Why Aging and Chronic Illness Start in the Immune System Transcript

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Sponsor Intro and Episode Setup

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Thank you, Integrative Peptides. Now, let's jump into today's conversation. So, aminesis may just carry a kind of a paradox where you have amino acid insufficiency and implant aging, which is overreaction.

Again, it's the two sides where the Th1 is too low, Th2 is to high. Welcome to the Peptides and Longevity podcast. Each week, we'll dive into groundbreaking science, innovative therapies, and the future of health and longevity.

Alongside visionary physicians and experts, We'll explore how peptides, cutting edge medicine and lifestyle strategies can redefine the way we age. Get ready to transform your health, optimize your vitality, And unlock the secrets to a longer, healthier life.

Let's get started. My name is Joseph Krieger and today we have the pleasure of meeting once again with Dr.

Immune Aging and Thymus Decline

Kent Holtorf of the Haltorf Medical Group. Ken is the founder and chief medical officer of Integrated Peptides who's been pioneering the role of oral supplementation in the peptide field for the last several years and has developed several novel compounds which have shown tremendous benefit in clinical practice.

This is Dr. Ken Holtor. I'd like to thank Joe and Boss of BioLife for having me. It's always an honor to speak and other great speakers and great information.

So I'm with Holter Medical Group and Integrative Peptides. We're going to talk today about unlock the secrets of longevity and chronic illness with third generation oral peptide supplements.

We're going to talk about longevity and chronic illness and how to reverse those with oral peptide supplements. This is kind of the standard model that medicine is where we just extend out here basically how long they live, but they're in nursing homes, they've had a stroke, where what you want to do is square off that vitality curve and where you don't just live longer, you live better longer.

In terms of the theories of aging, and there are a lot of them and a lotta things that contribute, so, you know, when you look, DNA damage, mitochondrial dysfunction, chronic inflammation is a big one, but the one we're gonna really concentrate on is kind of, the upper tier, everything flows from that, is the immune dysfunction.

and especially natural killer cell dysfunction, stem cell disfunction, what we find is with age or chronic illness, inflammation, stress, and with the age you get involution of the thymus that's in your breastbone and that kind of controls basically two sides of your immunity.

I mean it's very complex but a good way to look at it from a clinician's point, and again it is also used in the

standard textbooks, is look the TH1 and TH2 ratio.

Now on the Th1 side we add Tregs and on Th2 side add Th17. So TH1 gets stuffed inside the cell, TH2 gets stuff outside the cells, and then Tregs, you know, keep the sales from over-activating, And the TH17 is more of the auto-immunity one.

Now, if you look at textbooks and you'll look diseases, they'll say, oh, Oshima is a TH-1 dominant illness. And where Graves is, a Th2. Well, why don't they respond to the same treatment?

And the issue has been that they couldn't differentiate th1 with th17. So it's actually a th 17 dominant, which is on that other side and not a TH1. And also these tests that do cytokines, they can lead you astray.

Because it's like looking at high cytokines, so it shows you're dominant there, but it looks like you are looking like FSH and saying, oh, you must be high estrogen or high testosterone when it is actually the opposite.

It's the body trying to do that. And so the thymus will involute, basically start about age nine, and it will drop down to, say, near around between thirty five and forty five.

And what that does is it lowers that Th1 and T-ray and it makes it imbalanced to that TH2-TH17. So when you lose the influence of the thymus in terms of basically thimic peptides, you get an aged immune phenotype or disease phenotypes.

What else contributes to this TH1 Treg to TH2 D17 shift, you know, looking at like a teeter-totter, is any chronic illness, inflammation, toxins, cancer, autoimmunity, basically poor lifestyle, and you get a lot of things.

And from that, we're finding that with this immune dysfunction, everything kind of is a vicious cycle under it. So you'll get pineal hypothalamic pituitary hormone dysfunction, you'll get mitochondrial dysfunction and we're talking about senescent cells where essentially the mitochondria go from making energy and ATP to making reactive oxygen species.

So really increasing the inflammation and you get immune activation, fibrillation, basically leaky gut, gut dysbiosis, cognitive dysfunction osteoporosis and Prone to all those things when your immune system is not healthy and out of balance and so it's an age of being system and looking at even the CD for CD ratio here than two point five.

But now you can use that as a quick test of really someone's biologic age, especially if they're below one. They're in trouble. Most people usually have like CMV.

So this is just looking at, we'll talk about amino senescence. The cells, they are kind of at the end of their replication life. There is kind of worn out and normally the body will go get rid of those and reuse them it's very healthy but what happens.

With excessive stimulation, inflammation, toxins, stress, they actually get resistant to apoptosis. And so they stick around. Now when they stuck around, instead of doing what they're supposed to be doing, They start making all this inflammation with the cell danger response.

find it very high and things have been well studied is congestive heart failure, diabetes. We've found that we can selectively get rid of those seducing cells and just doing that dramatically improves heart, failure and some resistance.

And now what you need to get one reason that you don't clear these cells when you're young, the body works fine. As you get older and have that low th one and low natural killer cell function it's job is the one of its job to clear those senescent cells that stops happening and now you just build up the senesta cells and we find that anyone with.

Let's you get an infection that doesn't resolve quickly if it's around a long time the cells is called t-cell exhaustion.

They're all interrelated and inflammatory aging.

The cells just kind of give up. Now there's between t cell exhaustion and senescence. Senescent is irreversible but there may be some unique situations.

The T cell exhaustion, those are actually reversible. And you'll see around a cancer cell, for instance, all these cells around you think they're killing the cancer, but they are just almost protecting it because they aren't doing what they were supposed to.

So there's CAR T-cell, the whole thing which they weren't working too well.

Senescence, T-Cell Exhaustion, and Chronic Illness

The key thing is to get rid of these and or with the T cell exhaustion, you can boost those back. But with these senescent cells, You want to give rid them.

Ideally, there's also treatments that you reduce that secretion inflammation called SAS, Senescence Associated Secretory Phenotype. So when you look here, all these things contribute to a senesis cell.

It's kind of backwards. The big thing over here is NK cells, so the red is actually stimulating a senescent cell when they don't work, and other T cells.

Those are T. If you look here, it's a quote from these authors. Senescence cells in SAS, well that's the secretion, appear to be the root contributors to multiple age-related diseases, geriatric syndrome, that is reality, loss of physiology resistance, or ability to recover from illness, trauma, physical stress, clear these stem cells can delay, prevent, or alleviate.

Many of these conditions we associate with diseases of aging also increase your health span. Again, they're clear with younger individuals, but as you get older and that TH1 goes down, you don't clear it very well and they accumulate.

So if senescence of the immune system indeed affects the capacity of that, theimmune system clears senesen cells. Therapy approaches of at least two types can be in visions, again, eliminating those or reducing the secretion.

So really, immune health is the biggest determinant of your health. Okay, so you have all these things that are very similar, I mean, senescence, cellular senesis, T cell exhaustion, inflammatory aging, really major focus on disease prevention.

And we're now, you know, using, it's big with longevity, get rid of these senus cells, live longer, less disease, but also with these chronic illnesses, that they have a ton of senescent cells because if they'd have chronic infection that's not resolved or cancer or autoimmunity and they constantly stimulate the immune system, that you get all these senesen cells.

So getting rid of those will do those for these chronically ill. Again, toxin stress, age, aged with the bimic involution, chronic infections. Those are the major triggers of the immunity dysfunction.

Remember that TH1, T-Rag, TH2, and it leads to a vicious cycle of multi-system illness. And a clear correlation between an increase in mean longevity and a leading indicator of cell immunity should be emphasized.

So they see blast transformation, but natural killer cell function clearly is a marker for your biological age. It's a market for severe disability with chronic fatigue syndrome.

When you see this vicious circle, no people with a gender stress stress is a killer and stress doesn't lower the immune system lowers t h one and raising teach to talk to exposure which exposes so many taxes is crazy low-

grade cancer chronic infection then you find people do okay i don't feel great.

But a big trigger man, especially an emotional event, divorce, the death of a loved one, and it's very powerful immune modulator in the bad way, lowering TH1, raising TH2.

It'll be a stressful then, accident, injury, toxin, infection exposure. And the backdrop of this immune dysfunction sets off a multi-system illness where you get Hypothelanguid, pituitary, dysfunction, or immune dysfunction.

Gastrointestinal, the mitochondria go in that cell danger response. You can't detoxify. Cognitive dysfunction or sleep, you got kind of inflammation of the brain, brain on fire, neuropathies, diabetes, and all those things.

So think of everything also as a vicious cycle. One, the THU shift is a hallmark of chronic illness and morbidity mortality and with low natural killer cell function, mitochondria function.

I see with inflammatory conditions, degeneration, metabolic diseases, and really aging. Again, a vicious cycle when body now can't eliminate those senescent cells, so you start having more senesen cells which then suppress the immune system more.

so you can see everything's a vicious cycle. And this was from 2003, where we had 23 franchises and focused on chronic disease and fibromyalgia, but it's still whole, so certainly genetic predisposition for these.

Again, that physiologic stress under the backdrop of immune dysfunction, and then immune disfunction gets worse, you get autoimmunity, and either have a primary infection.

Now you get, with the low TH1, now you'd get reactivation of all these infections that we think we got rid of, but we're just suppressing them. For instance, you got chickenpox.

Think you're over chicken pox? No. When your TH-1 drops, You get shingles. You know, instead of giving people vaccines and meds, really they should be boosting that TH 1. Pineal apathylic pituitary dysfunction, they'll have low thyroid, 98% normal or low TSH because they have hypolanguid pituitary dysfunction.

And I did a review article on chronic fatigue syndrome, HVAC dysfunction in chronic disease syndrome by a manager. I found about 87% of these patients had HP access function low adrenals but the real refine it was a central problem and me i'm out of patience and more of a hypocholamic problem in the kind of things in your face and work up to a terry problem which makes sense the pain said i had you know i blow a speech disordered he said you might have conjugal dysfunction and that messes up everything so that makes the immune system worse gastrointestinal worse, the pituitary worse.

All those things. Coagulation is huge, especially after the vaccine. Immune activation coagulations. So it defines stable growth or rest, so it doesn't replicate anymore when it reaches the end of the replicated potential due to some cellular stress or insult.

And they rise from normal cells and multiple organs and DNA damage, which after chemo, get chemobrain. They don't do anything about it. And the people get very depressed.

But I don' know why. So a lot of divorces and just kind of feel hopeless. DNA Damage, oxidative stress, telomere shortening, metabolic stress diabetes.

Then you can get that shift, natural killer cell dysfunction. There non-perfect, but they're medically active. They're instead of making any of the secreting, a senescence-associated secretory phenotype, which is they're pumping out all this reactive oxygen species from the cell danger response.

And then they can recruit other ones. Then they get in a protective mode where now it's much harder to clear them. Again, should be cleared by the TH1, but if that's too low, can't.

Here's the root cause of geriatric syndrome. So here's just a diagram and you get senescent cells or what can you do? You know, immune modulation. So now that it raised that TH1 to kill off these senesen cells, or reduce the secretion or the senolytics down there and kill them.

And so they're renewed and can be used again. Neurologic disorders, cancers, liver dysfunction, increased body weight, insulin resistance, You get stem cell dysfunction, hair loss, atherosclerosis is huge, renal dysfunctions, all those things.

So immune system ages carry a kind of a paradox where you have amino acid insufficiency and then plant aging, which is overreaction. So again, it's the two sides where the TH1 is too low, TH2 is to high.

A couple of things that are big, we find the key markers, again for TH one is natural killer cell function, or you can use natural killers cell, and TH two The biggest one is human transforming growth factor beta cause a lot of fibrosis inflammation and if you track those and like your chronically ill patients when those come down they're gonna be feeling better right my line but bc bartonella very high temperature perfect beta.

My heart got fibrosed and I could not stand up. I couldn't walk up the stairs. Cardiologist said, maybe in 10 years you get 10% better. And I'm like, I am not doing that.

So I was either going to end it or find a treatment, so I went around the world and looked up her treatments. A lot of things helped. The only things that helped were immunomodulators and peptides in Belgium.

Didn't think much and then about five days later, I just walked up the stairs. I'm like, what's going on? I backtracked and ended up bringing the peptides to the U. S.

for patients and then doctors on that. And then my heart resolved in less than a year and I walked in the cardiologist and he's like wait a minute, What's Going On?

And I was like yeah, it's good. He didn't even ask what I did. So that's nice and walked away. Also, C4A, there's a number of markers, but ones that are useful to C-4a.

and human return growth factor beta so other things e-maps hormone deficiencies i can stay like movies will give a woman a hysterectomy not give her hormones in this age very quickly.

So you get Alzheimer's and everything else. So your senescent-induced inflammation is an important player and key therapeutic target for atherosclerosis.

The senesenced endothelial cells accumulate during aging and also in those turbulent blood flow areas where you see athroscorosis, they'll attract inflammation of inflammatory cells and pro-atheroscorotic functions.

Peptide Strategies for Immune Rejuvenation

Senescence cells form normal signaling tasks What if i think they don't street that you got side very well she did not have a reactive vasculature you'll get into more thickening and then t-cell exhaustion is nice it's a little different mechanism.

but you'll see it, kind of again, you get low TH1 where the cells, if they're just stimulated too much, kinda with cancer, chronic infection, they just basically kinda give up.

What happens is now the cell, the, tend to have an ability to suppress infections. So you have all these chronic infections, like let's say someone with Lyme, and then they'll get T cell exhaustion, also amino senescence.

So they'll get Epstein-Barr, HHV6, Mycoplasma. Now CMD is a marker for immunosenescence in particular that's well studied. So you can revive those. But there's no great test that you could do clinically to know the difference.

you want to get rid of the stimulating antigen, whether it's an infection or cancer. So you'll see it there. It's associated with the progressive loss and effector functions of T cells.

They don't have the ability, the CD4 can't come in and help and basically, you know, kind of be that reserve cavalry were to get rid of the infection.

You'll see definitely dysfunctional NK cells and also dendritic cells. They have low IL-2 and TNF-alpha with a low TH-1 but elevated human factor beta, IL10 and IL6.

IL 6 has been particularly a problem. So I won't spend too much time on here, but here is showing what's the difference between when the cells work fine and when they become T-cell-exhausted.

So normally, acute infection, boom, it's gone. We're good. And then protracted, its worse. Basically, the infection just takes longer. And this you still have some IL-2 and T and up alpha.

But now when it becomes chronic and you get severe T cell exhaustion, also, you know, senescence, the viral load is too big. The initial burst isn't big enough.

And it doesn't affect, so they're constantly stimulated. And you can see all these, basically all the immune system just beaters out. So now you have a chronic infection.

The T cell length of antigen stimulation, i.e. chronic infections or cancer. A lack of that adequate initial burst of TH1. If you had a pre-existing, let's say you're older and have chronic illness, results in further T-cell exhaustion.

Everything's a vicious cycle. clearance of those, of senescent cells, increased lifespan. Okay, what the heck do you do? So reversing the TH1, Treg, to T2-17 shift, okay, how do do that?

Standaway reduce, basically, you can, the trim trial, said they rejuvenated the thymus with growth hormone metformin in DHEA. That's a little small study and I don't know.

But it just, you know, we know in fact the CDC said that I think it was 80% of age individuals had at least one chronic illness due to low Th1, the thymus involution.

So it's a huge problem. It's kind of like, okay, why not replace the Thymis, like hormone replacement, and give thiamine peptides. Now, so pineal peptide work, bioregulators are getting into, adult sleep using peptid, stem cells can help.

And whenever you have stem-cells, we always give peptids because they stimulate stem cell and they work so much better. Again, this was a TRIM trial. growth hormone, Norman.

They want to also reduce the source of the stimulation by eradicating the infection, but you can't eradicate the infections unless you have a good immunity.

And that's like when I had the peptide subject to a well, went through a terrible divorce, was just bed bound, and I kind of did basically the highest dose, IV antibiotic, seven at a time, three to five times a dose for three years.

Nothing. We're being the ICU and the nurses were changing shifts. They're like, oh, this is that AIDS person is negative for HIV. And if you look, my natural killer cell puncture was zero.

So you can't basically, it doesn't matter how many antibiotics you get. Again, and becomes kind of a catch-22, you got to get that immune system up. And you know, and we rarely use antibiotics now for like chronic infections.

If we do, it's like three months, maybe six months. Not two years and multiple. They just work so much better. And with that immune modulation, also you're reducing inflammation, you are reducing autoimmunity, allergies, your improving all the gut function, the microbiome, and the brain access, improving basically brain function.

Pineal hypothalamus, pituitary, so all that comes back and we'll talk about these. But so epitalin, the pineal peptide, which is probably the most anti-aging, it increases telomeres, also increases melatonin.

So many studies reducing cancer that they gave, especially when it's given with the thymacin—pineal and thiamine peptides together. One study, I think it came out, but a human study for 15 years, they just gave them six doses of epinalin and a thamic peptid.

And they found that over 15 years their cardiovascular function got better, better quality of life, they have less infections, less degenerative disease, dramatically less cardiovascular death and morbidity and overall morbid immortality and quality life.

Now there's some things you can use to suppress that SASP secretion, including called centamorphic rapamycin is kind of the big one and also metformin does S31, which is a mitochondrial peptide.

It's kind And then humanin is another mitochondrial peptide, a little harder to get, that is protective. A lot of studies on neurodegenerative diseases.

In fact, they call the human in because it made Alzheimer's patients human again. And it's interesting how these trials, there are very positive results, but it never seemed to come out.

But you can see more of those. So again, reverse that shift. You can use thymogen. It's really great peptides that when thymus and alpha-1, which is approved in like 38 countries, immune booster for chronic infections, unfortunately did a study on COVID and shows it was safe and effective for COVID early on, so they banned it.

Otherwise, we wouldn't be allowed to have the emergency use vaccines. So we did metabolomics and proteomics, and we found these two bioregulators much more potent and did a lot more than even thymus and alpha-1.

Thymogen is 100 times more potent than thimulet. And then the other one is vylon, or we call it immune peptide A2, and they're immune modulatory, very antimicrobial, they are regenerative and anti-inflammatory.

There's TB4, which is injectable, and it's a 43 amino acid peptide that is multi-domain. And so a lot of studies on that and rejuvenation will go through those.

But there's just, one of the domains stimulates math cells, But in sick patients, it tends to be a negative. Now, so we took the first four amino acids, which is the workhorse for the immune modulatory portion, and left out the one that basically stimulates mast cells.

And then what we did also is we looked at and we were able to get our hands on a natural isomer and then we acetylated and amidated it, now which are kind of caps on the peptide.

The body, between where you are and what study, about 65 to 90% of peptides are acetylated and are amidated, or critical peptide are. So if the body wants to protect it against digestive enzymes and being broke down, it will acetonate and amide it.

Now, also this isomer is about 60 times the half-life of standard Then with FACTA, we add a thymus, not extract, but a lysate. So it's low molecular weight peptides in there.

And that one is about six times as potent as an extract in general. Now you can also rejuvenate the thimus with epitalin. The thiamine peptide will re-juvinate the the thymos, But really you're replacing it.

Bioregulators, like the Thiamic bioreglator, pineal bioregulator. So those are kind of the new things. Very hard to get. They're coming from Russia and takes months and they're expensive.

We'll be coming out with those in combination with other peptides very soon. And that study is going to trim trial metformin DHA. So removing the source of the antigen is key or eradicating the infection or autoimmunity or

allergy.

A lot of times you need to fix the immune system. You want a robust TH1. So really, when you think of thiamine, the TH-1 boosters and then other ones like BPC, and we'll talk about these, you know, KPV will basically lower that TH2.

And then Cerebral PEP is a combination of, which is, it's a cerebral lysine. And cerebral Lysine has been around for many, many decades and been used for Alzheimer's and cognitive dysfunction.

Very safe, but because it is safe and effective, the US banned it. So we made it oral and it's shown to be orally active. Studies with EEGs and taking an oral by an hour later, you see the EEG, the increased amplitude.

Can we get a ton of feedback on that with people with traumatic brain injury and cognitive dysfunction just go, oh my gosh. And I'm not going to say this, but I have a My stepson was kind of being an ass, but then his brothers were complaining and so I gave him the cerebral path.

About three days later, they're like, oh my gosh, he's back to his old self. So it kind helps with cognition. And then the vilon I mentioned and the thymogen, very modulatory, antimicrobial, regenerative epitalin, the pineal peptide I mention.

Delta sleep-inducing peptides will lower Th2 as well as anti-inflammatory. And it's great, kind of a nice pearl for sleep is delta sleep inducing peptid, epitallin.

And a growth hormone or a od or both of us created god works really well and i don't think it's not a sleep man where you take it you feel sleepy at what does really lower the information the sleep center and then you can start sleeping probiotics will also monitor the mean system by the d vitamin d actually stimulates l l thirty seven anti microbial.

zinc, actually thymus extract and bioregulators. We want to increase telomere length when the telomer starts getting shorter. That's when basically the cells go into senescence or cancer or stop working.

The epitalum will increase the telemer length. And it's interesting for fertility, they had I think it was 135 menopausal rats. And so I guess you can use attorneys for rats and it gave them all and they all started menstruating and 25% had normal births.

So pretty, pretty cool. Now we've been using it for fertility. We'll see basis are menstruate again. I forget to tell them that. Some get mad, some are happy.

Their anti-malarion hormone will go up, so it shows better ovarian reserve. FSH will come down, estrogen will up. We had that. T3, and people who've had multiple in vitro, you give them Peprin, T-3.

You can work kiss, pep, it's one of the things in there, but you'll get like 80% of people have kids, I swear. Temporary stem cells also work. Suppress the SAS.

rapamycin, we talked about that. I wrote it again just for emphasis. CYAMPK, I don't want to get too much in the weeds here. Again, senolytics, there's distabinib and aflavinoid, typically by setting or sometimes curcumin because it's a little stronger.

And you'll just take it generally once a month or a couple days a And same with the FOX04DRI. It has to do with a basic mechanism, and it's a reverse molecule.

So it basically unlocks that senescent cell. Metformin seems to work somewhat. You want to really increase that natural killer cell function, which is key.

And reduce that elevated human transforming growth vector beta. Increase natural killers cell functions, thymacins,

the thimogen alpha 1 with thimmogen and bilon.

work very well, TB4FRAG, and you can also use it if you get thymus and alpha-1, thimulim, but it's not very potent. It is more anti-inflammatory. And then lowering that TH2 within that, she went to turn growth factor beta.

So what lowers even transforming growth vector beta is KPV, and bylon, so the thymogen alpha-1. And you get that down, that's what we're finding the cause of so many things like kidney disease and we are reversing chronic kidney diseases and it can just work out definitely.

So many of the things, you know, any last patients or somebody in a wheelchair and now they're jogging and their neurologist says, oh, it must have been a misdiagnosis.

Increased sirtuin, expression that was varitrol, NAD, 5-amino-1mq is nice. It increases NAD in the cell in a different way. So, you know, we'll stimulate mitochondrial function.

We had, first we bought our daughter in with OCD and she was like, used to like cheerleader, pulling all that to her. Three days later, never did it again.

Mitochondrial stimulation that will go in there too. Moxie is kind of the standard one, which you don't want to boost mitochondrial function if they have a lot of senescent cells because it's going to increase the secretion of these inflammatory cytokines.

Huminin, T3, stimulate mitochondria. T2 will increase replication of mitochondrion. BPC works, the T4FRAG, DeltaSleep, CerebroPep, Meltonin, PQQ, MitoQB, PolyMVA, NVA.

Clinical Applications and Case Examples

Methylene blue, red light, hyperbaric, ozone, And again, you want to kind of make sure is if they get worse mitochondrial booster, they're senescent and reduce inflammation.

So one key is pineal and thymic gland rejuvenation. with epitalin, you can do bioregulators. And epinalin's really interesting. It will basically normalize a lot of your hormones.

They even took the pituitaries out of chickens, and I guess they gave the rats some break. Basically, they give them epitalin and their thyroid level is normalized.

Their diatomaceous is normalised. Wait, it had no pitutary. How would it work? It's interesting stuff. We will get right back to the episode, but first a quick thank you to our sponsor, Integrative Peptides.

If you are enjoying today's conversation and want to support your health and longevity, visit integrativepeptides dot com and use the code PODLIFE for an exclusive listener discount.

That's integratvepep-tides-dot-com. Code P. O. D. L. I. F. E. Now back the the Again, we talked about thymus, involuting, and perceptibility to infections, cancer risk, cardiovascular disease, as well as the pineal gland.

So this is the thiamin function over time. You can see how it drops down the 40s. And when you start getting disease of aging, around 50. Then here are the diseases of ageing.

It's a bump there, it's childhood disease. But cheek goes right up. let's just give some vitamin peptide, right? And so here's your basic immune system, you know, it's high in the beginning, then it drops down, and the purple line is the disease of aging.

So all these conditions, basically everything associated with this TH1, TH2 shift, again, according to disease control, 80% of ageing individuals have at least one chronic illness as a result of vitamin-related immune dysfunction.

This is just talking about how basically the thymus gland, we're overlooking it. It'd be a good thimus throughout life, the current awareness and all these problems is now kind of getting some, basically some attraction.

And at the present moment, I believe that we have accurately assessed the vital role of the adult thyrus and it's time we directed more understanding.

And just to show you I'm not lying, you're showing high levels of THC cytokines, chronic fatigue syndrome. And this with chronic disease syndrome is that immune shift causes mitochondrial dysfunction.

In this study of chronic syndrome, the degree of mitochondria dysfunction correlated with the severity of the illness and with a degree immune dysfunction, only one out of 71 patients overlap in the whole region.

So they all have mitochondrion dysfunction But it is hard to test. We'll do basal metabolic rate. You can do body temperature. And chronically ill patients, obese patients.

They generally burn 25% less calories per day. For people that diet, they really wreck their metabolism. And then we do a thyroflex that looks at the relaxation phase of the brachioradialis.

The British Medical Journal showed that a knowledge of a doctor looking at someone's ankle reflex was a better test than blood tests for thyroid. You see a low relaxation base.

This is showing stress as a direct correlation with lowering TH1 raising TH2 and lowering natural killer cell function cellular immunity and increasing TH 2 there.

The CRH is a big problem. If you check to be chronically ill patients, if they have high ACTH but cortisol is on the low side, You want to give them a little cortisol and lower that HCH because you know they're pumping out the tropin-releasing hormone to try to stimulate that cortisol.

But again, there's a block there, and it's causing again some in-shift and inflammation. This is just looking at the CE4-CD8 ratio is a marker for thymic function.

And it's good for treatment response. And endomic function is basically independent predictor of all-cause mortality. You'll see a low CD4, CD8 ratio.

Again, you want to be ideally greater than 2.5. It's shown to a biomarker, a marker for biologic age, so immune modulators on that. That's that, okay.

She's like, hey, that's a peptide. What's peptides? Short chains of amino acids, you know, if it's 40 or 50 amino acid or less, that's arbitrary. Consider a peptide longer.

It's a protein. They work different. they work on the cell surface, they're quick on, quick off. Although some of the bioregulators will go to the DNA and attach the dna and allow it to open up so that the actually the good genes are transcribed, the kind of anti-aging genes.

but in general they're short-acting, more self signaling, they are pleiotrophic, kind of like a supplement, but more potent. and that actually makes them safer actually.

Now hormones are generally you know they have to go into the nucleus, change protein synthesis, they're slow on slow off and generally going to be more broad where peptides are more specific and much safer.

A lot of studies they can't find a toxic level even like a thousand times a dose and peptide you think of it as a We used to think like hormones, like the tuiterary and hypothalamus, which controlled the hormones.

So that was the master control of everything. But think of the peptide as the fine tuning above that. And peptide therapies generally have tissue-specific effects, where hormones have broad effects.

Again, extremely safe, 100,000 times, usually not a problem. And this is, I'm not going to go through this, but just let you know how they're broken down.

Well, one way to break them down are mean-modulating peptides. It's a microbial and you'll see their ones are in a lot of different places, mitochondria, gut, brain, more rejuvenating in the growth hormone, scretagogues, sleep peptides.

So the thymus peptide do a ton. Again, They keep that healthy Th1, Th2, and Th317 balance. They're repairing. Do you need it for anti-microbial? It works with second messengers.

The need for healing, antiinflammatory, production of nitric oxide. Very potent antioxidants, they actually increase glutathione. Steve White stem cells, very good for the gut.

When you look at the guts, TB4FRAG will particularly heal the tight junctions. And then BPC has so many studies on protecting so may things in the gut from ulcers to inflammatory bowel disease to transections to GERD.

It tightens the gastroesophageal sphincter and loosens, the lower are all anti-inflammatory and very healing. They reduce microglial activation, they'll protect from toxins, boost NK cell function, reduce Nyl6.

So kind of the result of that is, you know, things that they can be used for, let's say as a dry eye, improve hair growth. That's dimulin. The other ones don't.

And then the TB4. But other than that, the other one's not so much. Very effective against fatty liver, toxins, cardiac rehab. A lot of studies on TB for FRAG.

After an MI, they dramatically increase healing, reduce the scar size and the problems. Lose mitochondrial function. Worked for neuropathy, a lot of studies on that.

So the thymogen alpha-1, again, bilon and thymosin, combination of bioregulators, immunopeptid A2, which is bilons and thymosins, mutating modulator, and again their TAP, so they're resistant to enzymatic degradation.

Here's looking at, you know, we're going to aging and cancer. And so with the thymogen, here's the rate of cancer with age and then controls. And that was just in a year.

This one, animals monitor up to their natural gas. The max in lifespan of thymosin treated groups is 4.6 longer. So thynogen slowed the aging from 0.007 to 0,004 per day.

Currents of tumors and malignant neoplasmas was 1 by 5, 1.7 times lower. The ability of family to inhibit spontaneous carcinogenesis and prolong lifespan has been established.

Now here's the data there. And here is looking at Basically, thymogen and bilon, and year-long treatment with thymosin, increased lifespan of rats, reduced overall tumors by 50% in the study, malignant tumors, by 70%, and leukemia's levels by 340%. Here, what's interesting with endometriosis and also type 1 diabetes immune deficiency, but we're finding endermetrioses, we always think, oh, it's leo.

too much estrogen, lack of progesterone, but it also has a heavy autoantibody component. So it's significantly beneficial in endometriosis. and fix the immune dysfunction you see with diabetes.

Yeah, here's another study. That one showed thymogen for endometriosis. This one shows it. The really big thing is lowering that human transplant growth factor beta.

And here is that the Vilon prevents stress-induced involution of the thimus and stress induced hyperbolic dysfunction. All these studies on cancer and here anti-inflammatory, anti carcinogenic, and again, approximately 100 times potent as thymulant.

And this one, it's the immune system and the hypercoagulability in diabetics. So TB4, we kind of talked about that, how it is a 43 amino acid domain. Here it shows it lowers microglial activation.

and here they work for MS, a neurologic regeneration, Neurogenic disease, peripheral neuropathy, traumatic brain injury, you know, it's cardiac cells and reduced cardiac inflammation, especially with the cardiac issues, myocarditis with vaccines, increases ejection fraction.

Very, very safe at thousand times a dose, no cancer there. And what is TB-4-Frag? And there's the four amino acids. Okay, and I'm running late time, so I want to be going fast here.

Very potent anti-fibrotics, teammates mass cells lowers that TGF beta. And we use the natural isomer, which is much more potent. You can see the half-life of the isomers versus the regular.

Basically here it's shown that the TB4FRAG for neuronal loss and which was huge and endothelial damage.

Closing Remarks and Sponsor Outro

is really big, prevents diabetic cardiomyopathy with your decreased mortality after a heart attack, kidney disease. And then BPC is probably the go-to.

It just does so many things. That one is also amidate and acetylated. And I have a whole paper on how versus the arginine salt is, you know, stable Bpc.

Should we name it unstable Bbc? I'm happy to send that to you. This basically goes through, but I can send it showing how it's not what it says it is.

But it was basically made in gastric juice, and it's equal potent. Every study that's looked at oral versus systemic dosing, it showed to be equal-potent.

So great for the gut, neuropathic pain. It binds neurotoxins, works for depression, boosts nitric oxide, It's very synergistic, so we use a lot of peptides together, ingested heart failure.

You can see just now it's antimicrobial and basically nerve regeneration, toxin protection, ligament healing, urinary incontinence, it tightens the lower sphincter.

Prevents liver damage, you know, they give oral BPC for flamboyant bowel disease and MS, and it worked for both. And it's shown to work great for the kidney.

You're showing it safe for them water in the study. PPV is a fragment of alpha-lipid-stimulating hormone. The interesting thing is very anti-inflammatory, very antimicrobial, but it boosts the immune system.

So it's effective against viruses, bacteria, fungi. It's more potent against Candida than Dendiflucan at one-one-thousandth the dose and no side effects associated with all these things.

And the KPV isomer Again, is significantly more potent than I don't know anyone else that has it. And these are just some quotes. There's just a study showing more potency.

It also works for staph aureus. Cerebropep again is a mixture of neuropeptides for traumatic brain injury, Alzheimer's. Orally active, a new study there showing that it worked.

We like combinations of therapies. great for the gut, pinky gut. It works on both sides. Works on the brain-gut axis and the got brain axis. Here's a lifespan thymus preparation and a pineal gland preparation.

I'm sorry for going so fast. Too many sites. So here was a study I was talking about where they gave the People with cardiac disease, they have Tylenobiont, so they had basically two to two point four fold degrees of respiratory

diseases, less osteoarthritis, osteoporosis, decreased mortality, two fold.

And then they had ones that took it, again, for six years, and they have four times the mortality, one-fourth the immortality rate. Again, here's just a summary.

And these slides will be totally available to you. This talks more about pepitalin, really an amazing thing. overview of the peptides, and then I have a bunch of case studies at the bottom of this.

If you want the slides, I can get them to you. So if you're interested in any further training on a year-long training program, peptide and other stuff that works, it's going to be launched in October.

You can check our nonprofit site, National Academy of Hypothyroidism. and NINJA Grape Sciences at nahypothyroidism.org or mybettermedicine.com. Again, the training will review all the peptides, clinical focus, laboratory guidance, bioregulators, protocols, pearls, a chat room so you can ask questions and talk to other physicians, extensive Q&A forums, consent, guest speakers, third buyers list, marketing training, You can even say what you want to hear about and we're very flexible.

And again, if you wanna copy of this PowerPoint, you can marciej at wholethropemed.com and ask 13 case studies and also have a eight page ebook that is finished.

on mold illness, the updated peptide protocol for the rapid treatment of sears. That's a link there, so if you get the PowerPoint. Thank you so much, Joe.

Appreciate it, and hopefully everyone got something out of it. Ken, thank you for such a wonderful presentation. I think you did a great job of tying together the role of peptides as supplements.

in the various inflammatory mediated diseases and associating them with the hallmarks of aging, showing how they have useful interaction in various aspects, known science, aging technologies.

It's also important that you show the distinction between the different supplemental peptides and their clinical applications, as well as what's been supported by the research.

As always, Integrated Peptides is a wonderful client for Boston Biolife because you're committed to the science and knowledge base of healthcare providers.

and research landscape has to provide. It was showing the effectiveness and share what other people could benefit from their patients. So Ken, thank you so much for being part of Boston Biolife and really enjoy the work you're doing.

Boston biolipe is pleased to be working with the AIM Society who has the mission to bring together a multidisciplinary approach to cosmetic and aesthetic medicine.

This program is novel in that it will bring the concepts from traditional Chinese medicine such as Acupuncture, advanced nutrient therapy and compounding meditation and energy medicine, but combining that with concepts from the functional medicine world, hyperbaric oxygen, red light therapy, peptides, hormones, and other nutritional supplements.

That combined with the latest from cosmetic and regenerative field, looking at things like PRP and PRFM. PDO threads using acupuncture in conjunction with cosmetic therapies.

This event will be a fantastic opportunity to look at the future of medicine in the integration of many diverse yet complimentary therapies that literally cannot be found anywhere else.

So the dates are September 29th and 30th. It's in beautiful Middletown, New York. it's one hour drive from New york proper Newyork city and surrounding areas.

As a special thank you to our listeners, we are offering a promo code for a hundred dollar discount to this magnificent event. Please use promo-code TCM100.

So please come join us this September and learn the latest in cosmetic and aesthetic functional medicine with a traditional Chinese medicine spin. We look forward to seeing you there.

As always, Boston Biolife will continue to develop cutting-edge content in the form of our webinars, mini courses, and provide value-added resources for both technology providers and health care providers, looking for the latest information and innovation in the life science field as it pertains to medicine.

The goal of Boston Biolab is translating science into medicine, bringing you the lastest information from life-science laboratory world into clinical practice.

We appreciate your continued support and look forward to wonderful things in future. For more information, please email me directly at josephkreiger at bostonbiolife.com.

Follow us on social media, especially LinkedIn and Facebook. And we look forward to seeing you in the future at one of the upcoming events and always online at BostonBiolive.

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For more insights, resources, and updates, visit our website at www.holtorfmed.com. Together, let's embrace a future of health and vitality. Until next time, stay inspired and keep thriving.