your first key things. That is, there's nothing more important than your system, otherwise the next bug that's coming around the corner and it's gonna come, we all know it is gonna to come.

You're not going to be ready for it. Your immune system's not gonna be. Amazing. So I got these. We have a little fun here really quick. One of my favorite podcasters, Stephen Barlett, with the diary of a CEO, he came out with these conversation cards.

If you can open that up and what you'll do is you grab two cards, random cards out of anywhere there. You'll read the question and you answer. Two cards all right.

You have one last piece of work to do. What is that piece work and why? I need to go back to the Galapagos Island. I went one time for a short period of time and was blown away by the science and the Darwin Science Center there.

And you just spend more time there so I can learn a little bit more about nature and see all the beauty there? Oh, that's very cool. Yep. Nice. What scares you the most today?

I'd have to say what's going on with the environment and our poor children that are growing up in it. Yeah. I could definitely see that, man. So we live in such a toxic world.

We do. You know, we're putting profit first. Actually, were utilizing people's bodies for profit. That's what what happened. Amazing. Doug, if somebody wants to find you, how can they find me?

Our website is restem, R E S T E M dot com is our company. And then actually my social media Instagram is Dr. Gonzales, G O N Z A L E Z PhD on Instagram.

Awesome. Which we'll have all the links down below. So that was a pleasure having you. Thank you for having me. Point of view. All right guys, you guys heard Dr.

Gonzalez. Dr Gonzalez, he says it very well. Your immune system. If there's one thing you can work on, it's your immune systems. Enhance your immune system, nutrition, exercise, sleep.

Those are free, those three things. Now, obviously, there's many other things that we can work on, making sure you're enhancing the amount of antioxidants that you put into your body to make sure to enhance the detox pathways.

But guys, immune systems, If you feel like this message today resonates with you or maybe with someone else, a family friend, make sure you share it. Make sure.

You like comment, do all that fun stuff and we'll see you for the next one. Here's awesome.