Decoding Longevity: Lifespan VS. Healthspan Transcript

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Introduction to Longevity and Healthspan

Hey everybody, Dr. Rob Silverman here. I'm with my good friend, my really good friends, Doctor Christopher Karowak. He's been kind enough to take some time out of the day.

We're going to talk about longevity. we're actually going talk the longevity connection. he's going really differentiate the difference between life span and health span.

Dr Karrowak, Chris, it's my pleasure to have you. What is going on? Dr Rob, so it is always a pleasure just to connect with you, talk life and limb and longevity honestly we're in it together and uh you've been a great influence on my life in my career and i'm always happy to get connected with you and just talk science and health and wellbeing to just help the general public live longer and feel better.

I'm excited. As they like to say, so let's go. Let's hit it. let start the conversation off. See that you've written that medicine has evolved from postponing death.

Good idea to preserving vitality. How do you define health span versus lifespan? And why is that distinction so central to you and the population? Well, realistically, and I've seen this a lot mostly in the ICU, we in Western medicine have done a great job in extending the years of somebody's life.

So we think about sort of the quantity adding years to someone's like. But I think what's happening now is there's a lotta Gen Xers who have seen their baby boomer parents die slowly and poorly and yet still have many years in their lives.

dying sick alone or in a hospital or a nursing home. And when patients come to me, they don't always ask to live longer. They ask the live better. Right.

So this distinction between lifespan and healthspan is not my term. It's a common term in the longevity medicine is the idea of The difference between the 80 year old who is with bilateral hip replacements and struggling to walk to get the mail and the eight year-old who's skiing with his or her partner and vacationing in Italy and having world tasting components and really having the zeal and vitality for life because they have a quality of life, not just a quantity of Quality versus quantity.

Hallmarks of Aging and Epigenetics

I mean, the hope is to get both realistically so you can have an incredibly powerful quality life and die young and or you could have a very extended sick life.

and die poorly. The hope is to really have many aspects of youth and vitality going on into old age. I really think that it's foolish to imagine immortality.

Um, I know that there are some genetic components that are coming out. Had a conversation with a young man who was studying these components about the goal for immortally.

Don't really that's a practical goal. Integrity is really the practical There are a couple of individuals who think they're going to live anywhere between 120 and 150. They'll remain nameless, David Asprey and Dr.

Brian Johnson. And they look great and all that, but is that pushing the envelope? Is that breaking the envelop? For me, it's kind of a, let's see what happens.

I remember even in medical school, we were theorizing that if we could eliminate childhood diseases, It's highly

likely that people could live to be 120 to 130 and live healthily.

The individuals who are hoping to live to be 120 to 130 have already experienced their childhood diseases. So again, at least the old history may have gone by.

If you want to have a really interesting experience, check out Demi Moore and Dennis Quaid's new movie, The Substance, in terms of trading old and new.

And sometimes This concept of youth and immortality may not be what it's cracked up to be, but I'm kind of getting off course. It's sort of the idea of of making sure that your mobility is powerful and that you're lung capacity is.

Powerful and your brain is, powerful that all these aspects of human existence still are present. I mean, I don't want to being great physical health with no cognition.

Equally, don' want have cognition with the physical help. there are ways of navigating this so that way you can have better control of your outcomes. I mean, when we look at the legends of aging from ancient cultures, there was a thread that would be cut or there a candle that go out.

And I really think that we have much more control our outcomes provided we do some simple lifestyle pillars. I love that. Lifestyle pillars, lifestyle hacks, if you will.

So lifespan versus healthspan, lifespan how long you live, health span how you long live without chronic disease. And I noticed you incorporated the idea of vitality.

Vitality is can we go for a run? Can we for go a hike? that really intersects with the idea of the quality of life. So when you talk about pillars of lifespan and lifestyle and longevity, I think you're talking more about the biology beneath the years.

So are you ready? We're not just aging. It's not a mystery, but there are 12 more hallmarks of aging, correct? Yeah, I think there was originally like eight or nine and they've expanded this to 12. And what's interesting is you dive deep into them, you find that there's an intersection in regards to these 12 I've worked diligently to learn most of them.

I never can keep all 12 straight. But they are kind of interestingly enough that the hours on the clock So it's interesting that this time element that we have, there's the 12 hours on the clock and each one plays a role in terms of how much time you have.

Interesting. So let's go through a few of them. I mean, there are 12. The first time I saw the Hallmarks of Aging was a 2013 article. They had an addendum in 2023. Hit us with a couple of the hallmarks in aging.

Oh, I hit you in the rabbit hole right away. Sorry about that, bud. Well, so this is a really fascinating component. Can we influence our genes or are we stuck with the parents that we have?

And so thinking about these methylation components on DNA, these epigenetic clocks, and what can we turn on and can turn off, I loved Jeffrey Bland's component about dog ears and bookmarks in terms of our genes and the methylated pathways that would basically flag certain genes, turn them on.

and it's interesting because you know in our field everybody's interested in these methylation pathways and the mthfr genes and methylated vitamins and yet nobody was interested In this in the 18th century and as I dive into it most of the methyulation that we get in Our day-to-day life just comes from plants plants already have the methylated vitamins in them and so again simple lifestyle pillars if I stay in this plant-rich philosophy, eating all my colors by the end of the day, I may cover my methylation better than individuals who are going to be eating processed foods.

I think methyilation is an incredibly interesting thing that you can control and help your healthier genes turn on and

maybe map your genes. Well, let's talk about some that I like to discuss, some of the new ones.

Let's about dysbiosis, the unleveling of good and bad bacteria, and the intersection or the interconnection between dysbiosis and microbiome. So the way I talked about this, I stole an ecosystem disruption from Yosemite National Park to explain the aspect of microbiomes.

And so there was a time frame when the wolves of Yosemite were attacking the livestock of the farmers and the National Forestry Agencies decided that it would be better to relocate the wolfs.

and the entire ecosystem of Yosemite got disrupted by one species. And I think the microbiome is very similar to that. If you over-populate or under- populate, or bring in a foreign species, you can really disrupt the whole ecosystem, of your gastrointestinal tract, not unlike disrupting the ecosystem YOSEMITE.

Gut Health, Dysbiosis, and Antibiotics

as you eat poorly and bring more stress into your life and have greater sleep deprivation and then get exposed to antibiotics, your ecosystem is going to be disrupted and that's going affect your immune system and your neurotransmitters and you're inflammatory pathways.

And so these concepts of inflammation we talk about, I think they're somewhat rooted in the health of your gastrointestinal tract. I mean, we'd say it all the time, but Hippocrates even said that death starts in the colon.

And so really, this is not a new concept. It is just a reawakening of an old concept that a healthy gut may lead to a health life. Hippocrates also said all disease begins in a gut.

Alessio Fasano said, all diseases begins with a leaky gut, and I'll give you one more. Paracelsus said the dose determines the poison. And so along those lines, that's where we come in and we sort of think about like, well, other ways to basically create a hostile environment, but not a deadly environment.

So when we have somebody with a disruption in their gastrointestinal tract, you know, an overgrowth of their bacteria, we certainly can throw in FDA-approved antibiotics and wipe everything out.

Or we can create a slightly hostile environment. Again, bringing the wolves back into Yosemite to basically control the deer population and therefore change the course of the foraging and, therefore, the other wildlife and then even the courses of rivers.

And so when you wind up basically creating balance within the system by creating somewhat a eustress or hormesis type environment, a stressful environment that will kill off the foreign and the weak and old so that way the strong survive.

Again, not that I'm always pro natural selection, but maybe in the microbiome that's a good idea. Bringing these hospital environments in so your gastrointestinal tract can be robust and vital leads to a robust vital life.

Now you're a medical doctor, so you can prescribe antibiotics. I am not the chiropractor who is anti-antibiotics. Hope that is not a misnomer. Where do you stand on antibiotics for longevity, health span and vitality?

I know that's loaded. I apologize, but you're my buddy. No, I think it's relatively reasonable because when we look at the critical factors in terms of longevity from a public health perspective, like when did the human population start living longer?

The two factors that come in are public Meaning that when doctors washed their hands, that affected outcomes in their patients. And then another factor was penicillin, which was really realistically the first antibiotic.

So, you know, if we could go back into the 18th century and maybe the early 19th Century, there were a lot of individuals dying of infection. So, antibiotics played a huge role in regards to that.

However, I would say the overuse of antibiotics at this point in time has led to a strange chronic disorder of inflammatory diseases like cardiovascular disease and cancer and the increase in uptick of autoimmune diseases.

So around about way, the role of the antibiotics has to be seen as a risk benefit. I think about, you know, when I had come back from our Florida trip and something was wrong, little did I know I, uh, I'd had a ruptured appendix.

I really don't want to go through a naturopathic functional medicine way of managing my rupture, the appendics I have, entering into sepsis and my life expectancy is shorter than it would have been.

And I have this component without antibiotics. So I think it becomes a risk benefit component. I Think you try to do everything you can with the least amount of intervention.

But at the same time, if death is on the line, then you need to choose the weaponry necessary to combat that. So in a nutshell, everything's on a table like me and you got to pick and choose, the risk, reward and balance.

And that's great. That's eclectic. I think that would help towards the extension of longevity and healthspan. Now, interesting, I've heard you say, or it's been said quite commonly, that genes load the gun, environment fires the guns, and you like to talk about the conversation going on, the interconnection of the body is really the conversion.

So I kind of like wanted to tee that up for you. Well, I mean, realistically, so for, you know, genetics loads the gut. You and I are both over six feet tall.

I think we have a much better chance of playing basketball than some of our colleagues that are going to be five foot nine. And so our genes are our gene.

I have certain genes that put me at risk for certain disease states. And that does not create predestination. It may have a preclusion, but it doesn't create pre-destination We know from twin studies that especially twins from the Scandinavian countries who were separated because they have the largest population of twin studies available that, you know, if you take one, two twins that both have a risk for cancer and one smokes and ones eat, one eats vegetables, the environmental cues can, again, going back to the methylation pathways, turn genes on and turn jeans off.

And what's interesting to me is that And I think this is true. I remember this when I was going through residency. In the 50s, we believed that disease was 50% genetics.

in the 60s we believe it was 60%. And literally, up until the 90s. We found out that that diseases were 90% related to environment. So let me go back with 50 percent genetics, and then In the 60s, it was 60% environment, in the 70s it's 70% environmental.

I mean, I think back to the women who followed the idea about voluntary bilateral mastectomies because of their diagnosis of the BRCA gene. and I was destined to have breast cancer and so let me take a proactive approach to this and have the bilateral mastectomy only to find out that you could actually turn these genes on and off based on lifestyle pillars and behaviors and maybe you didn't need to had this radical mastctomy to protect you from the cancer.

I think there is a beautiful interplay and conversation. You should know your genes and that can be related to family history or the extreme case of genetic testing.

But your genes are not predestination. Well, you brought up the article. I shouldn't say brought the the concept of the HRT. I know it was hovering behind you.

So let's do this kind of like rapid fire. Sure enough. Is there any starch in the shirt for HR T? Yes or no? In other words, is there a role for H R T for both men and women?

Hormones, Muscle, and Movement

Absolutely. And honestly, the most recent component from the healthcare system is the black box warning has been taken away. Right. The components of what we learned in the 40s is now going to be playing a role in now the 2020s.

I recently just did a lecture on bioidentical hormone replacement therapy and I was kind of the I was kind of the cleanup guy. So it was interesting. I decided I wanted to do, well, what was it like for our moms?

What was like the 40s and the 60s? And honestly, Western medicine gave out unopposed estrogen to everybody with no screening at all. And I don't think that was a great idea.

But then in the late 90s, and early 2000s we put this warning component on hormones and remove them altogether, that equally was not a good idea. Again, going back to this idea about risk and benefit, there are components where certain individuals should not be exposed to hormones.

But I'm starting to learn that this is very few and far between. That mimicking the aspects of youthful chemistry in an older body can lead to better outcomes most of the time if you time it correctly.

The UK study, the elite study I think is what it was called. The elite studies showed that if you can start hormone replacement therapy on a woman between the ages of 45 and 55 and she has symptoms associated with a hormone withdrawal, you could extend her life by five to 10 years.

Wow. And so it's just like, wow. It's like again, breast cancer is terrible. Heart disease is just terrible, but you may die of something else if don't choose the timing of the hormone replacements therapy.

Muscle mass. is the longevity organ. Gabriella Lyon say it almost every week. Rob Silverman says muscle mass is a currency of longevity. But that's just the baseline.

You know, let's talk about body composition. Let's about FFMI because you told me about that. Then let go to VO2 max. Go to grip strength. And then I'll bring in the secret weapon.

So to use your financial terminology, I always say that muscle tissue is the 401k of longevity. This determines a lot of components. So like we are in the financial component of it.

I don't want to take anything away from Peter Rettia and the idea that the VO2 max really is number one. So I think your lung capacity plays a very large role that I learned that in our trip to the parks in Utah, where as much as I had muscle mass, my lung, capacity was not what it should have been.

And I said, I really need to start paying attention to this if I'm going to believe in these world views of longevity. However, there is something to be said from both an anti-inflammatory and a practical point of view in regards to muscle tissue.

From an, from an antianflammatory point-of-view, we know that fat tissue acts as its own organ system, especially as America got fatter. We started noticing high inflammatory secretions of hormones from the endocrine organs that was adipose tissue, But that led to another interesting discovery, finding out that muscle tissue releases an enormous amount of anti-inflammatory chemicals and cytokines.

So now we have a organ system that can combat inflammation pathways. And from a practical point of view, the things that often will put people in the nursing home is an inability to care for themselves.

And the hip hinge, specifically the squat, is a critical component for an elderly man or elderly woman to get up off the toilet. And if they don't have the core strength or the leg strength to, get off of the toilets, they will then spend their life in the nursing home.

So I think there's both an inflammatory chemical component as well as a practical physical component to muscle tissue. Well, you really stole a little bit of the thunder with the secret weapon.

Movement and movement dysfunction and movements patterns are the number one source of aging. I'd only like to use a lot of political examples, but I remember in 2012 when Mitt Romney was running against President Obama, they turned to shake hands before the debate.

Same height, virtually the same weight. You know, they both looked like the president, if you will. The next day I saw President Obama at 51 years old come down the stairs of Air Force One and he didn't need to hold on to the banister, the guardrail.

He just came down and was moving quite briskly. Mitt Romney at 65, though he did not look 65. How to Hold On? So that's where the age was quite discernible.

So let me have some fun with you now. Let's talk about some biomarkers for longevity. You give me one, I'll give you one. We'll do this rapid-fire. we'll Do it New York style.

you're a Northeast guy. let's go. Give me a biomaker for Longevity. For me, the biomakers of longevity will be CRP. so your chronic inflammation state in the background.

So I would pick, my first one will be CRP in terms of a blood marker. And you're going for CRPs, so CRPS is for inflammation, tissue inflammation high, and you also going to throw in HRCRP or are you going separate the two?

So we can say HRCRP is going be much more targeted for heart disease, CRPC is gonna be more common, but if someone is in a chronic inflammatory state, they're gonna be running slightly hot, their needle RPMs are going to be slightly in the red, they are gonna have an overheated engine.

And it doesn't take a big jump to think that if I have a classic Corvette that's overheating, it's not going basically have the beautiful aspects of its lifestyle so that way I can drive it up the Pacific Coast the way that I want to.

So CRP, HR, CRR, or HSCRP. HSCRP more arteries, CRP, more tissue inflammation. I'm gonna go with an easy one, not in any order. i'm just gonna say vitamin D level.

So I'll say- Oh, brilliant. Low vitamin d has been associated with low muscle mass. Vitamin D is critical for our overall immune health. As a chiropractor, vitamin E is great for musculoskeletal.

And I believe that vitamin B provides a swath of health promoting properties. Dr. Kerouac, give another biomarker for longevity. I think I would pick fasting insulin levels.

Again, I don't want to steal components, although I feel you're going to be in the New Yorker. You're finally going win final jeopardy in this kind of debate, but I'll give you my best shot.

For those who are a little bit more frightened of fasting, you could do hemoglobin A1C. So if individuals are going to be slightly in the metabolic dysfunction, they're gonna have a couple of markers that are gonna make them sticky sweet.

And instead of having that beautiful, smooth pathway, their gonna be somewhat caramelized and that's going lead to premature aging. I set you up for a tremendous blast off.

Ready? Blood pressure, number one reason for heart disease, cardiovascular. Tell me what's going on and tell me, what is the right blood pressure to have when someone walks into your doctor's office?

Oh my gosh. All right. So this is going to be interesting. And so what I will tell you, this is discouraging for me, 90% of blood pressure problems are what we call idiopathic hypertension.

And so that means 90 percent of the time, we as Western medicine physicians have no idea what's going on, which is relatively scary. If this going to be related to one of number one killers, then 90 % of time we don't know what is going.

So I would tell because you know me and part of it is just because we would tour together and talk a lot. Again, you opened up my world in terms of thinking at root causes and really looking beneath the surface.

I'm always fascinated to sort of what makes blood pressure tick. In other words, if 90% of the time we don't know what it is, what exactly is causing blood-pressure problems?

Biomarkers, Blood Pressure, and Cardiometabolic Risk

So for me, the tightness of musculoskeletal component in the arteries is a key. And so how do we make muscles relax? And part of that is the nervous system, part is use of magnesium, and part that nitrates.

So all this component is trying to create more vasodilatory components. Secondary from a physics point of view, The larger the radius, so basically the more capillary depths we can get.

And realistically, the biggest development of capillary depth is going to be muscle tissue. So as we build more muscle tissues, we get more capital areas.

We can bring our blood pressure down. And then ultimately I think your centralized pump, your heart really dictates a lot of that. So if your hear becomes stiff and old and archaic as compared to soft and pliable and strong, which I thinks goes to the original aspect of the VO2 max where you keep cardiovascular fitness.

Muscular skeletal components of blood vessels, capillary density and the strength and vitality and resiliency of your heart, I think dictate a lot of the idiopathic blood pressure problems.

There's some other, the other 10% we know everything about. They're very interesting components that may be related to salt, kidney disease, diabetes, so on and so forth.

But 90% of time, you need to go to the root causes and basically say, your lifestyle is probably affecting your blood pleasure. So for longevity, which one's more important?

A, PO, B, whichever everybody should take. Okay. Okay, I'll put it out there or LP little a Oh my gosh. Okay. So this is what this Is what I discovered based on the a discussion between primary care physician or cardiologist.

They say that if you can't make a diagnosis, you should at least make the decision. So I'm going to make that decision that APO-B is more indicative and let's talk about why.

The theory behind the heart attack that's bound to happen is related to the plaque that has yet to rupture. And the plaques is made out of cholesterol that gets calcified and then it reaches a certain size where the current or the the hydrodynamics of your blood tears the clot off and creates an inflammatory cascade.

So you wanna keep this clot small and uncalcified. 80 to 90% of the cholesterol circulating in your is LDL, and 10% if it is LiPoA. And so LDl is much larger inside the clock than the LPA, but the LP little a is the sticky dangerous one, perspective.

And so what usually happens with these, with the poor LP little A individuals is they have a high LDL and that the lipo little a increases their risk for heart attack because their LDl is elevated.

So if you can keep an LP, little as LD L down, they don't get the heart. If we argue that circulating cholesterol affects heart attacks. And we can have a huge debate about whether we should be checking cholesterol and weather cholesterol.

I always tell people, like, if you have dirty water, but your pipes aren't clogged, realistically, the dirty, water can flow through the pipes and you don't get the clot.

That's where the calcium score comes in. So like basically, maybe we shouldn't look before we start you on statin.

Maybe we could see what your types look like before.

We say, well, you're going to be at risk because your water's dirty. Right. And then there's the age old question of statins, which we're gonna put a pin in and not talk about because we want to talk.

About longevity a little bit more. You call the mitochondria the power plants of youth, not the Powerhouse, so yourself. How do these little tiny engines determine whether we age with vitality or fatigue?

So I have to admit, this is the one that has been the most fascinating for me professionally and personally. I was not really, when I first started in functional medicine, I awestruck by the world of mitochondria.

At this point in time, as an aging athlete, I am much more interested in mitochondrion than I ever have been. So realistically, how we move energy around in our body dictates an enormous amount of our outcomes.

I think muscle tissue plays a role with that, blood pressure plays the role, VO2 max plays role. But from a microscopic and cellular level, how our mitochondria turn food into energy and move energy around, I think is much more critical.

You were the one who really taught me that the highest concentration of mitochondrion is going to be in your brain, your heart, and your muscle tissue in that order.

And I feel realistically, you, as we see it, comes from brain heart and muscle. So I these are real keystones in regards to youth and vitality. you need to have a brain.

And also from a personal perspective, I've been dipping into some of the carrier molecules. and finding that it has been radically different. I mean, literally from day one, thinking about some of the CoQ10 and the NAD type supplementations, and it's been probably the biggest impact for me personally.

And so I'm becoming much more interested in the world of mitochondrial dysfunction and mitochondria rejuvenation. N. A. D., coenzyme Q10, L-glutathione, magnesium.

Lucy now is the new signaller heartthrob. from Mitochondria. Really? Yeah, there's a new article on that. Leucine right here, by presenting with leucin proteins, it ultimately boosts the cell energy production, acetyl-L-carnitine, and where would we be without the discussion of creatine?

Oh my goodness. So leuccine realistically of the three branched-chain amino acids, that's the critical one that is going to lead to the greatest amount of muscle tissue component.

I wonder if there is a connection between muscle building and mitochondria in the leucine world. But yes, let's talk about this creatine component. To me, it is a no brainer from ages two to 102, you should be taking five grams a day.

It is no-brainer. I had a discussion with my 16-year-old daughter because my two sons were taking creatinine and my daughter at 16 who runs the 400 hurdles and she's a high jumper.

So she positioning yourself to be a haptathlete. And she said, dad, what do you think about women taking creatine? And I said you know, I never really looked into that.

Let me do a little bit of a deep dive component. What I found out is that women have a bigger impact on creatinine than men do, even though they have less muscle tissue than them.

So realistically, her morning smoothie is gonna have the five grams of creatines every day. We battle in the household who's gonna basically get the creatins first.

It's for brain health, for heart health as well as muscle health. Big antioxidant.

Mitochondria, Creatine, and Dosing

I personally think it is the smartest and safest supplement on the marketplace. I think it really should be in the New York water supply. There you go.

I love it. Five grams, and I agree. And women who have less muscle mass require creatine. You can take it before, during, after a workout. The only thing that I'll say, I've said it a couple of times, is creatinine can't be a hot aqueous solution.

It breaks apart the particles. This dissolves it, And it can go in with caffeine. So a lot of these pre-workouts have creatines with Caffeine, so that's a persona non grata for me.

But creatine adds that phosphate to mitochondria, which is where we were going to revert back to anyway because I could feel it coming. The hard thing for me because the new research is now coming out where if 5 is good, 10 must be better, and 20 is the best.

And so we go back to the Mark McGuire days of the Andrewstein Dion and these young baseball players who were souping up on this and getting kidney failure because they were dehydrated and taking creatine.

But there is some newer studies to show that 30 instead of five might be the better dosing. I'm not there yet because of kidney function and hydration, but it'll be interesting to see if more necessarily is better in the world of creatines.

You know, it's interesting, you bring up the idea of dosing, and the reason we're talking about all these supplements, muscle, performance, they're longevity oriented.

Dosing. So you wear two hats. You're a medical doctor, but you're also an integrative doc who adheres to certain tenets of functional medicine. So the people in functional medicine, i.e.

many chiropractors, naturopaths, we underdose. We don't put our Superman cape on. You guys are willing to dose appropriately from the medical side. So if you could take that left and right brain, put it together, tell me what's right and wrong.

I would greatly appreciate it. The two things that come to mind. One, I think that we have built in insurance to protect us more from dosing world. First and foremost, do no harm.

But we also have learned there's effective dose and there is lethal dose. And realistically, if you give a sub-effective dose, you can sometimes, at least looking at the world of antibiotics, sometimes cause more problems than good.

I also remember working with the supplement companies that we've been working, that most supplement company will put on their package labeling for safety purposes half of the effective does as the standard dose to be taken.

And so I think the real key, if I can encourage the chiropractors, the naturopaths, acupuncturists, other individuals in our field of functional medicine, I want you to really think mechanism of action.

I thing that if you go back to mechanism, how does this work? And what will be the consequences based on mechanism? I actually think that you'll develop a certain amount of courageousness in regards to your dosing.

Like all things, if you get to root causes and you understand how something works, you can have a lot more courage in using it. I concur. The body has a way of cleaning itself.

We're able to vacuum up certain things. Intermittent fasting has come to mind, but intermittent fasting really pertains to the idea of synolytics. Yes.

We haven't talked about synolytics. How close are we to clinically clearing what we like to refer to as zombie cells?

Zombie cells. And realistically, you know, in the night of the living dead, realistically zombie cell are neither dead nor alive.

What's interesting is it seems as though what I've read is that these kind of synesthetes cells may play a role in our youth. in terms of protecting us from cancer.

At least that's what I've been reading about that sometimes there's actually a good role for zombie cells, but mostly in our youth because it doesn't happen that often.

But as we age, it happens more frequently. And now there is this chronic release of inflammatory products that come from these zombie cell or senescent cells.

So how do we wind up targeting zombies without getting too science fiction? Realistically, the newer treatment plans look like it's a combination of a cancer drug known as Dysantinib mixed with a naturopathic drug, Forcetin.

It seems as though that combination has been studied to create a synergistic response to actually knock things out. There's some plant-derived flavonoids.

I may be saying this wrong. Is that right? Ficetin seems to be doing that. And then, and then it's sort of in this, you know, this Foxy world, the Fox04 type pathways, which to me are a little bit beyond my MD.

and I need to go back and get my PhD to understand it. But some of these redundant pathways that have been preserved from molds and worms all the way up into humans, if we can sort jiggle some airplane dashboard, there may be some components to shut some of these pathways off.

But what I found realistically is, again, going back to the simplistic aspects of calorie restriction, intermittent fasting, full-fledged deep sleep movement pathways, these pillars seem to play a role in regulating autophagy and senescent cells as well.

So I love the space age component of these wonderful combinations of peptides and medicines and supplements. At the same time, it does seem as though the simple things that are the lifestyle pillars still play a large role in terms of the outcomes.

Interesting. So the supplements you're talking about are quercetin, ficetin as you said, resveratrol, which I happen to think is a little overrated, green tea and curcumin.

Zombie cells are those cells that dead, but they didn't know to go away and they're spilling inflammatory markers. And zombie cells can be cleared through the body's natural process, promoted by intermittent fasting and exercise.

and they're aided by the compounds that we said. Now, here's the question. If they are aiding by exercise, do myokines come into the fray to help with synolytic cells?

I think that's not a definitive, that is a thought-provoking question, and my group here who listens does know what a myocine is now. Based on the terminology, I suspect that they were more band-aids than silver bullets.

So if myokines create anti-inflammatory products, I think they combat the inflammatory products that the senescent cells produce. But I don't suspect that they actually target them.

They probably help. Again, you can overpower a system. You can power evil with good, for lack of a better term. create more of a band-aid healing symptomatic component than actual targeting.

But we'll see. Right. I would agree with you. Hence, that helps with synolytics and synolithic cells, but the actual removal of the cells eating and fasting, which is really interesting.

That idea of autophagy, the breakdown of old cells take the debris and make new cells.

Senolytics, Autophagy, and Lifestyle Pillars

Same idea in mitophage. I mean, their body is tremendous. So you think about the change that goes on in body composition. So now we're going to put somebody on a, you know, a program where we change their sleep and their food and they're movement and there's stress and social connectivity.

And they wind up building muscle and losing fat. I don't think you can do that without altering insulin resistance, without altering mTOR, Without alterating AMPK, with alterning NAD pathways and sirtuins, all of which play a role in the world of senescence.

So I have a suspicion that there's a secondary gain. I think building muscle, in order to build muscle there has to be sleep, food, resistance training, and hormones.

And I thinks sleep food resistance, training and, hormones lead to the treatment of the synolytics. So that's what I, think is probably the connection.

The behaviors get rid of zombie cells and the muscles help alleviate the symptoms. But you can't build the muscle without doing the pillars and then the pillar gets rid the zombie cell.

You talked about hacks before, or if you will, lifestyle tenants that you would want to do. So let's go through a list. Give me your three favorite supplements for longevity.

Oh, my three favorites supplements. I think that for, can I expand it to medicines? Why don't you do both? I mean, you're here. If I were going to pick the world of supplements, I would probably pick berberine.

But I think I'd lean more toward metformin, which is a prescription medicine for diabetes. So metormin has a little bit more traction than the berberein does, but if I have to stay in the word of supplement, then I'll pick Berberin for my favorite longevity.

This is great. Metformins has traction, so I probably would pick that. I think choosing either the NAD supplementation precursor, either NR or NMN. I've not personally used the NR, I have used NNM, and I remember one is more easily absorbed and one more readily converted.

The NR is easier to absorb and the MN is easily converted, don't quote me on it. So I like the MMN a little bit more. got berberine, I got NMN, and what's my other one that's going to be my favorite?

I guess creatine would probably be it because that way we can basically increase muscle tissue. That's the one, that is going be the safest and the most practical in terms of muscle tissues.

Creatine? TRT? Well, but that not a supplement. We can talk about TRTs, so if you want to stay in the world of supplements, you got to think thinking pathways, I got to think about a metabolic supplement to change insulin resistance.

I gotta think of a muscle building supplement, and I've got think a mitochondrial supplement. So those are the three that I would pick. If we want to go into the world of medicine, my metabolic one is going to be Metformin.

My muscle-building one, probably between the word of testosterone or potentially a fertility drug called Enclomaphene, which kind of sort of helps reset your own natural production of So we got metabolic testosterone.

From a world of mitochondria, I don't think medicine has really entered into the world, of medically treating mitochondrion yet. So I think there is going to be a medicine that helps with mitochondry.

I would say if I were going be really kind of outside of the box, exercise is gonna be that component in terms of Western medicine world for the mitochondrial.

And then realistically muscle and metabolic too for that. and their exercise would probably be some form of weight resistance, even body weight. You know, so if you talk to me 18 months ago, you know I would have actually died on the hill of resistance training.

I think now that I have just entered into, I had my 58th birthday, and I am now starting to believe that VO2 max and lung capacity is probably just as important as resistance trainings.

So I there has to be something of a mix So now, despite the dark weather, Beth and I are walking our dog at the end of the day as much as the time I was spending in the gym.

Let's talk about a hot supplement. I guess you could call it a supplement, peptides. They're seen as cellular language. So I'll ask you, how do you see peptide therapy fitting into the future of a personalized longevity care program?

So what I find fascinating about peptids is they most often they are naturally occurring substance that are already in our own cellular mechanisms. They've just been isolated by scientists.

So we can be clear about the definition. Peptides are basically small proteins that act as signaling agents. It's funny because I think sometimes they'll get a bit of a bad rap because of some of the legal ramifications that have occurred as of 2023. However, Insulin, which was a life-saving medicine for diabetics, especially type 1 diabeics is a peptide.

And so insulin was the first peptides. So we don't think of that as sort of having a bad rap. We think that is being an essential component for type one diabetics.

Then the peptids that are taking the world by storm, the GLP1s. You know, so GLPs1 equally are peptized and yet they're really mainstream. I think, again, I find that peptides become cellular signaling agents to tell your internal mechanisms what to do when they have lost their way.

To go back to our analogy, these really start the conversation. They're biomimimatic. Correct. And there's some that are really wonderful for the immune system.

There's ones for cellular repair and inflammation. I mean, there's some of the ones that I'm not sure what role they really play in longevity. They don't necessarily need to be tan and grow hair to live longer.

And so some them do that. It's part of their life. What's wrong with you? Come on. I means, it's not us living longer, looking good. Who doesn't want to as a male be Brad Pitt?

You know, Nando, nando. Don't be a schnook. That's how you feel. You look, you know. Part of it. Reality, we're not supposed to talk about that, but You and I both practice and we're dealing with people and patients and they not only want to be healthy, at least I hope they want be to healthy but they wanna look good and be health.

They wanna be good. And I think there is some advantage to being aesthetically healthy. as well as practically healthy. The other thing to think about is, you know, the aspect of social connection and intimacy.

Peptides also help the aging individual sort of rekindle passion. And so there's some really, really fascinating components in the world of mitochondria, inflammation, neuroprotection, so that way your brain stays strong, tissue regeneration, immunology components, metabolic balance.

Supplements, Peptides, and Delivery Methods

It remains to be seen. The world of oral peptides are a little bit easier, and there are some companies that have found a way to create a lipo-lipolysized or a lipophilic component to get better delivery.

I get some access to injectable components, so they have a bit more potency and a However, a good majority of

peptides now are off the market and have to be bought in secondary marketing places while checking the box that says not for human consumption.

This has been slightly tragic for me because now I get into legal problems if I want to help people use peptide because I'm going to advise them about these components and then when they order them, they have the check off a box saying, I am not going use this for the human And if it's contaminated or poorly made, they can get into a lot of problems.

So the regulation, I think, has now entered into the common marketplace instead of the high standards of pharmaceuticals. I kind of hope it returns to that higher standard, but I'm not sure what's going to happen.

A lot people always ask me about the injectable peptides because they feel that they're more effective. Can you differentiate the injection from oral as a delivery system and effectiveness?

I think that the easiest way to think about this is the same way that injectable medication versus oral medications. So what happens is that when you take something orally, it goes through your intestine and gets absorbed through you villi and then it go into the portal vein and goes to what's called first pass through the liver.

And your liver is this beautiful filtering system for toxins and exposures and foods for that matter. So if I take a medication and I put it through an oral system, it has to pass through my liver.

My liver, is highly likely to change it, through the cytochrome P450 system. It's, you know, so there's less potency. in an oral drug or an oil peptide.

And science being what it is, you wind up putting different chemicals on it to try and beat the liver's ability to break it down. Now, if you take an injection, your bypass the component of the living, and you get it directly into the system.

Probably the best way to think about it is that there have been several companies that have working on oral GLP-1s. And they do not work as well as the injectable GLPs.

Now, what's interesting is the oral, the modern oral glp-ones work better than the older GLp ones, but the new oral ones do work not as good as new injectible ones.

I think that's the same way you should look at it for the peptides. Again, bypassing the system by absorbing it into the oral mucosa, maybe. There certainly is some technology, but there's very few companies that have patented this component.

So, you know, there is good research. But again, if you're the only one in the industry, sometimes it's tough to be believable in early stages. Oral, in general, is going to wind up being less potent than injectable for both drugs and peptides because it first passed through the liver.

BPC-157. I think it is a miracle. And I have big debates even within my staff about how to use it. So oral components from BTC- 157, hands down, for dysbiosis and leaky gut.

Because realistically, you get it into the system, and you have the BPC right there to help the leakey gut become unleaky. It then gets absorbed into system.

And then it goes throughout the systems to take care of ligaments, tendons. You know, it works on a couple of different pathways. That helps repair collagen through stimulating chondrocytes.

it increases capillary density and it releases nitric oxide. But it has to go into entire system If you take it orally, if you have an injectable component, you can put it directly into your shoulder, your knee, uh, ankle, wrist, neck, and you basically have hyperconcentration in that particular area of injury.

So for me, the BPC 157 is for injections is better used for tendon, ligament, muscle injuries. And the oral is

probably best used for the world of leaky gut, or maybe some systemic aspects of inflammatory processes.

So we like to talk about the Wolverine stack when it comes to peptides. BPC-157, KPV, which is not as popular, but really quite medicinal in the fact that it does help with the gut.

And TB4 frag, you and I were talking about before, is great for immunity. You mix that with a PEAA or a pro-resolving mediators, and you've got a potent formula.

Staying with me. because we're both aging athletes. I mean, I jokingly say, you know, when my children were 16 and they twisted their ankle, You know I'd give them a Popsicle and a nap and maybe it's fine.

And I twist my ankle now I've got six weeks of rehab. So realistically, these oral concoctions are miraculous. They take advantage of thymus peptides that affect immunity and inflammation and the stimulate cells to repair damage.

I think that the real key to the aging athletes is that, the problem is, that as an aging athlete, our muscles are still really strong. Our central nervous system and our joints are not.

And so injury is a real risk and recovery from injury, is much more difficult after age 35 than before age, 35. So if you have these abilities to mimic a younger healing system, as in older individual, I think that you take advantage of that.

You set yourself up for the next inquiry in that, you've written here about treating age while living it. So you alluded to that just before. How has your personal journey helped shape how you practice medicine?

As I've suggested, I just turned 58, so I'm coming much closer to my sixth decade of life. I had some Yeah, I got you. I know you do. And so you're the preview to my movie, for lack of a better term.

As long as I'm not the conclusion to it. So, you know, sometimes I'll take my supplements and have a really good cup of coffee and I just feel somewhat spirited in the gym and try to do a personal record.

only to have my pec minor snap on me and be like, oh my gosh, you know, again, not that I'm going to need some surgical intervention, but it's like that's going set me back for a couple of months.

Aging, Recovery, and Final Longevity Advice

And this aspect of learning how to I hate to say it this way, learning how to enjoy the journey and redefine what we call success, I think is critical in the aspects of aging.

That's why I this viewpoint of immortality is absolutely foolish. I that integrity is really what should be the goal. Because you're up against this idea about wanting to do these components of our youth, but the system has accumulated damage.

You know, The Body Keeps Score is the real title of the book. And you have to sort of realize that your emotional traumas, your physical traumAs, um, you're, mental traumAS are going to play a role.

Again, I wouldn't trade it to lose my wisdom. At the same time, if I act foolishly, like a 20 year old, will create a shorter lifespan. This is why we have be somewhat careful in the world of hormone replacement therapy, because we You know, 50 and 60 year old women, when we put them back on a hormone regimen, they feel 20 and sometimes they act 20, and it doesn't go well.

I hear you, man. So as we wrap up, I always ask the same question to all my guests. And he always says, Rob, give me one solid thing. If I can do one thing, if I could make one change every week that I hear your podcast, I'm on the road to recovery.

I am on a road of health and performance. What would you suggest for him to do for more longevity? For me, i

really believe that time and consistency is the key to quality and quantity.

And to not underplay the aspects of deep sleep movement pathways, excellent nutrition, stress management, and social connection. These are the five pillars that really are map to the road to longevity.

I do think that science will always come up with newer and greater things, but if you really want to live a healthy and happy life, these five that have been talked about from the dawn of mankind are really the key.

And then again, time and consistency within these five pillars leads to both lifespan and health span. Outstanding. This has been a pleasure. My pleasure, please.

We've got to do this again. 2.0 is always better than 1.00. The sequel with us is better always than the original. Isn't it wonderful? And let's just have multiple sequels in terms of helping America get healthy again.

I love it. Everybody, Dr. Christopher Carwack, Rob Silverman, Proven Health Alternates, we'll see you soon.