Introduction and Guest Background

Hello, this is Dr. Kenton Holtorff with another episode of the Peptide Summit. Today we are honored to have Dr. Joseph Cleaver, who's gonna be talking about Cenelytics, the cornerstone of longevity.

Thank you, Joe, for being on. Appreciate that you're one of the busiest doctors I know, and you're all over the country. Where do we have you now? You're in North Carolina, I think.

Yes, sir. and you practiced Dallas in your winery in Sonoma where we went to conference mastermind too, it was great. But a little about Joe, it's such an honor to have him.

He's a fellow of the American Board of Anti-Aging and Adrenaline Medicine. In addition, he's board certification in internal medicine. He's board certified in anti-aging and adrenaline medicine as achieved certification.

by the A-B-A-A-R-M. He has a lot of initials after his name. An advanced metabolic endocrinology specializing in bioidentical hormone therapy. He sees patients at Paradigm Wellness Medical Group.

He's in Dallas, Sonoma, but also looks like North Carolina. And I had the honor to be invited to one of his masterminds at his winery, Luconda. Great wines, by the way.

I don't know if there's any spots for the wine club, but we're similar. He does successful wine. I started a beer company after medical school. We had a hangover free beer, double buying with Seba controlled studies.

But as soon as we brought it out, the Bureau of Tobacco and Firearms said, you can't make a healthy beer. So we got shut down. But then we came with an energy beer before anyone had it.

But our business plan was, not very good, it cost us $7 to make it. that time, you couldn't sell a six pack for more than five. So we tried to make it up in volume.

I'm a doctor, I don't know these finances and it didn't work. We kept losing money, but it was a great and fun experience. But he's the real deal. Patients come from all over the world to see him.

He is so generous with his knowledge. He trains doctors. from everywhere. He does a lot of aesthetics with threads and a plasma pen, which scares me. It's hotter than the surface of the sun, but in his hands he can work wonders.

And it's really neat. So I've been to a couple of his masterminds conferences at his whiner, which is beautiful setting in Sonoma, that it's just some…

amazing minds on peptides, on longevity, senolytics, coming together. And it was just a wonderful experience of like-minded physicians that, you know, they're geeky on one end, know, Joe's Mr.

Slaav, good-looking guy, but he's also a geek. can tell he just researches like crazy. He's on the cutting edge of everything. And again, everything from cosmetics, to the sickest person to, but it seems like his passion is really having people live better, longer.

And he has a whole new way of looking at this longevity. We hear longevity, take this, take that, which really goes after getting rid of your cells that are causing the problem.

thanks, Joe. Thanks for being with us. It's an honor. And I just learned so much every time we get together. Well, thank you for that wonderful introduction.

It's an honor to be here and to be able to share just some knowledge and education with colleagues and peers. And uh just thank you for inviting me. I really appreciate it.

Thank you so much. yeah, so, Cinellectics versus Longevity. It's kind of like, okay, everyone wants to live longer, but one, how do you achieve that? Or is that kind of the goal?

how do you achieve that? What's so important about Cinellectics and what is it, I guess? Yeah. So the, as we've developed what used to be called anti-aging and we think about the largest educational, you know, institution outside of medical schools and looking for integrative medicine programs, the American Academy of Anti-Aging Medicine, you know, coined that term decades ago.

And we've used anti-aging for a lot of years and that anti- aging foundation and the fundamentals of our endeavors to slow the aging process started and still are true today.

uh with uh lifestyle, the purest form of medicine.

What Senolytics Are and Why They Matter

really is. If we can prevent disease and live a longer life, that's where I really kind of cut my professional teeth, if you will, at the Cooper Clinic in Dallas, Texas back in the 90s.

We looked at, we have the largest, I worked on the database there for a lot of years and we look at the impact of lifestyle on longevity and the mortality data, all caused mortality.

mortality data is compelling. All the evidence is there if we live a healthy, balanced lifestyle. Hey, but I want instead of lifestyle, I want the pill.

We got, we got peptides that makes your body think it's exercising, makes your body think it's fasting. So, We've made a lot of advancements in integrative and regenerative medicine that apply to longevity medicine.

So, you know, we've coined the term longevity medicine and on the underpinnings of the mechanisms of improving health span and lifespan. When we drill down deep into the literature and the science of where we used to focus on, we have to control inflammation.

We still know that we have to control that low grade inflammation and oxidative stress. We were taking all these antigen oxidants and there's still a very important role for it.

the lifestyle creates some of that low-grade inflammation. Some of our genetics creates the low-grade inflammation. What we eat every day creates low-grade inflammation, stress, etc.

So we would try to balance those things out with supplements, etc. But we've become a lot more sophisticated because we know the one of the most important end results and important drivers of premature aging is something called a senescent cell.

And that senescent cell is produced in greater quantities from healthy stem cells, healthy cells in the body, if we do those things wrong on a daily basis in lifestyle.

And we don't pay attention to what we, this low grade inflammation everybody talks about. And we start getting genetic or DNA damage in our cells that accelerate the number and speed of which we create.

you go back and what is a senescent cell? So senescent cell is a cell that is at the end of its lifespan in the human body. It's no longer functioning and every system in our bodies has, first of all, healthy stem cells.

Stem cells that reproduce skin cells, that feel the skin cells so we don't get wrinkles. in our heart so we don't get heart disease or heart failure or our lungs, our brains, and we don't get Alzheimer's, et cetera.

And as we age, our ability to maintain those stem cells, they also age. over time, the senescent cell, or excuse me, a senescent cell, a healthy stem cell turns into that senescent cell and it gets stuck in a state of suspended animation, if you will.

It's one of the ways the human body prevents that cell. from becoming a cancer cell. So when one of the phases G0 of the life cycle or the cell cycle, it gets stuck.

Normally a good healthy immune system can destroy that stem cell through apoptosis and autophagy. uh take in general for a stem cell to become a senescent cell?

So the literature supports about a 22 day cycle. That's it. That's it. So about every every 22 days we see this migration of, you know, stem cells, healthy cells turning into morphing into these senescent cells.

And as we get older, as we go throughout the decades of life, our ability of our immune system to identify them and rid them and basically kill them through apoptosis becomes less and less effective.

we've… look at ourselves and we go from 20 to 30 and say, well, okay, I was 10 years, I'm aged a little bit, 30 to 40, we seem to increase that aging process, it accelerates.

And it is because these senescent cells are building up in our body. Till we get to an elderly population where we're in our older or later years, and we have so many senescent cells, we have so much inflammation that our quality of life really starts to deteriorate.

And those senescent cells really start to increase about after age 60, where our system starts to falter and those nest and cell numbers start to increase.

So the senescent cells, when they switch the senescent cells, they're not just sitting there, they're actually causing problems. So true. What happens is every place in our, every system in our body has stem cells and it has a ratio of healthy stem cells to senescent cells.

And those senescent cells become eventually the worst case scenario is they become sass cells and they're secretory phenotypes. In other words, they turn into a basically a factory that produced inflammatory substances that also pollute the milieu in the environment around these healthy stem cells and start recruiting those stem cells to become more and more unhealthy and convert to senescence.

Accelerate the aging process. So everything's a vicious cycle. It becomes a vicious cycle if we don't know how to target them, those senescent cells, and to prevent them from becoming senescent.

And then if we have them understanding the science as we know today, and we're just still scratching the surface, but we do have tools at our fingertips to be able to prevent senescent cells from occurring.

And then if we do have them, we understand ways to actually rid them from the body. And that is For me, my focus of approach to my therapies, my senolytic therapies, my longevity therapies for my patients today in 2020.

That's the most current literature and science that I know that has a significant impact on our endeavors to improve our longevity and our health span also.

See, I love that because you have, this is good for you, this is good for the cells, good for the cells, but you don't wanna be feeding these senescent cells.

You wanna get rid of them. So all your protocols, it depends on the order of things, Is you don't just say, this is good for you, take it. No, you gotta do this first, this second, this third.

Can you talk about the timing of your protocols? Well, if we look at and understand that we have a group of senescent cells in the body, we have a group of healthy stem cells, and if we try to nourish or feed or improve the

health of a healthy stem cell, the same mechanisms that are improving the health of a healthy cell actually improve a cell we don't want to improve their function.

Now we can take a senescent cell and pull it back from occasionally, we can pull it back from that senescence and make it healthy again, but more often than not, it's this that.

last step on the pathway of senescent cells, that SASP cell, that we do not want to promote its health because we do not want that cell to become more efficient in producing inflammatory substances that accelerate the aging process.

It seems like you're taking a step so-called forward, but you're causing a cell that's causing problems to live longer. And you may be better for a bit, it's gonna be one of the ones first to go back to senescence.

So, yeah. And that's rare.

Senescent Cells, Inflammation, and Aging

So the most important concept that I explained to my patients that I understand from the literature and research, which is quite frankly been around a long time, Cytolytics uh is in the literature for decades.

It's just coming to the fore now and understanding that this is one of the most powerful. imbalances, is one of the most powerful concepts that have identified the human body that have been linked to premature aging and that premature aging begets diseases of aging.

Diabetes, there's no shortage of that, heart disease, Alzheimer's, dementia, et cetera. Yeah, it's like, you know, with diabetic patients and if people do like stem cells, like bone marrow or fat, you find they don't work, right?

Because you just got these crappy stem cells that are senescent, you're just basically giving them more than that. And you know, what's interesting is that there's a lot of research on this.

One is, and again, I don't want to be doctor bashing, but you know, how many doctors even you go to your standard doctor knows about senescence, you know, and senolytics, or do they care?

I mean, they're in a model that if they did care, they'd be miserable because how, you know, they're gonna have to take 20 minutes to explain it. No, they already, that's twice their time they have.

And it's interesting, and like everyone looks for new research, but you may find this as well. You look back, especially on peptides, there's people go, my God, how do I not know about these hundreds of studies?

Well, they've been around for 50 years, you know? And it just gets overlooked because there's no drug rep tapping on their door three times a day trying to get them to buy a drug.

And so it's really the old literature. And I really think you could go back and look at the old literature in any specialty. except for surgery or something like that for two months and be better than the specialist.

They're just doing the same thing they've been doing in residency. And because that's what they need to do, where you are on the cutting edge and you're always, it's amazing.

You're finding new stuff, but it may be old research that was done, but fascinating stuff, fascinating. And this whole synolytics is, kind of blown a hole and everything, take this is good for you, good for you, good for you.

Well, at what time, you know, do you wanna feed these sick cells and make them better at making you sick, you know? Right. Well said. that's the what I've termed now is more precision analytics.

When the fact that we have to, if we look at all the anything from a natural occurring substance in mother nature,

whether it be a flavonoid such as quercetin or vicetin or long pepper that all these substances actually are very powerful synolytics and they can prevent healthy stem cells and they can prevent senescent cells and they also in addition can actually induce apoptosis of a senescent cell and get rid of them.

So that's where diet comes in and then there's supplements that actually can enhance that. the what the science shows, and that's all I base my therapeutics on the literature and take clues from.

of many, many decades of, not forgotten, but there's so much literature out there that we have to go back and actually revisit some of the very powerful science that has been forgotten, such as even in peptides.

Peptides are very powerful in synthetlytics and in many areas of application of regenerative and integrative medicine. yeah. Now, wait a minute. You're an anti-aging doctor.

You're not supposed to look at the literature. So much of that literature, so much of the science, so much of the basic science, those mechanisms of action and the science supports the clinical application in many ways anecdotally.

There's so much science that supports how we approach longevity. And it's interesting. again, I don't like kind of get on soapbox with the whole healthcare machine.

But it's like, you get the less the doctor knows the more adamant the writer is like, okay, that's wrong. Okay, well, how much have they read? And I'm like, I read more in a day than they do in a year.

And I'm sure you're the same. And that's what you gotta do. And it takes a long time, and it used to be, I remember like, you know, going to the library and like picking out the journal and then going to the damn fax machine and then like your other journal's not there, whatever.

Now it's information overload, right? It's so much stuff coming at you with 80 % of it is just, you know, whatever, just political stuff. And so much is hitting that really the consumer delay person, the person in your patient who will contact you and talk to you through my patient satisfaction is in my patients, for example, in Dallas or word of mouth, do advertise and I just do my best and follow my passion, taking care of my patients.

They will come in with so much literature, so many ideas that they see online. And I feel that one of the most important jobs that we do as integrative medicine physicians is to be the gatekeeper for them.

We have to be able to weed through, wade through all the… potentially dangerous things that they find that they'd want to try and find them the most effective, safest, and cost-effective therapies for them.

That's our responsibility. And I agree, I tell patients, go to the internet, get all the stuff. There's great information, there's misinformation, bring it in, we'll talk about it.

So many doctors are here, they go, oh, are you the doctor now? No, you have to be an active participant in your health now. And if a doctor tells you stop reading the internet, run, because they can't support their therapies.

I think it's great, and I get patients bringing in obscure journals, hey, look at this. I'm like, that's interesting. Well, yeah, well, there is so much great information that is just bypassed because there's not a patent on it.

There's no drug rep and you know, and that's where all the excitement is. And I'm telling you the excitement in this, and I hate the term anti-aging or alternative.

I hate that even more, you know. Um, because they go, there's no evidence. Like, are you kidding me? It's, you know, I'm very evidence-based. I've always been.

And, but I was told never go to this alternative. And I went and I'm like, Oh my God, they're more evidence-based than, you know, and, and a lot of doctors rely on societal recommendations and you look at levels of evidence.

So you got your double-blind placebo controlled study. You got your meta-analysis, you got your single blind and you got case studies, anecdotal. And then below that are societal recommendations.

And why is that? They've shown to be wrong, such a high percent of time because they don't change for 20 years. They're very biased and look at one side and they're terrible.

But what do doctors quote? the, you American Academy or the Indigent Society says go by the TSH. Okay, well that's, I got one patient that says it's not true.

That's better evidence than the societal guidelines, you know. And so. You know, all physicians, think as a profession collectively are some of the most dedicated professionals on this earth.

And we're all just trying to do a good job. Just that our toolbox and our tools may be a little bit different and our thought processes, the way we approach patients may be a little bit different.

And what we, our depth of knowledge and our understanding, we're just trying to do the best for them. I just know that I'm completely hell to get up at 4 a.m.

in the morning and comb through. know what you do. I can text you 4 a.m. and find out what are you looking at in PubMed, right? I'm still up, but I can't get up early.

But you see, there's no incentive for these doctors, because they're in a system that they could find a cure to cancer, they can't do it. You know, so why should they find these things, you know?

And so I get mad at the doctors, but I used to be kind of just so angry. But they're in an untenable situation. They if they want to, they're going to make themselves more miserable, you know?

out. No, I I'm so true to well said, and I think the that balance that that is even more finely honed in longevity medicine and analytics is the fact that We, as I mentioned before, there's a lot of science out there, but we are just getting an early understanding, just scratching the surface on longevity and how we can improve our, you know, just our quality of life.

And, but the, it's more fine tuned because we don't have the luxury of waiting, you know, a whole lifetime to see how well our approaches work. We know that.

you know, short term, the same parameters that we use in longevity to certainly improve lifestyle.

Protocols: Fasting and Clearing Senescent Cells

Hormone balancing, if we take a closer look at balancing hormones in men and women, there's literature out there that does support that, you know, the humans do live longer when you do balance sex hormones.

But, and then dig a little bit deeper into basic science, you see that that hormone balancing has a direct effect, for example, on mitochondrial health and function.

efficiency. It's like, wow, okay, yeah, you can define balance balancing as a longevity approach. Yeah. And, and you look at, know, the doctors will say, Oh, don't take hormones that cause cancer.

Well, yeah. Synthetic hormones do. If you want to give a woman breast cancer, give her synthetic progestin. If you want to prevent breast cancer, give her progesterone.

And, know, and would you say most of things work epigenetically? or change. change that gene expression. Yeah, and I think there's a lot of unknown epigenetic phenomenon occurring in all our therapies that have just haven't been discovered.

one of when I give one of my talks on presentations on longevity and peptides, and I love referring to the GHKCU or copper peptide because the Broad Institute at Harvard has over 4,000 studies looking at the impact that copper peptide has on genomic genetic expression and resetting your human genome to a reset, healthier set and down regulating cancer genes, up regulating anti-cancer genes.

it have the impact that has on misfolded proteins and making a cell healthier. There's so much literature on a peptide that is think overlooked in sitlletics and I use a lot of it in my programs just to improve skin health.

And so yeah, GHK and for everyone out there, it's a copper peptide, a tripeptide. You'll see it a lot for skin. It's a little blue or it should be. Now, are you giving it as an injection?

I do. I use it systemically and topically. ah It's doing the same thing. And really anti-aging the whole body or do you want, you know, just the skin?

And can you talk about like the so-called theories of aging and how stenology fits into that? Well, the end result of the theories of aging where we're looking at DNA damage, the end result is a senescent cell.

can, just as we mentioned, copper peptide can actually reverse some of that damage. Telemarase activator actually can go into the mitochondria and help reverse some of the mitochondrial DNA damage.

Fundamentally, every day, our DNA is being scarred hundreds of thousands of times. mean, depending on what literature you refer to, our collective DNA damage results in essentially our demise and how we protect our DNA and how we…

maintain and manage our senescent cells, because remember those senescent cells I mentioned, that all the inflammatory substances that are produced go back.

And in the environment, in that stem cell environment, cause DNA damage and accelerate other cells to become senescent. So it's that vicious cycle you were referring to before.

protecting DNA in an environment such as we have with pesticides and radiation in this world is one of the fundamental reasons why we age. Yeah, I think we're in a more toxic environment than we've ever been.

know, I mean, it's, you know, yeah, pesticides, plastics, know, pollutants, the EMFs, you know, all this stuff. and stress, stress is a killer. And it's interesting, all the theories of aging, you know, you got your free record, that enough, but they do all kind of come down to They argue over all these things, but wait a minute.

It's all about the senescence cell. Like they're arguing over here, but the common denominator is over here. Yeah, and that term coin, inflammation is really the result of all those insults we were talking about.

And that's a term in the literature that has been used for many, many years and is adopted by many physicians in integrated medicine that talk about inflammation.

And because we want to prevent disease, we need to address inflammation because that inflammation is linked to those diseases of aging, are everywhere.

They are pandemics, diabetes, heart disease, et cetera, and cancer. Yeah. And it's all, it's all about inflammation. And look at like diabetes, inflammation, hypothalamus causes diabetes and get insulin or leptin resistance.

They're, know, the receptors are inflamed. don't, they don't see the leptin and the insulin, you know, and, you lower that then lo and behold, they're, they're better.

Um, uh, interesting. What types of things do you How do peptides play a role in this and the order of things? How does that work? Well, certainly if I start with, because I'm really not going to get into this, some very exotic peptides that are self-penetrating peptides that get into the DNA and the nucleus and can reprogram cells to become

healthier, can target senescent cells through various mechanisms in the body, such as P53, and induce apoptosis.

But if we want to swing back the other end of the spectrum, in terms of prevention. And we always falls on a healthy immune system. One of the major. reasons why we develop cancers and our demise later in life is the fact that our immune system starts to falter.

the thymic peptides are integral in maintaining immune vigilance and preventing immune senescence. you can certainly, they're supporting evidence and science that shows that synergistically, if we restore thymic peptides to a more youthful level that aren't immune system becomes more vigilant and can see a cancer cell starting in the body, for example, and to then be able to identify it and eliminate it.

So those are some of the most important peptides. And I think in the synolytic space and the longevity space are the thymic peptides. Yeah. And it's interesting.

And, looking at studies and you look at, this is what I hear all the time, but say someone gets, metastatic, colon cancer and they go, you're cured. And I'm like, you know, I didn't don't tell him this, but in six years it's going to come back, you know, a cure is five years.

Right. So, and what they have found is after chemo, you're chance of relapse is totally dependent and directly dependent on the level of your immune system.

For instance, natural killer cells monitoring your body for cancer. So the chemo wipe that out and now you don't have anything monitoring. So of course it's going to come back.

And you have a bunch of sedentary cells that they could be there, which are showing even like with chronic fatigue syndrome. They found that 25 % have low natricular cell number.

Okay, they're there, most of them are there, but 75 % have low natricular cell function. So it doesn't work. The cells are just dysfunctional. And it's amazing that that's not addressed, but it's key, again, that immune system.

Well, and that's on the, I agree. And that is one of the key components on the prevention side is to prevent senescent cells from developing and identifying and destroying them.

So it's one of the fundamental cornerstones of longevity of medicine and longevity therapeutics. The, overview of synolytics draws on so many areas of therapy that are really quite different.

mean, there, as I mentioned before, there's some very natural therapies that are very powerful synolytics. There are mitochondrial peptides. We get into peptides.

We talked about thymic peptides, but there are mitochondrial peptides, which I don't use a lot of. I, if I do, I use them after I've wiped out those senescent cell population in the, and think about how do I want to optimize mitochondria.

Mitochondria, we talked about theories of aging before we talked about DNA and mitochondrial function are the fundamental underpinnings of a healthy stem cell and longevity.

So. You connect the dots every single time from lifestyle exercise, optimizing on mitochondria. Certain things we eat in our diet are helpful to mitochondria.

Then we move into nutraceuticals that help improve mitochondrial efficiency, whether it be ALA, resveratrol, and activating CIRC1, et cetera, optimized mitochondrial function, then we get into mitochondrial peptides.

The literature supports the function of certain peptides that improve mitochondrial function. You can even look at telomerase activator. Telomerase activator, it lengthens telomeres, but when you look at the non-canonical functions of telomerase activator, it has the ability also, as we were talking about GHKHCU before, but it has the

ability to impact mitochondrial DNA and repair mitochondrial DNA.

And that's one of the reasons why my telomerase activator is extremely important.

NAD, Flavonoids, and Mitochondrial Support

I think telomere length is a surrogate marker of stem cell health and longevity. But if you have very long telomeres, doesn't mean you're going to live the equivalent of, know, my telomeres are twice what they should be.

And I'm a 15-year-old. I'm not going to live another hundred years. But it is a great marker of, I think, mitochondrial health and mitochondrial DNA. And how far that gets you in terms of longevity, no one knows.

But the fact that is when we improve mitochondrial DNA, mitochondrial efficiency, it actually has a positive feedback back to telomere health and healthy telomere ends on our DNA that help also to promote longevity or contribute to our ability to live longer.

there are potential to live longer, I should say. gotcha. And the mitochondria, you know, we're taught medical school, you know, that other mitochondria just for energy.

But a sick mitochondria, they do so much more, you know, they sense danger, they got a danger response, and they start pumping out, you know, basically, you know, all this oxidation and sickness.

So yeah, you're better off getting rid of that cell than you know, trying to say, can you just mention real quick, like, what is a telomere? Well, telomeres are the end caps in our DNA, and they are identified or measured in units.

And let's say we assign when we're first born, our telomeres are 10 units long. And each time a cell reproduces, we have to, you know, read our DNA. And when that happens, our telomeres and our end caps become slightly damaged.

And the amount of telomerase we have in our body, which we have more early on in life, has the ability to go in or into that telomere and help heal that injury.

So it doesn't shorten. Each time a cell reproduces itself, the telomere shortens a little bit. and it's kind of like it's a it's it's a clock of aging and when that's right each replication of telomere shortens and when we reach three units that cell can no longer replicate and in essentially we've reached the end end of our lifespan.

Now, does that cell just sit there until there's a signal to die or is it still functioning or the fact that it can't replicate, does it automatically go to apoptosis?

Does it die or? I think there's a parallel between the two. There are cells that will reach senescence earlier on because of DNA damage, but your telomeres may not be as short as cell death.

In other words, that cell is still viable, it's still alive, but when it converts to a senescent cell and the body can't, it becomes very resistant to death actually.

So it's still in a, it's still a cell that's uh living, but it's not contributing to the health of tissue any longer. It's a detriment and we have to get rid of it.

And it doesn't necessarily mean that telomeres have reached those three unit lengths and actually done. So it's not the defining thing as you were saying, but it's a marker, it correlates with everything.

I mean, there's so many things that, I think the theories of age are so many things that, but they're all taking little parts of it. What do you like to do to, I guess, get rid of these senescent cells first?

before you use your quote unquote longevity therapy. to rid the body of senescent cells, one of the most powerful

things we can do is intermittent fasting.

we basically starve out of senescent cell. If we create protocols that integrates intermittent fasting periodically throughout a calendar year, for example, we can maintain a lower level of senescent cells because we basically starve them out.

And I add the various analytics to, for example, an intermittent fasting program and an exercise program and all things we can repeat over and over again, nauseam.

That is one of the most potent ways and most powerful ways to clean up senescent cells in the body. actually done two hours once, does that work? So interesting comment.

you know, in my, this is a topic of conversation in so many blogs and webinars, et cetera, et My experience with senescence and literature is there is a, there's a cut point at about 15 hours that will improve metabolic health, may impact senescence cells to some degree.

I personally use a three day fast on my patients or I'll use a fasting mimicking diets at five days where they still get some caloric or calories and they still have some food, but they do enter certain states that will create that cycle or start that cycle of cell senescence, cell senescence death.

So that fasting is the lack of nutrients that kills them or is it something else or do we know? I don't think we know. I think senescent cells do not like um a ketotic state, but in simple terms, when I speak to my patients, they say, we're basically starving out those senescent cells.

They succumb to that state of, it's not starvation, but that state of fasting where they can no longer survive. Gotcha. And you said you do a three day fast.

So you actually not eating anything for three days, just water or what do you do? So, know, my patients can do, they do, we do water fasts, three day water fasts.

And you should do it under physician supervision, in my opinion, because we can have some concern about electrolyte imbalances. And if there's any sugar, excuse me, blood sugar issues or glucose issues and diabetes, have to certainly, we certainly need that medical management and intervention.

But even healthy patients, they can become dehydrated, they don't drink enough water, they become hyponatremic. The longer you fast, obviously the longer we can run into those issues, we can develop those issues.

The three-day fast is pretty safe. in the science and the physiology in the human body shows that we start to really start, that the inflammation really starts to drop off after about three days.

And the same thing, one of the most studied diets is the fasting mimicking, five-day fasting mimicking diet that has been shown to decrease inflammation dramatically on day five, improve cholesterol profile, metabolic health, and all the things that we see that improve when we wipe out a population of senescent cells.

Then we can come back and we want to start up regulating mitochondria with NAD. If you want to do NAD, protocols, you want to use nicotinamide, but whatever, you know, I, is some benefit, I believe, to, to some of the oral supplementation that improves NAD in the body.

As we age, we are levels of NAD, which is a fundamental substance, we'll call it that in mitochondria, that mitochondria need to create or produce ATP.

and produce and maintain cell health and mitochondrial health. At age 60, we have about half the NAD in our bodies that we did when we were 20. And one of the things that is overlooked, in my opinion, is there's an enzyme in the body as we age, naturally we increase this enzyme called a CD38 enzyme that just wipes out NAD.

So I don't… And NAD is, you know, to start a protocol where there'll be sub-Q, where you hang IVs in your practice, you want to control that CD38 enzyme because as fast as you give NAD, you're going to be destroying it because of the CD38 enzyme.

So to control that CD38 enzyme, one of the natural flavonoids is quercetin and fisetin works also. These are natural flavones that are found in, you know, our cruciferous vegetables, but in supplemental form, in supplement form, They've been very integral in decreasing in CD38 enzyme.

That's when I'll start after I wipe out senescent cells, give them quercetin, give them the the fisetin. They have it on board already. And that's what I'll give any data.

That's when you get your most benefit bang for your buck. Yeah, if you're just chewing it up and you're like doing these long IVs, it's like, okay, you're just fighting it.

Yeah, and it's interesting with the flavonoids. I don't know if you do a lot of genetics, but on my genetics, it's like every answer was flavonoids. It's like, okay, you've got a weakness and this, you know, this gene flavonoid, flavonoid, flavonoid.

I'm like, oh my gosh. Yeah. But they're potent and they have a lot of mechanisms of action in longevity.

Peptides for Immune Health and Brain Support

certainly if we took all the science that we've been talking about for the last hour or so on sentineletics and we just look at the blue zones and how uh you know, the most, the best longevity on this earth are driven by genetics, are driven by social networks, are driven by exercise, daily exercise, and uh nutrition, we put in our bodies every day.

So, Because I think there's a mis- there, everyone thinks that genetics determine the person, right? And that's my knock on these genetic tests. They're, oh my gosh, I'm going to get this.

But you get identical twins and this person has this environment and you know, is this type of lifestyle, this person is totally opposite, totally different.

So what is it? About 80 % is, you know, basically malleable to lifestyle, nutrition, you know. environmental factors where genes are okay with the hand you're given, but it's what you do with it.

And you can turn them on, you can turn them off. Yeah. And that's, think, the key, right? Those studies are wonderful. I always refer to a finished study that looked at identical twins and different lifestyles and compared telemar length actually over a lifetime and so and compared their lifestyle with stress and what they have endured, if you will, in terms of that allostatic load and how they've focused or not focused on healthy lifestyle.

And you see short tailed mirrors in the identical twin that did not take care of themselves versus the identical twin that lived a very healthy lifestyle with exercise, et cetera, et cetera.

Yeah, so your genes aren't your destiny. know, people freak out. have a halfway for gene. Oh my God, I'm gonna get Alzheimer's. But there are so many things that you can do now, you know, to basically prevent those things.

With the mitochondria, have you done five amino one MQ? Just curious. It's hard to get and I don't know if you can get it nowadays, but. I do not know.

I use a lot of mitochondrial peptides. Gotcha. And do like any of the brain peptides? Cerebral isin, C max, C length, do like those? Well, one of the areas of interest I have in my practice is chronic inflammatory response syndrome, is an innate immune system imbalance, we'll call it, where our innate immune system, which our first responder, kind of like that ancient part of the immune system that responds real quick to try and uh knock out a virus or a bacteria, but never gets handed off to the rest of the immune system and shuts the whole.

just love taking the easy patients. That's a good response. Yeah, those are tough patients, uh So getting to that, those analytics are neurotrophs. There's a, we've done a, we've created a small database and followed some patients with some neuro testing, cognitive testing, short-term memory, executive function, et cetera.

And we use a, we got a baseline because of what I just described is a systemic inflammation, but we know that that same inflammation is also ongoing in the brain.

They have neuroglial inflammation, so they start losing memory. They start losing their ability to function and their livelihood. So we're using a neuropeptide called the hexa, which that is, through the mechanism of hepatic growth factor, we have the ability to increase BDNF, a brain derived neurotrophic factor.

And everyone knows that that is basically miracle growth for neurons. And we know we can grow neurons now, we can heal the brain and decrease that inflammation.

And anecdotally in this short and this small database, we've had some oh very significant success. And I believe it's anti-inflammatory, not just the BDNF that shuts down inflammation and within 30 days we see their short-term memory improve.

It's part of a protocol that we use for our service patients in addition to uh Great studies on Alzheimer's and its analog of angiotensin 2A. Angiotensin is amazing, ACP, I mean, they make so many things, there's a number of trials with it coming out.

And it's amazing, like all these trials, I'm like, okay, when are they gonna finish? And there's a lot of FDA trials and it's a, it's always a moving target.

believe that, you know, the FDA does is not fond of a cerebral license currently, but there's probably more studies on that as a, I knew it. in 35 countries, no side effects, and they made it a biologic, you know.

So you can't do it as an injection anymore, but you can get it orally now, which actually EEG study shows it absorbs and one capsule is equal to about two cc's.

Well, I think that's one of the promising new developments in peptides, where we're moving off the sterile injectables and moving on to oral peptides, intranasal transdermal peptides that become more more effective.

we can use them to a greater degree in an integrated medicine practice. And but they all let me tell you we're doing a lot of studies on bioavailability and you think you know just a tiny pep tripeptide is absorbable and it's not like they're just throwing everything sublingually and say it's going to absorb you don't know you know you have to look at the the chemistry we we've hired a CRM that basically works with all the big pharma to develop these ways to make these things absorb and When you look at, mean, big farmers been trying to do it for 20 years, right?

mean, everything's exponentially getting better and better in it, but it's a lot tougher than putting something in a wafer and putting it sublingual. oh have so many disease processes that have just a paucity of therapeutic success.

We look at TBI, for example, or post-concussion syndrome in the chronic state. I think there's probably some significant effect of therapies in peptides and one of the products that I work with right now that we're looking at uh in treating TBI where we have hypoxia brain etc.

and the current therapies are just fall so short and it's great. oh there's a lot of TBI researchers out there that are all ears looking for just a therapy that has the promise to…

affect an improvement on chronic TBI or post-concussion. know, the players coming out of, you know, professional ball, military, et cetera, that really need to improve those therapies.

Yeah. And it's, mean, not just the, you know, the football player, you know, was at a stem cell conference and was actually NIH did a study. It's with spec scans.

could tell what position the football player played by worse brain damage. And, but it's reversible. oh And exome stem cells, peptides. And I know you've been working with, powdered oxygen.

There is a product that is under study right now. We're doing research in various settings that have been uh showing more and more efficacy to increase oxygen levels in tissue.

with a product that actually has benefit by oral ingestion. if you think about the possibilities of being able to drink oxygen and oxygenate tissue, it is a effectively.

And in various settings, acute and chronic settings, the potential is enormous.

Oxygen Therapy, Regenerative Medicine, and Wound Healing

And the benefit, benefit after we get these studies underway and human studies, et cetera, and everything from just sports performance to traumatic brain injury to wound healing, et cetera, and even foot ulcers, mean, you know, can say limbs.

Yes, yeah. The product's been around nine years, been studied for quite a while, and it's ready for really getting into more more human studies that are going to have a huge impact on a lot of global humanity.

The fact is if you can oxygenate tissue in a world that has a shortage of options such as blood to be able to resuscitate a injured human, an injured body with powdered oxygen, it's a, when those studies are complete and they certainly be.

come to fruition, where I think we're going to see a huge impact on those issues where we have those lack of blood supply in the world, for example. that's one the profound ones that I think of.

No, it's incredible because of couple of things. One, you need blood supply there and then two, you need the lungs working. So you need like, what about COPD patients?

They can get off their oxygen and just drink it. That's pretty amazing. Or altitude, it'd be hand altitude. Hypoxia, sarcopenia, there's, mean, it's like the impact long-term of hypoxia on the body is in COPD.

COPD is long-term. Oh my God, my head's just spinning on my stick and all these different things. That's very cool. Cause I was like, how the heck, okay.

Cause when you under tremendous pressure, you can make it a liquid, but how the heck do you make it a powder? Well, leave that to the patent, but that's awesome.

It's exciting. It's exciting. It's very exciting. if we think about applications in regenerative medicine and even longevity, if we have the ability to improve mitochondrial efficiency, adapt, you know, in the future, at some point in time, I see it even playing a role in as acetylidic or longevity to improve stem cell health.

If we put an injured athlete in hyperbaric, as you know, we accelerate healing in an acute injury because of the increased oxygen tension. Yeah. And I think there's going to be secondary pathways.

It's like, okay, then it makes, you know, nitric oxide, all the things it does. And I think it's going to be like, yeah, pleiotropic effect where you have more oxygen, you have healthier tissues, which stimulate good genes.

know, where I think, cause you get hypoxia, that's when all inflammation and bad stuff gets secreted. Right. Interesting. Yes, love to hear more about that.

So, kind of in summary, what peptides do you like? You know, certainly a large part of my practice is aesthetics, regenerative aesthetics. Just mention on the cutting edge of all these aesthetics and I knew FD approved, but they're from like Italy, these threads, I got some, got some such a whip and they're so painless.

mean, everyone is, I remember they were clamoring to get at you like, treat me, treat me. mean, you know, so he's an artist as well really with this, And it was amazing and picked out exactly what someone needs.

It was very interesting. I don't have that sense. And just always looking for new therapies as well. Yeah, the applications of peptides and aesthetics have actually been around quite a long time.

we kind of repurpose them a little bit into hair restoration. I've been using, hair restoration for quite a few years. And we just dig into the science of the thymusins, for example, GHK, BPC, all of them collectively.

can repair the scalp as an anti-inflammatory, increasing subcutaneous fat with TB4, activating stem cells, improving their migration down to the hair follicle bulb, and moving a hair follicle into an antigen phase and starting hair growth again.

So peptides are key to aesthetics just starting in the scalp. The GHK has been around since 1970 and studied endlessly for were as a topical cosmetic.

And if you look at it as a, potent it could potentially be as a systemic peptide, not just for the things we mentioned before, but all those mechanisms of GHK, yeah, they also work on the stem cell, know, the epithelial stem cell, the fibroblast.

So, It makes sense to apply it topically for sure it works, but why not systemically if we have a, you know, a decrease in increasing, excuse me, a successive decrease in our GHK as we age.

Well, I'm in LA, so you can just have beautiful outside, but if your inside's just deteriorated, they don't care. It's like, but I'm telling you, every time I see your hair, you have more and more hair.

I've never done a, not one set, this is my hair, thank God I'm blessed. yeah, the hair restoration is a lot of fun. The thymusids are integral in aesthetics and in uh regenerative aesthetics practice.

And the, not only from a topical application, but we know that the ability to accelerate healing is a systemic phenomenon. So we can use peptides. is evidence that using systemic peptides such as TB4 or even BPC or an oral BPC 157 are very effective in restoring or accelerating that healthy injury that we use in aesthetics to restore skin, restore tissue to a more youthful state.

Nice, nice. you take, you know, I love that. You take the application. think that's just lacking so much in medicine is doctors learn this, but they don't take this and apply it over here, you know?

medications all the time. And everyone's in their own little thing. You got the gastroenterologist, you got the cardiologist, you got the neurologist.

And so patients go to all these different things and it's like, you know, come in with, you know, 22 diagnoses. And I'm like, what do you think it's likely, more likely you have 22 separate diagnoses that aren't related or there's something, one thing underlying, you know?

But I love that. Any new… Therapies on the horizon. I love this uh powdered oxygen. I think we're going to be looking at, you know, one of the areas in regenerative medicine, obviously, are biologics.

And whether we use decelerated growth factors that used to be called exosomes, stem cells, there's always a moving target as to their application and how you can use them and when you can use them.

But more and more of those products are becoming being reinvented, you will, or redesigned as topicals. So looking at combining, for example, in wound care, as you mentioned before, diabetics, but just in aesthetics, the post procedure.

Aesthetics, Hair Restoration, and Future Therapies

healing time is of extremely key to your success. And if we can combine a topical biologic with a something like a powdered oxygen that supplies that wound and that healing with oxygen and those growth factors and all the things we need to accelerate the healing without dampening down that inflammation too much, because we want to call on those stem cells naturally to come in and heal.

And I think we can find that balance and accelerate that healing and affect the great outcome, taming those stem cells with the peptides in addition that tell that stem cell to go down that path of healthy healing, laying down the right collagen, collagen three and collagen one, and not going off and creating scar tissue.

So for me, that's the very exciting area of development going forward over the next six to 12 months. Yeah, and I think with peptides are so synergistic with something, but especially, you know, stem cells.

And I've given a lot of talks on the synergy, even with the latest virus that's out. I don't want to say it because the, know, with the Ovid K, whatever, pig Latin, is that stem cells are reversing that especially added with peptides and you know the stem cells will secrete peptides whether it needs to be antimicrobial peptides or actually thymacins and then all the like the thymacins and bbc stimulate the stem cells you know so it's they're really a nice combo and i think you get you know one plus one equals five type thing when you use them together There's wonderful synergies there that need to be explored and created into products and utilized in all these areas we just mentioned.

I just were the FDA. So, you know, they're really the enforcement arm of big pharma. But, you know, if you have something that's exceedingly totally safe and works.

Yeah, they're probably gonna try to take it away. but anyways, this has been fascinating. I just love all the stuff you're doing and just your passion.

And I've seen you work in person and lecture and appreciate your, just your basically generosity and sharing everything that you do. And yeah, just seeing everyone huddled around you and there's no shortage of free models for you.

But yeah, so I mean, you're just doing great work. Keep it up. And again, all the mastermind conferences you have, please keep them up. just learn so much and just meet so many interesting people that are very cool, but a little nerdy side, you know, and.

So far, we've been very successful. Our next one's going to be the end of February. And then we're going to have oh just the All Things Regenerative Medicine coming up in May.

So we already have people signed up. And we're excited to just put on the next conference. Nice and afterward you get some beautiful wines at the con.

Give anymore spots in your wine club. We, yeah, there are some spots left. Just have to call the main number. My winemaker will set you up because the wines speak for themselves.

You've been to the winemaker's dinner at Locanda Conference. And I think that's certainly the big draws. Everybody says when they leave the conference, like I learned a lot and I felt like I was on a mini vacation.

This guy relax. little touch of paradise and you obviously use your your power of geekiness to the wines too and the scientific and you know could just see you in there like you know analyzing to get that that ultimate wine and it comes through but again you're just doing some great things for people and you know and and I think so many of them that see you like they probably don't realize Hey, I'm gonna live 10 years longer and not in a nursing home.

What's that worth? Well, what is it now? 80 % of the money is spent in the last year of someone's life, you know? And they're just sitting there in a nursing home or ICU at the time, coming in and out, liver transplant, and you can prevent that.

We endeavor to and we certainly endeavor to make sure that our patients don't end up in those nursing homes prematurely. Yeah, so you are a godsend to so many people and I thank you.

I'm proud to say your colleague and friend and thank you for all that you do. Thank you, Ken. Thank you for having me today. I thoroughly enjoyed it. Thank you.

Thank you, I know you're just so busy running around, so I do really appreciate it. Thank you.