

## **An optimal anti-aging protocol with the combination of TA65 and Peptides**

**Dr. Joseph M. Raffaele, M.D.**  
**Kent Holtorf, M.D.**



### **Dr. Joseph M. Raffaele, M.D.**

Kent Holtorf, MD, is the medical director of the Holtorf Medical Group and the nationwide Holtorf Medical Group Affiliate Centers. He is the founder and medical director of the nonprofit National Academy of Hypothyroidism which is dedicated to disseminating new, evidence-based information to doctors and patients on the diagnosis and treatment of hypothyroidism and advanced integrative diagnostic and treatment protocols. He is also the founder of Integrative Peptides which is dedicated to training physicians regarding groundbreaking peptide therapies for their patients and bringing the highest quality, natural, bioidentical peptides as supplements with unique delivery systems to doctors. Dr. Holtorf is an internationally-known lecturer, author, and innovator, in cutting-edge research and treatments. He has personally trained numerous physicians across the country in the use of bioidentical hormones thyroid replacement for complex hypothyroidism syndromes, peptide therapies, immune-modulating strategies, stem cell, exosome, and growth factor treatment, hormone replacement therapy for complex endocrine dysfunction, and innovative treatments of chronic fatigue syndrome, fibromyalgia, Lyme disease, and other chronic infectious diseases, CIRS, neurodegenerative diseases, and many others. He is a fellowship lecturer for the American Board of Anti-Aging Medicine. He was the endocrinology expert for AOL Health and is a guest editor and peer reviewer for a number of medical journals including Endocrine, Postgraduate Medicine, and Pharmacy Practice. Dr. Holtorf has published many peer-reviewed endocrine reviews on complex, multi-system, poorly understood conditions. He has demonstrated that much of the long-held dogma in endocrinology and infectious disease is inaccurate. He has been a featured guest on CNBC, ABC News, CNN, and many other media outlets.

### **Dr. Joseph M. Raffaele, M.D.**

So it's a pleasure to have you on the show. Dr. Holtorf. I'll call you Kent, you can call me Joe. I know that you do a lot of work in immune dysfunction in diagnosing it and treating it. You have

quite a protocol at the Holtorf centers. Why don't we start off by having you tell me a little bit about how you look at the immune system, how it's infected by environmental factors, by aging, and then what you do to right the ship, so to speak.

**Kent Holtorf, M.D.**

Yeah. And basically, we've become an immune modulatory clinic and been using your product for quite a while. And we have a longevity program, and you'll check people, tell them before and after, and this stuff works. But really we brought peptides in with them, and really the meeting I got chronic Lyme terrible. I had three and a half years of IB antibiotics, nothing worked because I had no immune system to basically kill the infection. And you know, you can give antibiotics, but you can only knock them down so far, the immune system has to take over. And if you think of your immune system, everything's an over-simplification, because it's so complex, but on one side you have Th 1, other side, Th 2. This gets stuffed inside the cell. This is outside of the cell. Now, especially with Lyme, you get Lyme, and Babesia, Bartonella, same thing, that they, as soon as you get infected, they start secreting cytokines and things that suppress that Th 1. Then they go inside the cell, and now they're chronic, and your body cannot fight the infection, which we'll get why that does do with aging. But, I was in the hospital with sepsis twice, and they kept saying, I heard the nurses during the shift say, "Oh, this is that AIDS patient "that keeps coming up negative for HIV," because I just had no immune system. And I had three and a half years of IB antibiotics that did nothing at doses that no one would give anyone. And so I went searching and I found peptides. And I went into heart failure. Couldn't stand up. Couldn't take me an hour to walk up a flight of stairs. And I'm sorry, not getting oxygen sucks.

**Dr. Joseph M. Raffaele, M.D.**

Yeah!

**Kent Holtorf, M.D.**

I'm like, I can't live like this. So as I really thought about helping myself every year, I'm like this is just terrible. The cardiologist said in 10 years, maybe you get 10% better. Like, are you kidding me? So, I was in Europe and I found peptides, and I tried so many things that it didn't do. I hope it's only one thing. And all of a sudden I'm like, "I just walked up the stairs upright," you know? And so I wasn't really allowed to bring him in, just because of regulatory rules, but then they became available in the US. And what a lot of these do, for instance, Thymosin Beta-4 or orally TB-4 frag will actually raise that Th 1. So, and that Th 1, not only monitors your body for infections, but also cancers, but also clears the senescent cells. So, a big problem with aging. Now, if you keep your telomeres long, then the cells don't go into senescence, but let's say they go into senescence. They're supposed to go under apoptosis, which is programmed cell death

and die off. Now, if they don't, it's not just you have cells sitting there doing nothing. They start secreting all this oxidative stress, and reactive oxygen species. And then NAVIO did some studies cell danger response. But I think it's more of a global thing. And if you do things to get rid of those, it's like for instance, heart failure patients. About 50% of the heart cells were in senescence. So they're secreting all this and they're not doing what they're supposed to be doing. And that's what I had. I had diastolic dysfunction, everything was fibrotic. It just wouldn't let the heart fill to get any blood in, and just became stiff and tons of oxidation. But they were totally resisting, 'cause I have no immunity. So you raise that immunity, that's monitoring to kill your own cells, which sounds kind of strange. You kill your own cells to get younger, but then you can get rid of those. And then, you become much younger. You know, oxidative stress is , lowers the telomeres and so many things. And it goes along with stress as a killer, same thing. You look at anything that lowers telomere, lowers that Th 1, and keeps you from getting rid of those senescent cells. So a couple of things like Thymosin Beta-4. So as you get, when you're around nine to 15, you're thymus which is in your chest, it starts involuting and it involute's faster if you're obese, or have diabetes, or a lot of oxidative stress, and it drops to about 10%, and what this does, it causes that low Th 1 cells, and then your body, it raises Th 2, which is trying to fight infections. It's associated with all the diseases of aging.

So, it's this immune shift, and you shift this back, and that was key to me getting better with Lyme, and which nothing was working. And I had immune activation of coagulation. My blood was so thick, we couldn't do a test. Everyone's gotten familiar with that now with COVID, and it just shifts. So, in Thymosin Beta-4 is actually shown to be undetectable in COVID, and so you get all this inflammation, and your body can't fight it, and you're causing all this hyper-coagulation. So you do things to modulate the immune system, and stress is a killer. And people think stress lowers your immunity, but it's worse. It lowers that Th 1, but it raises that Th 2. So you get sick and you're basically, but it basis all the negative effects. So when you look at when the thymus drops, that's with all diseases of aging, autoimmunity, cardiovascular disease, arthritis, eventually everything starts breaking down, neurodegenerative diseases. So if you have a way of bringing those back, not only do you help boost your telomeres, and make yourselves younger. But now you actually result in a younger body. You don't, you're not prone to all those diseases of aging. And you're able to reverse those, including cardiovascular disease. Auto-immunity, they're like the best thing. I'll say we're getting this immune modulator, some people call 'em, patients say immune booster. Why would you give immune booster with my auto-immunity? I'm too high immunity.

**Dr. Joseph M. Raffaele, M.D.**

Right?

**Kent Holtorf, M.D.**

It's thought of it like, is this thing high or low? But it's like this. So, it monitors like that. So, it's part of our longevity program. Which again, we'd love the TA-65, and goes along with it. We'll do, basically check physiologic age, before and after. And so many things play into it. You look at all the theories of aging.

**Dr. Joseph M. Raffaele, M.D.**

Before you go into the theories of aging, can you just tell us maybe a little bit more for our listeners and for me too, Thymosin Beta-4, is what you're talking about. And that's a peptide that has what structure? Is it-

**Kent Holtorf, M.D.**

Yeah, so it's basically from the thymus. And so you're replacing that thymic peptide, and doing that job of the thymus. Now there's a number of them, there's thymus at alpha one, that's approved in about 30 countries for everything from chronic infectious to cancer. But because people started using it for COVID safe and effectively, they banned it. And then there's-

**Dr. Joseph M. Raffaele, M.D.**

It has been banned? I wasn't aware of that.

**Kent Holtorf, M.D.**

Yeah, they said, they're no longer making it.

**Dr. Joseph M. Raffaele, M.D.**

So, Thymosin Beta-4 though, are these so to speak bio-identical? In other words, is what you inject, or take orally for the peptide therapy, is that the exact same structure as the one that your thymus was producing previously?

**Kent Holtorf, M.D.**

Yeah, and the thymus produces a lot of them. And the main one is Thymosin Beta-4, and the problem with Thymosin Beta-4, it's 43 amino acids. It has different parts of different things, and one part stimulates mass cells, which is good in the short term, you do want some inflammation that drives cells to the wound. But long-term, this is where finding, with chronic Lyme is they have mast cell activation syndrome. And so while the upstream effect, usually overrides that mass cell activating, and you can't take it orally. We took out a fragment, we took out that part that actually is the immune modulatory part, and the healing part and took out

the mass cell activation part. And so, and it's orally available, where Thymosin Beta-4 would not be. So that's the Thymosin Beta-4 frag.

**Dr. Joseph M. Raffaele, M.D.**

Oh, I wasn't, yeah. So, that's something you developed, your company?

**Kent Holtorf, M.D.**

Yeah, so I developed that just from my, basically, when something changes your life, and then it became available here. And really, that's why I still do this lecture around the country on peptides. And they changed our practice. And again, changed my life and they made all these chronic infections were able to get better so much quicker. And also, things like auto immunity, it's great. It's like, you wanna raise your auto-immunity. All the auto-immunity people, they have an immune system, it shift like this. And we're seeing more and more of this chronic illness, chronic fatigue syndrome, fibromyalgia, people are aging faster, you know? Cardiovascular disease, it's scary. It's like, people I went to school with are dropping dead. It's like a little, wake up call. And so what these will do, Thymosin Alpha 1 was more of a pure Th 1 booster. Thymosin Beta-4 is a modulator with a lot of growth factors. So it will raise that Th 1, lower that Th 2, and then also find growth factors. Another one called, body protection compound 157, BPC-157. That's actually normally in your gut, and it heals so many things. And when I give lectures on it, people are like, "Wait a minute." It's just hundreds of lectures on, it works orally for your gut, of course. But will also work for MS, Alzheimer's, you have strained, basically ligaments, knee damage. And it does that. And then, so that combination, you get that under control. And things like, pot, you'll see where, the whole on and off immune system is screwed up, it will fix. Auto-immunity, it's great. And you know, you go to your endocrinologists people with Hashimoto's and they don't even check their antibodies 'cause they don't think they can do anything about it, but that is a key therapy. And then there's another-

**Dr. Joseph M. Raffaele, M.D.**

That being, when you say that, which is a key therapy for lowering thyroid peroxidase antibodies, for instance or anti-

**Kent Holtorf, M.D.**

Oh yeah, so Thymosin Alpha 1, which again, you can't get. But the TB-4, and especially TB-4 frag, and it's also 100 times as potent as TB-4, and much cheaper available as a supplement.

**Dr. Joseph M. Raffaele, M.D.**

The fragment, TB-4 fragment.

**Kent Holtorf, M.D.**

Fragment yeah, so that's an integrated peptide.

**Dr. Joseph M. Raffaele, M.D.**

So how do you choose who is a candidate for them, and then how do you dose, and what response are you looking for?

**Kent Holtorf, M.D.**

Yeah, and so it we'll use, never use anything in isolation. And-

**Dr. Joseph M. Raffaele, M.D.**

Oh, okay.

**Kent Holtorf, M.D.**

So with the TB-4, you need a prescription for that, and injectable, and it does seem like mass cells. With the oral, the standard dose is one capsule twice a day. Absorbs very well, whole. A lot of peptides are very difficult to take orally, 'cause they're broken down. But this is not a . And then, but if someone's sicker, we'll do higher dose, very safe. Like that and BPC, they tried to find, they took humans, gave them IVs, and just kept going up on the dose. Thousands of times the normal dose, they can't find a side effect, and...

**Dr. Joseph M. Raffaele, M.D.**

Nevermind, I know the 50.

**Kent Holtorf, M.D.**

Yeah, and then there's another peptide called Epitalon, which is a pineal peptide, which people think of secreting melatonin. And it does, it brings the melatonin levels back up to normal.

**Dr. Joseph M. Raffaele, M.D.**

Really I mean you've seen that in those overnight melatonin saliva tests?

**Kent Holtorf, M.D.**

Yeah, yeah.

**Dr. Joseph M. Raffaele, M.D.**

And Epitalon does that, how does it work? Curious.

**Kent Holtorf, M.D.**

So yeah, basically, it's a pineal, it will stimulate the melatonin, which made in the pineal gland, but it's a very interesting compound, because it will fix your hypothalamic pituitary dysfunction. So, then I have a whole lecture. We have our non-profit National Academy of Hypothyroidism, where I've been saying for years, that the standard way we do thyroid in this country is wrong, because everyone who as they age, as they get more stressed, toxic pesticides, EM maps, will basically make your hypothalamus pituitary dysfunction. And how do we, standard way to diagnose low thyroid is that, you're taught in medical school for 15 minutes, whatever. If your thyroid levels low, drop, your pituitary responds and increases TSH. Problem is, as you get older or sicker, your TSH doesn't do that. So you get low TSH, but have low thyroid. And so it will fix that. It lower the inflammation of that. And it also rejuvenates the fineness.

**Dr. Joseph M. Raffaele, M.D.**

So, every Epitalon goes all of these things?

**Kent Holtorf, M.D.**

Yeah, and they had one study where they gave, this was a rat study where they gave, I think it was 135 rats who were menopausal. They gave them all Epitalon. They all started menstruating, 25% at live births.

**Dr. Joseph M. Raffaele, M.D.**

Really?

**Kent Holtorf, M.D.**

So, we're using it in our fertility. We'll see, what's called anti-Mullerian hormone, which is your reserve of your eggs, that goes up.

**Dr. Joseph M. Raffaele, M.D.**

Wait, you've seen anti-Mullerian hormone levels go up in sort of late reproductive age women on Epitalon? That's seems pretty revolutionary.

**Kent Holtorf, M.D.**

Yeah.

**Dr. Joseph M. Raffaele, M.D.**

And it'll go from, I mean, when you're pretty close to not actually having any, it's a very low number. So you're talking about going back from the 40s into the 30s in terms of your anti-Mullerian hormone?

**Kent Holtorf, M.D.**

Yeah. And they're FSH and LH will come down, estrogen levels will come up, fibroid levels. And it seems to also fix the diatomaceous, which is converts T4 to T3 and T4 diverts T3. And so it's pretty amazing. So we use that.

**Dr. Joseph M. Raffaele, M.D.**

I'm just, I'm a little flabbergasted. So, I wanted to know about your dosing, and how you're achieving this with Epitalon? Because I don't use it in my practice, and I sounds like I'm going to start, but-

**Kent Holtorf, M.D.**

Oh yeah, and before I turn it down go to another study. So this is a human study. They took a hundred something patients with severe cardiovascular disease. They gave them just six doses of Epitalon, and basically Thymosin, which it was Thymulin, different version, but works basically the same, immune modulatory. They only gave them six doses, and they found the ones on normal therapy, inhibitors, their cardiovascular function got worse over time. They followed 'em for 15 years. The ones who got the Epitalon and and Thymosin, their cardiovascular function got better, better endurance, dramatically less heart attacks and strokes. They had 25% increase in mortality, a 200% decrease in cancer, again they're raising that Th 1. And then they did a subset of that, where they took patients and gave them more. Continued, it's still very low, but they found they had a 400% decrease in cancer. And...

**Dr. Joseph M. Raffaele, M.D.**

So, and is this that Russian study?

**Kent Holtorf, M.D.**

Yeah, most of those are out out of Russia.

**Dr. Joseph M. Raffaele, M.D.**

Has that, I mean, it seems so incredible. Has it been, tried to be reproduced in the US, or any other countries or have you seen any more-

**Kent Holtorf, M.D.**

No one has the reason to do it, because it's not on patent, and who's going to spend the money?

**Dr. Joseph M. Raffaele, M.D.**

Well, I mean, yeah that's partly true, but you know, testosterone's not on patent anymore, and that doesn't stop five different companies offering a formula because it works very well.

**Kent Holtorf, M.D.**

Yeah, I mean they're all, but I don't know. They just shied away from peptides. Although, 40% of new drugs being approved are peptide.

**Dr. Joseph M. Raffaele, M.D.**

Right, for sure. So what Epitalon is, I mean, I'm particularly interested in its telomere effect, but it sounds like it may not be a direct telomeres activator, but-

**Kent Holtorf, M.D.**

It does increase telomeres.

**Dr. Joseph M. Raffaele, M.D.**

Oh, it does, okay.

**Kent Holtorf, M.D.**

Yeah.

**Dr. Joseph M. Raffaele, M.D.**

And so what's the structure of it? Is it's a large peptide, a small peptide?

**Kent Holtorf, M.D.**

It's 14 amino acids. And, so it's normally difficult to get it to absorb orally but, and we started this company. If I would've known it, would've taken us \$500,000 to go jump through all the hoops for the FDA, making supplements, and do studies on bioavailability. And you got all these people putting peptides in sprays, and sub-label and just saying, "Oh, they absorb," and they don't.

**Dr. Joseph M. Raffaele, M.D.**

Right, that's pretty common in the supplement industry, unfortunately.

**Kent Holtorf, M.D.**

Yeah, and so we're showing that they actually absorb. A lot of things we have to do to them. One thing we don't do, and all these companies do the peptide GOP 1, it's a bunch of them, , Victoza.

**Dr. Joseph M. Raffaele, M.D.**

Sure.

**Kent Holtorf, M.D.**

They're great for Type 2 diabetes and weight loss. It's hundreds, a hundred and something long. And what they do is they add stuff that breaks open the tight junctions in your gut. So it absorbs.

**Dr. Joseph M. Raffaele, M.D.**

Oh, that's not good!

**Kent Holtorf, M.D.**

Yeah, so they go, "Oh, it's temporary," but you don't know my patients, they all have leaky gut. And the BPC actually will help leaky gut, and TB-4 frag will actually reproduce, will heal the tight junctions. So, it's interesting. So we won't do any increase by doing things that way, but we've found ways, wasn't cheap, but to get things like Epitalon. There's also another one, Pinealon, which is very similar to another pineal hormone that we use together. And if you're gonna take an anti-aging, take your TA-65, take Epitalon and Pinealon, and a Thymosin, and probably TB-4. I've named up a bunch, because it's kind of like, they all just work together. And we can tell, for instance, when someone comes in, no one believes chronic fatigue syndrome, or the doctor doesn't know how to treat it, it doesn't exist. Like we can pick them out in chronic Lyme on a blood test. We do a lot of tests, about 40 tests, and we're always on the record, wherever they go. But we can pick what they have, and how sick they are. And it totally correlates. It's that immune system that it correlates with symptoms, it correlates with aging. And if you fix that immune system, it lowers the inflammation, and now you can start killing intracellular infections, it basically monitors the body for cancer. Then you're basically have a key tool for longevity. And then I found, repaired my heart, which is so fibrotic and oh, then TB-4 frag is the most potent anti-fibrotic substance that we have. So it reverses diabetic kidney disease, post-MI, when the heart gets by fibrotic, and also senescent cells. So, these things will basically reactivate those cells. It will decrease the size of an MI, if you induce an MI. If you have kidney disease from diabetes, peripheral neuropathy, all those things. So, we've become kind of a peptide clinic. And now we made them available to the general public, integrated peptides at

a fraction of the cost. And we have a couple of new products that we're excited about. One is a thymus and alpha one replacement, in which will be another thymic peptide and a bio regulator, which are tiny peptides, which you can't believe they have an effect. And it's very interesting. So, doing these studies, I'm like they can't find a receptor. And one study showed they were harmonic. It's they vibrate a certain frequency, and stimulated the cells. And I think what EMF does to that, and it also protects you from EMF. EMF toxicity, which would take a whole nother thing. But, you know-

**Dr. Joseph M. Raffaele, M.D.**

Which peptide does this you're talking about that protects you from it?

**Kent Holtorf, M.D.**

Basically BPC will... What the EMF's do is they'll activate, what's called the calcium voltage gated channels, and they'll open those up and allow calcium to flood in, sorry about that, and then... And so it will heal those and prevent that from happening. And it also, this is the BPC 157, it protects your body against all these different toxins, whether they're mycotoxins from mold, all the toxins we get every day in the environment. One study showed that eating fast food caused the same reactions if you had acute infection. It caused that immune shift.

**Dr. Joseph M. Raffaele, M.D.**

Right, right.

**Kent Holtorf, M.D.**

And didn't go back to normal, even after eating normal.

**Dr. Joseph M. Raffaele, M.D.**

So with BPC, do you... Sorry.

**Kent Holtorf, M.D.**

Used to kind of protect itself.

**Dr. Joseph M. Raffaele, M.D.**

I've heard with BPC that there's, some people use one dose. Do you have a dose range? How do you decide whether to stay with one dose, increase it? And I suppose it depends on whether you're taking it orally or by sub Q injection. And just a follow up question on that is, is the sub Q as protective in the GI tract, as the oral, probably not.

**Kent Holtorf, M.D.**

Exactly, great questions. And for instance, like we typically start people on BPC 157, it does so many things, and it is actually, people think of it as a gut hormone, right? Well, it's in the gut, heals the gut, but it's shown to be equal potent to an injectable. So, for the same dose, you will get the same systemic effect. They did one study on rats where they did inflammatory bowel disease. You know, I forget it was ulcerative colitis or Crohn's. Think it was ulcerative colitis and MS. And they took it orally. They put it in their drinking water, and it fixed both of them.

**Dr. Joseph M. Raffaele, M.D.**

Hmm.

**Kent Holtorf, M.D.**

And part of that is probably the gut brain axis. And these are also key at, because the gut brain axis goes both ways. The gut affects the brain, but not the whole body, really.

**Dr. Joseph M. Raffaele, M.D.**

Sure.

**Kent Holtorf, M.D.**

But the brain also affects the gut. So for someone to get CBO, it's going to probably come back, because their gut is, they don't secrete all the, basically enzymes and digestive juices, and they don't have the parasitosis, so the environment isn't very great, so it comes back because it's conducive for those pathologic bacteria. So, you add the BPC, which kind of lowers the inflammation of everything. We've had great results with inflammatory bowel disease. And remember a nine-year-old came in, they're going to do a colectomy and tried everything, high potent chemotherapy drugs. And I think about three weeks, but totally fine. You know?

**Dr. Joseph M. Raffaele, M.D.**

This is orally. And so it sounds like you use it exclusively orally, since it has systemic effects, as well as-

**Kent Holtorf, M.D.**

Well, we'll use both, but we found that you can, and it's much, it's getting very hard to get injectable peptides that I'm in California. California, the people's Republic of California is trying to ban everything. The next thing I heard they're going to ban, IV vitamin C and glutathione.

**Dr. Joseph M. Raffaele, M.D.**

Yeah. I mean, anastomosis team was crazy in and of itself, but...

**Kent Holtorf, M.D.**

Yeah.

**Dr. Joseph M. Raffaele, M.D.**

So you're using it orally and it's-

**Kent Holtorf, M.D.**

And we're going to have an oral Epitalon coming out. So we figured out how to stay legally, and make them work. And we're doing Metabolomix to show that these work, which is a various new method where they'll check 5,000 small metabolites after you give whatever treatment you're going to give, and you compare it to normals. And so it paints a huge picture. So, we're showing that our things are absorbing and you know making the changes that we think, in comparing them to normals. We're doing also for hypothyroid patients versus thyroid, which is patients go undiagnosed, till the TSH is normal.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

You do the test and they're all low, you know?

**Dr. Joseph M. Raffaele, M.D.**

Who are you using for your Metabolomix?

**Kent Holtorf, M.D.**

With that we, and I didn't mean to make that sound as a clinical test right now, but we're using it for research, but that's our goal. Right now we treat probably all our patients, with low thyroid that have a normal TSH. They've been told, "Hey, your thyroid is normal." But even with sepsis, not only does your TB-4 level go to zero, your thyroid level in the lungs goes to zero.

**Dr. Joseph M. Raffaele, M.D.**

Really?

**Kent Holtorf, M.D.**

And there's a couple of smaller anecdotal stories that giving T3 to severe COVID patients, dramatic improvement. So very interesting. And great for, congestive heart failure. Endocrinologists are scared to death of giving T3 with anyone with heart problems. But, I can tell you the whole story, which is pretty amazing, but that it lowers the risk for arrhythmias. And it also, BPC 157 will prevent arrhythmias. And we had our executive director's husband come in A Fib. And so I gave him a big shot of BPC and broke it, BPC 157. So, basically all the ones that I've talked about are available orally. And then the other one we have, which is currently, we have two more coming out, weight loss one, and then the replacement for Thymosin alpha 1 is KPV, have you heard of that? Or...

**Dr. Joseph M. Raffaele, M.D.**

I have not.

**Kent Holtorf, M.D.**

Yeah. So, it's you ever heard of alpha monocyte stimulating hormone, of course.

**Dr. Joseph M. Raffaele, M.D.**

Sure.

**Kent Holtorf, M.D.**

And that goes up when you go in the sun, and you get a tan. But it also has great immune modulatory properties. And it's amazing anti-inflammatory, but all that anti-inflammatory effect comes from the three little peptides, from alpha monocytes stimulating hormones. So, we had a number of doctors and really big in the Lyme community, of course, and that's what is my life. And I lived it, and got through it. and it's the worst disease. I never wish it on my worst enemy, and heart failure, along with that, that they were using Melanotan I, Melanotan II, which was known as the Barbie doll peptide, because you got tan, you lost weight, you had increased energy so... But you got tan, which is good, if you're probably under 25, it looks good. But as you get older, those can darken your age spots or whatever it may be. And I remember I took too much on ADD, this isn't working and all of a sudden, I was so dark. People are just like, "What the heck, where are you from?" You know? But we don't have to do that when it's, again, many times as potent. Studies are different, but 50 to 100 times as potent as giving alpha monocytes stimulating hormone, and we can't find side effects in these things. And so it's great, anti-inflammatory.

**Dr. Joseph M. Raffaele, M.D.**

You talking about Melanotan right now?

**Kent Holtorf, M.D.**

KPV.

**Dr. Joseph M. Raffaele, M.D.**

Oh, KPD I'm sorry.

**Kent Holtorf, M.D.**

Really, I'm talking about all of them. It's side effects are just unheard of. And normally when you dose anything, you'll start low and go slow, you know? But if someone's sick, I'll start high, get them better faster then come down to more normal levels.

**Dr. Joseph M. Raffaele, M.D.**

What does KPV stand for?

**Kent Holtorf, M.D.**

Yeah, so it's just basically all the peptides, you have either a three, letter based identification or a one-letter. So, it's just the identification of the three amino acids.

**Dr. Joseph M. Raffaele, M.D.**

Oh, I see what it is. So, it's a tri peptide then?

**Kent Holtorf, M.D.**

Yeah exactly.

**Dr. Joseph M. Raffaele, M.D.**

And so BPC that's, but the BPC is like 15.

**Kent Holtorf, M.D.**

It has 14, yeah.

**Dr. Joseph M. Raffaele, M.D.**

14, right. So what does a BPC stand for, but that's just body protection compound? I guess they don't always name them that way. But KPV is named because of the three amino acids.

**Kent Holtorf, M.D.**

It never got another name. Yeah, so...

**Dr. Joseph M. Raffaele, M.D.**

And that's available through your integrated peptides?

**Kent Holtorf, M.D.**

Yeah, so that came out and the other one we have is, I don't know if you've heard of Cerebrolysin.

**Dr. Joseph M. Raffaele, M.D.**

Sure.

**Kent Holtorf, M.D.**

It's a bunch of different neuro peptides, and they hide the secret. They won't even tell you which ones they are, but they increased neuro growth factor. Been used for 30, 40 years in Europe, IV for dementia and increasing memory. And again, just recently, the FDA said, "Can't use it." It's too safe and effective. So...

**Dr. Joseph M. Raffaele, M.D.**

It doesn't have BDNF in it though, right? It probably doesn't have BDNF in it. That wouldn't be, we don't so a single company made it, and they is proprietary what's in it? It must be an extra then?

**Kent Holtorf, M.D.**

Yeah. And it has a lot of different things in it, and something's going on because someone bought up their entire supply. So I don't know what that means, but it's a bioavailable orally being a bunch of small peptides, and it's shown to work within one minute, like they'll do EEG. And we've gotten more feedback on that from people that just for instance, my stepson, he was just being a jerk, right? You know? And, so I hear take this, and then all of a sudden he just starts being normal. His brothers are like, "Oh my God, "he's back to his old self." And he's bragging about his memory, and it can improve memory even in normal people. So, we had a lot of feedback from all these things. Again, so it's changed our practice, and people that we train on these peptides, they'd say the same thing that they can treat conditions that they never would have attempted to, exceedingly safe. And so we'd like to do the peptides through the doctors. And so if they go to integrative peptides.com, they can sign up and get a wholesale account, and all that. But it's been exciting because, and you look and these are not new

studies. There's new studies coming out, but these things have been around. And when I give a talk, I have hundreds of studies, and people are like, "How come I've never heard about this before?" You know? And we tend to treat, the sickest of the sick, that's what we're known for, for good or for bad, or for all the other sins I made in my previous life. But you look at some of us wants to stay healthy, and so-called longevity or autoimmune disease, or, well, when we find, let's say someone has Hashimoto's, right? We love T3, we have our non-profit National Academy of Hypothyroidism, [nahypothyroidism.org](http://nahypothyroidism.org), where we supply all these, wrote a bunch of review articles, showing the way that we treat thyroid in this country is wrong. We go by the one tissue in the body that acts different than every other tissue, basically the pituitary, which as you get sick, it drops. And so there's only, when your thyroid levels drop, your pituitary should increase TSH. So, the high TSH, your thyroid is low. If it's low, your thyroid's high. If it's normal it's normal. But what happens as you get older or sicker, your TSH drops, but so does your T3. So, it's not a good marker. And oftentimes, and then they'll, I don't wanna get too complicated, but they'll have a low TSH and high T4, and the doctor will say, "Oh, they're..."

**Dr. Joseph M. Raffaele, M.D.**

Hyperthyroid. My own hyperthyroid isn't .

**Kent Holtorf, M.D.**

Yeah. And that's what you see with depression, Look at your depressed patients, and you'll see you have low normal TSH, high normal T4, and all these studies. No, I gave him T4, and it didn't work. Well, but if you check the T3, and reverse T3, the T3 is low, and the reverse T3 is high, which is an anti thyroid. And so they're giving the wrong hormone. What it is is that the mitochondria messed up, and to get T4 into the cell, it takes energy. So they don't have enough energy, so that it just leaves it outside of the cell. And then same with the, but the pituitary is not an independent. So with it, it's low. The TSH is low, but the T4 is high. But actually that's a sign that they need thyroid, which goes against everything we're taught in medical school, right?

**Dr. Joseph M. Raffaele, M.D.**

Do you then use mostly, or exclusively T3, not a T4/T3 combination? Or how do you go about doing that? Then you must dose it multiple-

**Kent Holtorf, M.D.**

Yeah, and we find in general, so I'll use mostly, probably 80% all T3. Some people feel better with little T4, T4 doesn't do anything. It's a pro drug.

**Dr. Joseph M. Raffaele, M.D.**

Right, right. But, the life of T3 is pretty short. So, do you have a extended release for-

**Kent Holtorf, M.D.**

The serum half-life is very short, but it goes in and has physiologic effects, which lasts about two days, and more actually.

**Dr. Joseph M. Raffaele, M.D.**

So once a day dosing is fine for T3?

**Kent Holtorf, M.D.**

Yeah, and now, but they get real complicated, but there's also cell surface receptors that are quick on and quick off. So, if you have a big spike of T3 and get palpitations and things like that. So we use a time-released T3, but the ones that are mostly available, they use too much methicillin make it too time-released. And that's what they put in the reformulation of armor. I don't know if you remember, but they reformulated Armour Thyroid, which is a pig, T4/T3 and they tried to make it time released and it didn't absorb. And everyone went crazy because it didn't work. And that's, so a lot of people say time-released T3 doesn't work. And they're kind of right, because of the formula, but you fix the formula and that works. But the sicker, the patient, the more T3 they make, and for instance, the Star Report, largest study ever done on anti-depressants, showed, compared all the antidepressants. And then they just happened to put T3 in there, regardless of their thyroid level, they gave them all T3. T3, outperformed all the antidepressants with less side effect. It worked when the other anti-depressants didn't work. Most antidepressants stopped working after about a year. That wasn't the case, but it never made it to the abstract, because they didn't fund the study.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

We have some doctors that hear about these things. Or another study, 135 treatment resistant bipolar patients. They tried on average 14 different medications with no response. They gave them all T3, didn't care what their thyroid levels were. 85% responded and 30, I think it was 32 or something percent had total resolution of symptoms.

**Dr. Joseph M. Raffaele, M.D.**

Did they give a fixed dose, or did they titrate in some way?

**Kent Holtorf, M.D.**

They titrated up, actually to 100.

**Dr. Joseph M. Raffaele, M.D.**

100 T3?

**Kent Holtorf, M.D.**

The standard dose for depressions 50, but it-

**Dr. Joseph M. Raffaele, M.D.**

100 T3, that's a lot of T3.

**Kent Holtorf, M.D.**

And here's the thing too, is if you think but what happens if you look in the PDR, it says T3 is four to seven times as potent as T4, which makes no sense, because T4 really is inactive. And in a healthy person, you'll make almost 50% of T4 will convert to T3. So at the most it's two to one.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

So, they were giving them, essentially about 200 of T4, and they had less side effects than anti-depressants.

**Dr. Joseph M. Raffaele, M.D.**

Hmm. I would imagine if TSH was fairly suppressed though, at that point.

**Kent Holtorf, M.D.**

Yeah.

**Dr. Joseph M. Raffaele, M.D.**

Not that it matters, not that it matters.

**Kent Holtorf, M.D.**

Yeah, so I have whole nother lecture on that, but you're gonna get osteoporosis. And we get endocrinologist honest, and their bone density, just going up and up. And the biggest med analysis showed it does not, actually giving anti-depressant, where you'll have two to three times the risk of osteoporosis, but they don't mention that.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

So, it not a problem there. Arrhythmias, they're actually showing that giving IV T3, after cardiac surgeries lowers the risk of arrhythmias. There's one study that they point to called the Salon Article, which it showed low TSH caused, basically increased A Fib. But what they don't tell you, is if you take out the people who were on thyroid, there was no cases of A Fib. It was the people that were so sick that they were at low TSH because they were sick. Especially heart disease patients get really low T3 when they're sick, I meant TSH, they have low TSH. And they had low TSH because they had heart problems and then surprise surprise, the people with the low TSH due to heart problems, had more heart problems than people who didn't, you know. So, if you could argue that T3, suppressing TSH prevented A Fib. I'm not going to go there, but high TSH, low thyroid is a bigger risk for A Fib, than high A Fib, then high T3. But the whole key is knowing how do you test this? Because it's intracellular is what matters. So, we're kind of getting a little way off in the weeds here. But we'll check everyone's basal metabolic rate, which is the amount of calories they burn over the day. It measures over 10 minutes-

**Dr. Joseph M. Raffaele, M.D.**

You use a Calorimeter for that-

**Kent Holtorf, M.D.**

It's called a body gym measurement of-

**Dr. Joseph M. Raffaele, M.D.**

Yeah, body gym, sure. I'm familiar with that.

**Kent Holtorf, M.D.**

And we find is that people who, they have every symptom of low thyroid. Doctor won't treat them because TSH is normal. They generally have about a 25% lower metabolism. And you know, and the women are so happy. "See, I told you, I have no metabolism." And you look at chronically ill patients, and older patients like fibromyalgia patients, one study showed we had about 25% lower levels. Then we also, the British Medical Journal major medical journal, showed that a knowledgeable doctor looking at someones ankle reflex, was a better test for thyroid than blood tests. A normal reflex will go, but the lower the fibroid, the slower the relaxation phase. So, we measure that via the computer. And so we can get a good sense. And also with symptoms or studies show up, you have a combination of these five symptoms, your chance of

being low thyroid is 96%. And on our nonprofit site, the National Academy of Hyperthyroidism, we have a test you can take where you plug in your numbers and all that. And it will, tell you your risk of a thyroid. And one thing you can check, which is a little pearl is sex hormone binding globulin.

**Dr. Joseph M. Raffaele, M.D.**

Sure.

**Kent Holtorf, M.D.**

And most doctors will think of it as it will bind testosterone. And you want to lower that to raise free testosterone, but it's a marker of two things, two and a half things. The amount of fibroid, the amount of testosterone in your liver, it will go up, excuse me, the amount of estrogen and the amount of thyroid in your liver. Also, if you have a chronic infection, it can leak out. But so we, you do an SHBG, let's say for women it should be above 80, which is also associated with health, less cardiovascular disease, less osteoporosis. And if you feel their normal estrogen they're menstruating normally, or they're on estrogen and they're, especially if let's say they're on thyroid, they're getting first, passed metabolism. SHBG should be above 80. If it's not, it shows at the intracellular level of your thyroid is low. So, that's a marker that you can look at and follow, and we'll find people, their TSH is fine, or even right in that low normal range. And doctor says that was kind of high, and their pulse is 48, they're freezing cold, they're gaining weight. They can't get up ahead. They got fibromyalgia. And that number will be about 10. And so it's just another piece of information.

**Dr. Joseph M. Raffaele, M.D.**

Yeah, yeah, absolutely. That's interesting. So do you, I mean some people talk about aging and metabolism and maybe some of the centenarians, or people in their 90s that have a slightly lower metabolism, lower T3, sort of mild, not hypothyroidism, but lower thyroid function is associated. That's one of the things that's helping them get, because they're not burning the candle as bright. Do you have any thoughts about that, and whether that might be-

**Kent Holtorf, M.D.**

Yeah, and it's the same thing with growth hormone.

**Dr. Joseph M. Raffaele, M.D.**

Well, I mean yeah, you're right. They do say a similar thing with growth hormone.

**Kent Holtorf, M.D.**

Yeah. And where the people that live the longest have the lowest levels, and what we find is that people are sick, they get thyroid resistance. So, they actually have a higher thyroid by having less of an effect. And I think, if you're totally healthy, your levels can be low, and be fine. And it's kind of like cortisol. What's a normal cortisol? Well, it depends on the situation.

**Dr. Joseph M. Raffaele, M.D.**

Sure.

**Kent Holtorf, M.D.**

If you're totally healthy and thin, and no stress, low cortisol is fine. But if you're in the ICU with normal cortisol, you're going to die.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

But yeah, really so with I think, what explains that and we find that, and that's what happens. It also happens with testosterone and, like with testosterone that it's very anti-aging. We thought of it as, hey, originally, men got heart disease, women didn't so it also must be bad-

**Dr. Joseph M. Raffaele, M.D.**

But we know that's-

**Kent Holtorf, M.D.**

Totally wrong. And you look at every 10 years, the reference range just keeps coming lower and lower. Where if you had, now we have kids coming in at 22, levels of 290 or so. And the doctor goes, "You're normal, you're fine." And they let this lower limit of testosterone, which 30 years ago it was 450 to 1400. Then it went down to 300 to 1100, and then down to less than 200 to 900, and people are just getting worse. So it's all relative with that. And so you want to be optimal with testosterone. It's all these things that we were taught, were frankly wrong. And testosterone is great for longevity, reducing cardiovascular disease, reducing cancer and all those things. No studies ever show giving testosterone or growth hormone actually increases prostate cancer.

**Dr. Joseph M. Raffaele, M.D.**

Nope, that's right.

**Kent Holtorf, M.D.**

Everyone freaks out on prostate cancer. Don't give them testosterone. Well, okay why don't you cut off their testicles then if that's what you're worried about.

**Dr. Joseph M. Raffaele, M.D.**

Yeah, most urologists that I work with now, I'm thankfuly really, I was just listening to a podcast with Dr. Ted Chafer, who's a neurologist at Northwestern. He thinks that low testosterone is actually a risk factor for prostate cancer rather than higher testosterone.

**Kent Holtorf, M.D.**

And it's more aggressive.

**Dr. Joseph M. Raffaele, M.D.**

Exactly, there's really no issue there. So thankfully, we've turned that page. I wanna get back to...

**Kent Holtorf, M.D.**

Yeah, I was going to say, you know all these standard doctors in there. I used to get really mad at them, because they don't know this or that, they don't care to. And the whole piece on the study in Annals of Internal Medicine, found most doctors practicing 10 to 20 years behind what's available in medical literature, takes on average 17 years for a proven new therapy or technology, except the mainstream medicine, unless it's a new drug with the Salesforce.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

And they found out why was that? And they found one, doctors don't read medical journals, even though they say they do. They'll give them what the drug rep does and look at it. But that wasn't the real reason. Was that if you give them, here's 50 studies showing what you're doing isn't correct, they will discount it. They'll just throw that away. But also, so I used to get really mad about that. But they're in a system where learning more works against them-

**Dr. Joseph M. Raffaele, M.D.**

Yeah.

**Kent Holtorf, M.D.**

Because let's say they have a chronic fatigue syndrome patient. This is their worst nightmare. They are judged on how cost-effective they are, which means how many people they see a day, how many tests they don't do, how many therapies they don't do. And then they keep cutting the lowest 20%. So they, someone says chronic fatigue, they go "Oh, no, I don't believe in that." It keeps them so they can sleep at night. But we can pick out a chronic fatigue syndrome patient, like I said, on a blood test, 70 to 80% times in how sick they are, and the system isn't made for multi-system illness. You know, okay you go there for your GI, you go there for neurology, you go there for cardiology. And I think that is the big problem. So, I'm not quite as mad. And I used to think that if you, they had a patient, 20 years who they couldn't get better, you send them back better. You think they'd be happy. No, they're not, they're pissed. They basically discharge the patient. And that's why I love what we do, you know, and we're able to do all these new things and look at these telomeres and TA-65, and use these things on our patients, and look at literature and be able to implement those for our patients. And they're stuck, and they're miserable. You know, doctors are miserable. But you know, I love what I do. And I mentioned, I was up all night just 'cause I was doing research. All of a sudden the sun came up, you know?

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

And it's neat. And the way medicines going, it's getting a little scary with the FDA, and they want control of everything, and with connection with big pharma, which there's a whole nother 10 lectures and 10 hours to talk about that.

**Dr. Joseph M. Raffaele, M.D.**

Well, let me ask you, just getting back to telomeres for a second in terms of how you... I mean use TA-65 in your practice. How do you go about deciding who's a good candidate for it, dosing it, following up or talking to a patient about it? Always curious to hear about other doctors approach to this. I do a lot of telomeres testing in my practice, but other doctors don't, what's your approach?

**Kent Holtorf, M.D.**

And we have up to them where we get, with the sickest patients, they're taking so many things. It starts falling down on the list. But you know, for the healthier patients that we have, we would just maybe need a little thyroid, and look for ways for longevity. And we've just started a longevity program where that's key. It's kind of everyone gets that. And everyone gets Epitalon,

and we check their immune system and we give them almost always... I've never seen anyone with a good immune system being older, especially now even younger people from all these toxins, pesticides and stress, and stress is such a killer. And I think everyone's sick. I go to a party 20 years ago, 30, people weren't sick. But now it's like everyone comes up and they say, "Hey, I'm so sick," or...

**Dr. Joseph M. Raffaele, M.D.**

You're known as the sick doctor, that's why.

**Kent Holtorf, M.D.**

Yeah, and...

**Dr. Joseph M. Raffaele, M.D.**

They're seeking you out.

**Kent Holtorf, M.D.**

Yeah, and I have to carry lab slips in my pocket, you know? But usually get the responses, "Well, what about this?" My doctor says I don't have that. Okay, well, how's that working for you?

**Dr. Joseph M. Raffaele, M.D.**

Right, yeah.

**Kent Holtorf, M.D.**

They don't test for it. So, I really think longevity is going to be the way of the future. I mean, and you increase your telomeres, you're going to prevent all these things. And sometimes it's hard to get people to stay on the stuff, because it's not like, "Hey, you know, I feel 10 years younger."

**Dr. Joseph M. Raffaele, M.D.**

Yeah, just put me on a blood pressure medication or something like that to sort of, I mean, we do hear some anecdotal stuff, but that's why I like to use the measurements, which of course, that is some expense. But when people can see that they're telomeres length is not getting shorter and oftentimes is getting longer, then they're like, "Oh, okay, it's working" and I'm going to keep taking it." Because it's not inexpensive. And you know, you have to triage between different things to take. And you're right. Some of the peptide therapies that you're giving have more immediate effects on symptoms. But in the end, if you are stimulating cells to replace other cells, getting rid of senescent cells, you need something to help the stem cells and the immune cells to keep their telomeres long enough to continue doing that. So that's sort of the discussion I have with them. And...

**Kent Holtorf, M.D.**

Yeah, and I think it's totally true because it's a couple of things. People don't worry about it until it's a problem. Like, all these people, they go to A4 these things I want to do preventative medicine. Well, you're not going to have any patients, because people tend not to come in until they have a problem. I mean, there's a few which are, they're awesome. And they want to optimize everything and until we're sick and then we go, oh my God, I'll do anything to not have, with Lyme. I am basically atheist, but there's a God, who I'm sure as a woman, because I know she hates me, but you know, take everything and just make me better. And she came through, you know. I got divorced and my ex hired Gloria Allred.

**Dr. Joseph M. Raffaele, M.D.**

Oh wow!

**Kent Holtorf, M.D.**

And I got an attorney he said, it doesn't have to be nasty. And I was sick and couldn't, so she took more than everything, but I got better. And that was the best exchange, and people worried about making money. Then people don't like paying out of pocket for healthcare. It's a weird thing. They'll do it for cosmetic stuff. They'll go buy that \$200 perfume, or that \$1,000 purse, but pay these labs costs \$400. No way I can't afford it. Well, it's just, you don't want to spend it on that deed, not until you're sick, but you don't realize your money's worthless when you're sick.

**Dr. Joseph M. Raffaele, M.D.**

Mm hmm, and you had personal experience of that for sure. Right. Well, so we're coming up on an hour. I wonder whether you have any sort of closing thoughts on, where things are. I mean, you talked about longevity medicine. I totally agree with you on that. That's why I've been doing it for a long time, but I think shoring up all the systems that have subclinical prodromes to disease, which can be addressed, which I think is sort of the way to go. But it sounds really like you have some great protocols to help people when they do have symptoms. It would be good for you to have a balance of patients that are healthy and wanting to stay healthy, then have the satisfaction of making people that are really ill feel better. In my practice, pretty lucky to have it more skewed towards patients that are doing well, but just want to keep on staying well. So yeah, any closing thoughts or prose?

**Kent Holtorf, M.D.**

Yeah, is that we're finding that, where the key is, they go, "I have my doctor, so everything's fine." If you don't check anything, you're not going to find anything.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

You know, they'll check a CBC, a chem panel on the cholesterol and they'll give you a stat, which is a whole nother argument there. And your whole life is that you think you're gonna live long if you have low cholesterol, if you don't, you're not, which is crazy.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

There's so many other more important things. And you realize, you don't realize how valuable your health is until you lose it. And it is so true get into one of these programs, spend the money. You're not going to get it at Kaiser. They're not going to even want to run the tests because then they're gonna have to do something about it. They're gonna lose their bonus if they do the test, they're not set up. But if you want it, people go, "What investments should I give?" How about in your health? You know, and give yourself a birthday or Christmas present, and go to one of these longevity doctors or a doctor that is going to look at much more things. Or people say, "What if you don't find anything?" Well, it hasn't happened yet. You know?

**Dr. Joseph M. Raffaele, M.D.**

Right, exactly.

**Kent Holtorf, M.D.**

And it is. And I just think of, it gets a little weird, you get 40, think you're really old at 50, and people are at 50 year old, then you turn 50, oh no, you go 60, now that's all, you turn 60, you know? And then, but you can see it's that quality of life. And you don't want to be, where you're just in pain, or you're demented in a nursing home. And quality of life is key, and people care about money, money, money, money. I want to work, I want to work, and invest in yourself, invest in your health, and do these things. And yeah, you may not feel, some things you're going to feel great, but most people, because they have something in particular they need. But you know, with the TA-65 this is an investment in your future that even having a future, that you're not going to get a stroke, that you're not gonna have a heart attack or, and I think it's just, I can't emphasize it more. But it's also, we have, I think a defense mechanism. And let's say you get the worst flu ever, and you think back, "Oh yeah, it wasn't that bad." But when you had it, it was like, the worst flu you could imagine, and everyone seems to lose their empathy after about

two weeks, you know? And people with chronic illness, my hat goes off to you in, and chronic Lyme. And their doctors don't believe them. They say it's psychological. And just, the Testament to how bad it is when you don't have your health. And those patients, and I can attest, whatever they tell you, multiply it by 1,000, and that's how bad they feel. And you want to prevent those things, or people will, we give them a blood test. Oh, can I take this off? How about this, how about this? You can pick anything you want, but we don't want to miss anything. And it's the best investment you're going to have. Everyone's worried about their 401k, and all this stuff, you may not be around for it.

**Dr. Joseph M. Raffaele, M.D.**

Yeah, I call out to your biological 401k, you gotta ave that 'cause otherwise, the other 401k doesn't matter, so...

**Kent Holtorf, M.D.**

So I think you've been doing great work, and you came out of the gate doing this stuff. And I think people are finally coming around and realizing, "Hey, I may have to pay "out of pocket for this." And they'll buy a Rolex or whatever, a new car, "Well, I'm not paying for healthcare." And those times are changing. And people are chronically ill patients. It's the actual, even the CDC said everyone over 50 years old had at least one chronic illness that is due to the thymus involution. So, it's kind of like, well, get back thymus hormone, thymus peptides and fix the immune system. And your immune system is a key. And it goes into all the inflammation. And even if it's the same with the telomeres, and all that. So, find a doctor, and peptides, again they've saved my life. And they're right there with TA-65, and being so anti-aging and preventing aging, and people think of, "I want anti-age. "I want my skin to look better." You know? Well, it does that too, but you really want the inside to be better.

**Dr. Joseph M. Raffaele, M.D.**

Right.

**Kent Holtorf, M.D.**

But, invest in yourself, and take an active role in educating yourself. And I think, you can thank me in 30, 40 years.

**Dr. Joseph M. Raffaele, M.D.**

That's right, exactly. Well, it's always a pleasure talking to you, Kent. Learned quite a few new things myself, and I hope to speak to you again soon.

**Kent Holtorf, M.D.**

Great, it's great, it's wonderful. Keep up the great work. I think the summits going to be great. You've got a lot of great speakers, a lot of great info. So, I'm looking forward to watching it.

**Dr. Joseph M. Raffaele, M.D.**

Thanks, all right, take care.

**Kent Holtorf, M.D.**

Okay, thanks a lot, bye-bye.