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Thank you, Integrative Peptides. Now let's jump into today's conversation. Really, it's with the thymus. It starts to involute at about age 15 and is at its lowest right around 40 to 45. And that's when these diseases of aging start, right?

Thymus, Aging, and Immune Decline

Where you get Immunosenescence naturally occur with aging, so you get increased septal infections, inadequate immune response to vaccinations, but higher risk of side effects, increased propensity for autoimmune disease, increase cancer risk because that natural killer cell actually bonds your body for intracellular infections but also for cancer, increases cardiovascular disease all the inflammation, degenerative diseases.

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. Hello, this is Ken Holtorf and just delighted to speak again for Boston Biolife and especially for the Veterans in Pain and the collaboration they have.

And, you know, so many vets are just left with so much chronic illnesses, traumatic brain injury, post-traumatic stress, and it's very, very treatable.

So I thank Joe for they invite and I think it just a great lineup and a lot of great lectures.

Podcast Intro and Speaker Background

I will be speaking about peptide therapy for traumatic brain injury and what you find goes a lot along with post-traumatic stress and becomes a vicious cycle as well as mass cell activation.

You'll find that people think kind of a brain-injury very different than chronic illness but they have the same pathways and it's about inflammation. basically judge and guess who is going to go to war and if they get any significant traumatic brain injury who's going be much worse off, who has post-traumatic stress and get all these different problems have much worst outcomes by the immune system.

I want to kind of lump these all together. They seem very disconnected, but they're actually very connected. Ken Oltorf, Medical Director, Older Medical Group, also the National Academy of Hypothyroidism, we're a non-profit,

recommend you check that out, Diagelist and Treating Thyroidist Countries.

Ron, founder of Integrative Peptides, but the opinions expressed are mine, they're not, They don't reflect Boston Biolife, UltraMed, Integrated Peptides and the other organization.

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talk about to understand how the physiologic stress causes really immune dysfunction. And I talked about this so much because it is the common denominator of all these chronic illnesses, acute and chronic illness, those acute illnesses that become chronic, such as traumatic brain injury, post-traumatic stress, but even, you know, mass cell activation and all of these go into traumatic injury.

And everything's a vicious cycle in medicine. You'll find if you get at that underlying cause, these complex illnesses, because these people just don't have traumatic brain injury.

As soon as they get a brain-injury, their blood-brain barrier basically opens up, which then causes their gut to open up. Now they got all these big proteins coming in, inflammatory, the mast cells move into the brain, and it's an vicious circle.

And but you see that same thing with even a chronic Lyme and things that don't seem really connected. And we find the people that are doing very poorly with traumatic brain injury look for a Chronic infection.

Look for mold toxicity. You'll find it's amazing the overlap.

TBI, PTSD, and Chronic Illness Connections

To understand how traumatic brain injury induced immune dysfunction leads to get into a vicious cycle and multi-system dysfunction. This is not a brain problem.

It is a problem, but it's also a lot of other things. They get mitochondrial dysfunctions that cells in the brain, basically the mitochondria stop producing energy and they start producing all these reactive oxygen species.

And then that just makes everything worse. And you get neurodegeneration, they're at higher risk for Alzheimer's and neuro-degenerative disease. Even autoimmunity, their immune system's all screwed up.

They get hypothalamic, pineal, hypothalamic, tuatary, hormonal dysfunction, so they are all low hormones. With traumatic brain injury, the tuatery, and the hypothomers are very sensitive.

Their cut in the middle and they get stretched back and forth. And they, by themselves, have a lot more trauma, even though they're right in the middle, but also because of all this inflammation and you lower the inflammation, you're going to get these patients better.

You'll notice is that they have lot of things in common with chronic fatigue syndrome, they can't sleep, They have pain syndromes or anxiety, insomnia.

They get insulin resistance, like what the heck is, that you get brain damage and insulin resistant. Insulin resistance, they get microglial, which are the mast cells in the brain activation.

Again, autoimmunity, you get immune activation of coagulation. And then we'll talk about the major class of peptides and what's used for different disorders.

and understand the importance of that pineal, thymus gland, hypothalamus and thimus glands, how they all actually have a two-way bi-directional interaction and really how those can be a key to success for brain function.

And also, you know, the gut-brain access and the brain-gut access, that's another bidirectional, and a gut influences so much and we're learning so more about that.

So I'm going to talk about chronic Lyme disease, like what the heck is chronic lyme with traumatic brain injury, but they kind of fit together, maybe help you understand a little more.

So most patients with chronic Lyme, they're generally asymptomatic for a period of time and they find that people that are going to be more prone to worse traumatic brain are more stressed.

They have immune dysfunction, lower hormones, adrenal dysfunction and a lot of inflammation. And then, you know, they go to their doctor and they're always trying to get a test done.

The doctor is, oh, no, your negative. And they get diagnosed with numerous things such as chronic fatigue syndrome, fibromyalgia, POTS, anxiety, neuropathy, autoimmunity.

You'll find this with traumatic brain injury. Exactly the same thing. They're also much more prone to neurodegenerative diseases. So they do parallel each other.

And in a triggering event, and especially in the backdrop of chronic Lyme, are really stress. It makes it much better. So in this case, a traumatic event is a brain injury.

And this immune dysfunction, again, with the back drop of stress, really sets everything in an ambitious cycle. They get measurable hyperflying pituitary immune, gastrointestinal mitochondrial, depoxification, they can't sleep, then everything just gets worse and worse.

And this I did in 2003, and it still holds very true. Whether there's a trigger event, traumatic brain injury, again, you get hypothalamic pituitary dysfunction, so you have hormone deficiencies, then the mitochondrial dysfunction is a big, big problem.

And because not only do they stop working, but instead of making energy, they start producing reactive oxygen species. They go into the brain cells, or go in to what's called senescence, So they're there, but they are not doing anything.

In fact, they were harming all the other cells and causing them to go into apoptosis and recruit them into senescent cells. And so all these things play a part like mold toxins, environmental toxins in a coagulation defect, all those things.

So, you know, with Lyme, the small amount of organisms, huge amounts of mean, mod-choice cytokines, same thing with traumatic brain injury. You don't have to have some big IED blowing up.

It can be multiple small traumas that add up over time, especially if you have other illnesses that cause, brain inflammation, whether it be a chronic infection, stress, immunity, or older.

heart disease, diabetes. And so think of TH1 gets stuff inside your cell and TH2 gets outside your cells. TH 1 tends to go with Tregs, which will kind of modulate and develop tolerance.

Then TH 2 and Th 17. Th17 is kind the inflammatory, the autoimmune set of T cells, so they get that shift to that right, that TH one T reg to TH two TH 17, We see it over and over, and all these illnesses.

So what conditions are associated with this? An IL-6 is a big inflammatory marker, again, chronic infections, COVID, PTSD, traumatic brain injury, cardiopathy syndrome, inflammation, dysbiosis.

All these things that they seem totally disconnected actually go together. E-MAPs, they're going to be a very big problem for people with traumatic injury.

Hello and the longer you have this weather it's not a brain injury kind of the syndrome or live or parkinsons or what it may be the news and just get worse the mitochondria gets worse they're all progressive diseases but you can reverse that.

And the longer the duration, the worse it is. Here's just showing that chronic fatigue syndrome, you know, they have a TH1 to TH2 shift, just like traumatic brain injury.

A big part is they get the mitochondria dysfunction, as I mentioned. In this study, it found only one in 71 patients overlap the normal region of mitochondrial dysfunction who had Chronic Fatigue Syndrome.

Immune Dysfunction, Mast Cells, and Hormones

So, and the same thing holds true for traumatic Brain Injury. So whether it's significant stress, traumatic brain injury, post-traumatic stress aging, you get that shift and then you also get mast cell activation.

And that, if you can see here, I tried to highlight some of the keys here but CRH produced under stress and it is a big mast-cell activator. So it basically will drive everything to TH2, and here you end up down at the bottom there, high eosinophils, mast cells, you know, the TH 2 shift and low cellular immunity.

So you can't fight these intercellular infections, but your body is all this inflammation is trying to fight. And that's what we see with traumatic brain injury.

All of a sudden, these TBI patients, now they have chronic Epstein-Barr, they had Lyme that was in remission, it comes back out. So really, well, how can they have both like Lyme disease and traumatic brain injury?

Because they had it all along, but the body just suppresses it. Most people that get Lymed, and especially most people to get these opportunistic infections, everyone has them.

Everyone's been exposed to the Epstein-Barr. If you ever kissed anyone, HHV6, HSV1, but as soon as that TH1 comes down, that natural killer cell, it comes back out and it makes traumatic brain injury worse.

They can't heal. Like what's wrong? It basically stimulates the math cells, which is a common denominator and all these things. Most of the, you know, the math cell groups and that the mainstay is antihistamines and direct mass cell inhibition, which is fine.

But you find if you go upstream, and we talked about that with immune modules and peptides, You're going to get much better results with these patients.

And mass-cell activation, I mean, no one heard of it 20 years ago. Now, it can't go to a party without someone saying either they know they have mass cells or you'll go, God, he probably got mass.

And you'll see a lot of times these patients have high ACTH but low cortisol. For instance, a study in Brazilian Journal of Infectious Disease showed that they did stimulation tests but they found that a morning cortisol of 12 or less has an 87% chance of being low adrenal.

That's important with traumatic brain injury as well. Now, cortisol is very, it's relative. If you're not stressed and thin and fine, 12 is fine. if you were in the ICU and you got 12, you are probably going to die.

So it's all relative. Here, you know, stress has been regarded as immunosuppressant, but it is not. It's an immune modulator. it lowers that cellular immunity but increases that hormonal immunity.

And so it drives that shift. Brain injury stress, post-traumatic stress. You get the HP axis activation and the mast cells basically activate the microglia and astrocytes.

and you can see all these cytokines there. it again becomes a vicious cycle. They get depression, they get anxiety,

and they can't sleep. And they immediately get blood-brain barrier permeability.

Now all these toxins and proteins and mast cells can now get into the brain, but also the gut. It's almost instantaneously. When the brains opens up, the guts open up.

They found with all these neurologic diseases that the blood-brain barrier is very permeable. You also, you know, with the high CRH and stress, that directly stimulates permeability of the brain barrier.

And then you get release of IL-6, IL8, the Jeff. So that, again, just starts everything off in a vicious cycle. Now, what they found, like with MS, is they've found the cells in the periphery weren't too affected, but they showed that the mast cells and the leukocytes were stimulated in MS in brain, not in peripheries.

So it can really throw you astray when you're checking blood. But, you know, it's kind of hard to do. You could do CFS, that's not that accurate, brain biopsy to everyone, unless you are Dr.

House, right? So you get the Duramassel activation, mass cell proteases, and CRH is a big problem. So if you see someone with high ACTH, especially low cortisol, you'll get them low-cortisol, lower that ACth, which will then lower the CRh.

And you'll find a reduction in inflammation as this one treatment. So PTSD, you know, I started looking into this. It is so associated with traumatic brain injury, but also with chronic illness.

And people who are chronically ill, they get post-traumatic stress. i know i went through it is that bad for three years three and a half years of ivy antibiotics it didn't work i'm like what am i doing off myself i mean i was just depressed and it becomes a vicious cycle so basically you know what this covid thing i swear people are just stressed to their max everyone's just nasty.

There's so many more cardiovascular deaths, but now they're counting as COVID, so you don't know. We're in for a whole society of chronic fatigue syndrome and the so-called mystery illnesses.

Well, they are mysteries if you do not look for the correct things. Yeah, so you get, in terms of post-traumatic stress definition, you're always reminded of the event, intrusive thoughts, nightmares, your hyper aroused agitation, impulsive, quick to anger, but also kind of deactivated and numb you withdraw.

You basically dissociate, have depression. And it can come and go. And there are significant neuromeologic and neurobiologic features of post-traumatic stress.

They are genetic, developmental, like even, you know, the stress of the mother plays a big part in the likelihood of a child having these things. So it's like damn you don't even get a chance like your mom's stressed that you're going to end up being more likely to have severe outcomes or succumb to some of these diseases of aging multi-system illnesses that doctors don' want to believe because they can't treat and especially they have a lot of frontal lobe damage with traumatic brain injury, so they get like kind of that disinhibition a lot.

So they that impulse control and they also have amygdala degeneration. And they got that fear. That's where that beer comes from and it can really act out.

They get hypothalamic pituitary hormone axis dysfunction, so they get low cortisol growth hormone, thyroid, gonadotropic hormones. But they all look normal on the blood test because the ranges are so wide.

And for instance, with thyroid we look at the TSH. The T SH is low, not because thyroid level is lower, because hypothalamic pitutary is not working.

Peptides for Brain Injury and Recovery

Same with the other hormones same with growth hormone and if you look at the growth hermone reference ranges

now it's ridiculous you down to twelve and they say it normal is everyone so low now look it you know we have kids come in now there twenty two testosterone levels are like two hundred and forty and i got into chronology say other normal.

give me a break if it was ten years ago they'd be well outside the reference range of forty years they be my gosh they would have no none and but they just keep lowering it it's like saying we got cancer weapons got cancers that's normal and again that you just function auto immunity that brain access issues.

Increase catecholamine glutamate productions of glutamine is that excited tory neurotoxin a low serotonin gaba so those basically calming neurotransmitters they get hormonal resistance syndrome so even though their levels are normal they don't have the effect it will get someone come in their testosterone levels.

Six hundred seven or eight hundred and they have erectile dysfunction. They have fatigue. You're depressed a grumpy old man syndrome We'll give him a shot of testosterone and you know as a therapeutic trial all of a sudden You know gotta feel a lot better and that's good medicine They also have low cortisol, immune, and mitochondrial dysfunction, so they can't make any energy.

Instead, they make all these reactive oxygen species, GI abnormalities, mood, lots of inflammation, autoimmunity. They're all low thyroid, low growth hormone, sleep dysfunction.

I hear stress is a trigger of autoimmune disease. Studies show that 30 to 40% of patients with moderately severe COVID-19 suffer from PTSD, but yeah, rarely diagnosed.

They consistently abnormally get hippocampal dysfunction and atrophy. So they get amnesia, hyperactive amygdala, again, that fear response, hypervigilance.

We get atrophies and dysfunction of the prefrontal cortex. poor impulse control, they get in trouble with the police at work. They'll modulate their emotional response caused by the amygdala.

So really, you need to watch out for this and be able to treat it. And they're also to boot increased risk, dramatic increased risks of cardiovascular mortality, morbidity compared to people who don't have sleep disruption.

brain damage. So one study found that approximately half the cancer survivors think about their cancer daily and 14 think of that multiple times a day and which really messed them up and they had a much worse prognosis.

PTSD and natural killer cells. Natural killer cell function is a good marker through Quest. That's your cell, function, you get natural cell number through LabCorp.

Not quite as good, more insisted, the natural care cell function, they screwed up a lot. But these are all the same, whether it's traumatic brain injury, chronic fatigue syndrome.

Also, you know, look for, just like in COVID, immune activation of coagulation. And you'll see also insulin resistance in these patients. And it's hard to know where the immune system is by looking at the cytokines, because when the system has shifted, the body will try to shift it back, so you may get a high TH2 or TH1 that's trying to raise the TH 1, and they'll say, oh, it was a TH-1 condition, but the reason the bodies increasing the th1 is because th2 secretes th-2 cytocines.

And the thymus plays a huge part. Yes, the post-traumatic stress, COVID-19, immunosuppression, again, vicious cycle, like TH1 to TH2 shift, everything's a vicious circle.

Here are some studies showing that with MERS and that. So brain fog following COVID 19 may indicate PTSD study finds. PTSD COVID19 in Lyme. We will get right back to the episode, but first a quick thank you to our sponsor, Integrative Peptides.

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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 And then here's a study, I did a review of HP axis dysfunction and chronic fatigue syndrome and fibromyalgia and found they were basically the same between the two so-called illnesses syndromes, but the fibomyalgic patients had more dysfunction in the hypothalamus and the chronic disease syndrome of the pituitary, which makes sense that the pain centers in your hypothalamas.

So treatment with low physiologic doses as with traumatic brain injury can be very helpful. And they found that a morning cortisol, you don't need to do stimulation tests.

Level below 14 carried a greater 90% sensitivity and specifically 73%. So they thought 12 was the optimal with 90 percent specificity and 70 percent sensitivity.

And ACTH under stress is less bioactive, as is the TSH. So that's why you'll see a lot of high ACTH and low cortisol. But your body's pumping out the CRA to try to raise the cortisol levels.

So we'll get to the peptides. What the heck is a peptide? The naturally occurring amino acid or sometimes an analog of a short chain, just by definition arbitrarily if it's less than 4 to 50 amino-acid length.

It's considered a peptide. If longer, it's consider a protein. Peptides generally work more like supplements. They have the atrophic multiple effects.

they generally affect the cell surface and cause a cell signaling response where hormones go into the nucleus and change protein synthesis so they're slow on, slow off.

peptides are generally much less risky, although hormones are safe as well. Yeah, so they really kind of fine-tune. It used to be 10, 20 years ago was hormones, learned hormones.

They're the master controller. Now we're finding peptides are that fine tuning element. And the nice thing is it's shown to me extremely safe. Even given a 10 to a thousand fold typical dose, try that with Tylenol, you're dead.

Try it with water, your dead So just going through, if you haven't heard about peptides, immune modulating peptide, which we've become an immune-modulating center.

And especially when I had Lyme, Babesia Bartonella, and did the kind of standard, the highest dose IV antibiotics, I would never give a patient, it just was not better.

I said, there's got to be a better way. Went into heart failure. The cardiologist said maybe in 10 years, you get 10% better, like I'm not going to live like this.

So I thought I'd blow my head off, or I was going i'll look for a treatment and i went around the world and a lot of wacky things but a good things too when they have found and wasn't expecting to peptides and then about three days later i just walked up the stairs i couldn't stand up straight so i was in beta four And there's also thymacin beta-4 active FRAG, BPC, and KPV, so we'll talk about those.

Thymicin alpha-1 is approved in about 33 countries, was approved as an orphan drug here, but too many people were using it safe and effectively for COVID, So they basically banned it.

Bimulin and thimogen are other thiamine peptides, a little different properties, but also a lot of the same. Epitalin and pinellium are pineal hormones, which are kind of master controllers and they control the hypothalamus, tuiteri, and thymus glands.

Sleep peptide, delta-sleep-inducing peptide. It's not a sedative. Takes a couple weeks. Really lowers the inflammation in the sleep center. Epitalin and pinealin.

Thymus, Pineal, and Anti-Aging Peptides

We found a nice combo is take epitalina or pinealin, delta sleep- inducing peptides, and a growth hormone, secretagob, growth hormones, or AOD, which is a Growth Hormone Fragment.

Frame peptides, which increase memory, depression, anxiety, got CMAC, C-Lynx, dihexa. Cerebral isin, in which you get IV, but again, it was too safe and effective, so the FDA decided to not allow it.

They're all very synergistic. Again, TB4, tuberfrag, BPC, delta sleep, KPV, all work for brain. Growth hormones, pedagogues, not going to talk too much about because that would be a whole lecture.

Antimicrobial peptide. pain peptides there, you can see. Mitochondria are really key for traumatic brain injury, and MOTC will talk about those. 5-amino-1MQ, which we found works really well for OCD, amazingly.

HUBANIN, there's a lot of trials going on. It does so many things in that it will reverse diabetes. it can even treat Jocker-Cruisevel's disease. SS31 is kind of an intracellular antioxidant, an intermitochondral antioxid, I should say.

and also BPC-157 and TB4, TB-4-FRAG also work on the mitochondria. Melanotropic peptides are becoming our favorite and there's kind of a super KPV which should be out soon that is wonderfully anti-inflammatory and suppresses bath cells.

which will work great for traumatic brain injury, as does BPC and TB4FRAG and the mean modulation. When you look back, where do all our problems start?

Really, it's with the thymus. It starts to involute at about age 15 and is at its lowest right around 40 to 45, and that's when these diseases of aging start, right?

Where you get Immunosenescence naturally occur with aging, so you get increased septal infections, inadequate immune response to vaccinations, but higher risk of side effects, increased propensity for autoimmune disease, increase cancer risk because that natural killer cell actually bonds your body for intracellular infections but also for cancer, increases cardiovascular disease all the inflammation, degenerative diseases.

So here's the thymus activity here and then you look and these are disease of aging, you know, bump with childhood diseases, but you can see they start as that thymus starts getting less thimus activity.

And majority of people also have pineal gland calcification by 30, which is shown at work. Now, even the CDC states approximately 80% of age individuals are afflicted with at least one chronic disease result of thiamine-related immune function.

Wow, why aren't we doing something about it? And here the article is saying, Why arent we looking at the thymus, giving back thamic peptides? So, again, the Thymis brings back that immune system to proper shift, lowers inflammation, maintains normal antimicrobial activity, boosts mitochondrial function.

heals wounds, anti-inflammatory, increases nitric oxides. It actually prevents senescence and allows the body to actually get rid of the old cells called autophagy, increase antioxidant glutathione production, stimulate stem cell activity, maintains your gut and your cut lane barrier, reduce microbial activation, whether from toxins, EMFs, infections, alcohol, traumatic brain injury, great for biofilms.

Now what is that tb4 frag ttb for is a forty three amino acid long thymic peptide it's also produced elsewhere in the body but has multiple domains that code for overlapping thing so they can be for active frag is the four amino acids basically see terminal beginning of it.

is the workhorse and has the immune modulatory and the healing properties without the other domains. There's a domain in full-length TB4 that stimulates mast cells, which you don't want.

And it's also by weight. It's about 10 times the potency, more anti-fibrotic. Again, it doesn't stimulate mast cell, and it also orally absorbable where TB 4 has to be injected because it is too big of a molecule.

crosses blood brain barrier and gets into biofilm. So they're actually, all these peptides I'm talking about are very antimicrobial. They're are actually broad-spectrum.

Now, basically humans are ensuring growth factor beta. It's a potent mast cell stimulator, it stimulates fibrosis, and these peptides will actually suppress that.

So that's just there's the TB4 active frag. And here it shows that thymus and beta 4 prevents microglial activation with alcohol. When you look at some cancers, you'll see they'll say, well, there are high TB four round cancers.

But what they found is looking at knockout mice and things that it's kind of like in a fire. I see a lot of firemen go, oh, the fireman must be starting the fires.

No, they're the response. So your study on TB4 and MS, so brain conditions, and basically showed improved functional recovery. The inflammatory infiltrates were significantly reduced.

You can see a lot of studies on that showing that TB for FRAG and TB 4 on MS. Here is TB4FRAG on hippocampal neurogenesis. And once they had rats in a box, they just put a cell phone for three weeks in the middle and then they sacrificed them and they found they all had hippo-campal degeneration.

So it's a little scary. The TB 4Frag may be therapeutic for any neurodegenerative diseases. And it showed that you get basically increased adult neurogenesis, which is highly relevant in preventing various neurodegenerative diseases by replenishment of damaged neurons.

TB4 neurologic regeneration is showing, there are some studies here, peripheral neuropathy, central brain injury, traumatic brain injuries. This is helping endothelial damage, basically inflammation, which is the cause of heart disease and a lot of other things as well.

It can also affect the brain, strokes, Here it showed that 1,000 times the usual dose, no toxicity. It increases stem cells, so stem cell activity we'll give it with TB4, BPC, AOD with a mitochondrial peptide with our stem-cells.

So BPC-157 is kind of the go-to peptide for most doctors. It's highly stable in the gut, shown to be stable 24 hours in gastric juice. Reduces inflammation, healing in most everything.

Its almost like traveling. Salesmen say, oh, it helps for everything, so it's kind about their studies showing that. what's all the auto immune diseases kind of doctors go to type presses mass cell activation better than any any histamines it prevents damage from numerous toxins weather the environmental micro toxins neurotoxins and so homeostatic peptide in that if your blood pressure is too high lowers it if you're.

If it's too low, like in POTS, it raises it. If you're hypercoagulable, lowers it, if you can't coagulate, raises. It kind of evens everything out. Again, broad-spectrum antiviral outperforms a cycle of the year on HSV, but one 1000th dose effective in prevention of PBI neurodegenerative diseases.

Safety improves a wide range of cardiovascular abnormalities, improves heart failure, and post-MI. Also, peripheral and central nervous system pathologies, again, TBI, MS, Alzheimer's, Parkinson's neuropathy.

Severed spinal call, they severed the rat's spinal column. They only did nasty things, these rats, but they gave them BPC. It grew back together. If they didn't, didn' mood disorder showed up before them, antidepressants.

Nootropic and Mitochondrial Peptides

prevents various inflammatory and autoimmune diseases, modulates pain, anti-microbial, a nerve degeneration here after traumatic injury, and it protects the body against toxins.

We're just assaulted by so many toxins and then it reverses that mitochondrial damage, which again starts off that vicious cycle. Repairs the gut-brain axis.

The nice thing is, I would say someone has SIBO, you think SIBo, We haven't fixed the brain got access to the sebum just comes back the nice thing with bbc tb4 fragg and kpb that combination will fix the gut and leaky got much quicker than anything i know back to bpc on hippocampus semen extremely safe also the study there.

saying, you know, safer than water, caffeine, 118 coffees, and 13 shots of alcohol. Just remember that the gut is, the Gut-Brain axis goes both ways, so you want something that affects the GUT-brain axis and the BRAIN-GUT axis.

So the BPC lowers that inflammation, The TB4 FRAG works specifically on the tight junctions, And that KPV is a great anti-inflammatory and also kills a lot of no kill a lot of bad bugs but not your good flora actually help your floor flourish so they're kind of ideal for a barrier here they found no oral bbc show to be equal to inject will bpc at the same goes all the people think it is a good arm i got up tight as it does work ready to go but it works.

systemically. Again, this showed the brain. They ate rats who they induced the pulmonary bowel disease and multiple sclerosis, lucky rats, and they found that oral BPC worked in both.

Oral Bpc for MS. So epicalan and pineal peptide, it stimulates serotonin and melatonin, will bring melotonins levels back up to youthful levels, restores telomere length. They had menopausal rats.

that they gave it to, 80% started menstruating, 30% or so had normal live births, increases T4 to T3 conversion, improves glucose tolerance, reverses age thymus in poorly functioning natural killer cells, basically suppresses mast cells increases lifespan.

You can see thimus and pineal gland increase in and lifespan there for both of them inhibits aging. Basically, they did a very short trip, six courses over three years, where they had 40 control, 39 coronary patients.

Treated with epitone and parallel basic treatment. Demonstrated less aging in the cardiovascular system and prevented age-associated impairment in physical endurance.

Normalized circadian rhythm, melatonin production, and carbohydrate lipid metabolism, so prevented diabetes. And it significantly lower diabetes rates.

It increases telomeres, lengthens telomerase. Quite average 33% in that study. Treatment associated with age and cellular age. cells can divide much longer with it.

So here they gave thymulin, which is thamic peptide, and a pineal peptides, a pitalin, you can also use pinellin over a 68-year period, 266 elderly patients treated for just the first two to three years.

It showed that the ability of the bioregulators to normalize the basic function of human organs might improve indices of cardiovascular, endocrine, immune, nervous system, homeostasis of metabolism, the 2-2.4-fold decrease in acute respiratory disease, reduced incidence of ischemic heart disease hypertension, osteoarthritis, and osteoporosis.

They had a decreased mortality rate of 2 to 2.1- fold in the thymalin group, 1.6 to 1,8. and the epitalin group and a 2.5-fold treated in the combination group.

A separate group that got treatment for six years had a mortality rate that was four times less than control. Really shows the highlights of about the best anti-aging combination you can do.

Let's look at neurotropic peptides, so brain peptide. Mixture of neuropeptides. I don't have a lot to go here. Neuroprotective. They're actually porcine.

Mixture of neural peptide. Proves cognitive function. Used for traumatic brain injury, Alzheimer's stroke. Approved in numerous countries. Should be very effective for autism.

Very, very safe. Been around forever. 200 people are using it for COVID. works for Alzheimer's disease. And the nice thing is, because they banned the injectable, but oral works just as well.

It works. Just a single dose showed significant electrical bioactivity in one hour lasted six hours. They've been improving their memory performance after just a simple dose.

So they had positive effects in cognitive performance, improves memory and attention, inducing acceleration of brain, bioactive activity. rude memory, impairment in brain damage individuals, and with or without neurodegenerative diseases.

There's also C-max and C length. They're nootropic, similar in action to that of nerve growth factors, peripheral nervous system stimulation and rejuvenation.

they also shield neurons from neurotoxins, inflammation, a lot of crossover with these peptides. And that's a nice thing. Very safe. You can't screw up.

If you do one first, the other, I'll share it on this one. That's okay. So you can start these things on Monday. And again, they're available as supplements, also as injectable from a compounding pharmacy, improved memory and attention, dopaminergic and serotonin, improve recovery from stroke, chronic brain injury, Alzheimer's, Parkinson's stroke.

Toxin-induced encephalopathy. Again, no side effects. It's an interesting fact of growth hormone releasing hormone and growth of hormone-releasing peptides.

Labs, Dosing, and Clinical Takeaways

I do want to mention melanocortins. KPV is, we're very excited about it, especially super-KPV, which found a way that it's so much more potent, no side effects.

suppressing mast cells, also very antimicrobial, and also think of mitochondrial peptides. They're going to increase metabolism, increase muscle strength, memory, depression, they're neuroprotective, increased mitochondria NAD, increases for 2 in 1. You know the combinations are key and they're just kind of a summary.

You can see all the things that they do. This was our study that we published. We had 500 patients then we did 5,000 patients with 40 physicians. It was 15 years ago on multi-system and then I'll just leave this for you.

What labs to look at for immune dysfunction? and your human sensorine growth factor beta is a major problem, so look for those. And then here's, leave that to you, kind of the peptide starting dose, or traumatic brain injury, chronic Lyme disease.

You can't go wrong with this. Again, start with your basics, the BPC, TB4 frag, then add in as needed a patella, you know, if it's traumatic brain injury, look at the mitochondrial peptides, the cerebral lysine, just cerebropep, oral, C-length, CMAC are key, so it is for traumatic injury.

So really they have come to nominator with all these other chronic illnesses. Certainly I would go to the brain, no tropics quicker and the myocondrial peptides quicker, but that immune modulation is the key.

There's the testimonial that you can read from a traumatic brain injury patient. This doctor just sent it from the patient, the first time the doctor tried any peptides and she found that the CerebralPep and the BPC changed your life.

Closing Thanks and Outro

Just a little cheat sheet on some of the peptide for you and hope you got some use out of it and I really appreciate the opportunity to speak for Boston Biolife and especially for the vets and i thank you for listening.

Before we wrap up, we want to thank our sponsor, Integrative Peptides, for supporting this episode. If you enjoyed today's conversation, visit integrativepeptides.com and use the code PODLIFE for a special listener discount.

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