Peptide Update: What the FDA Peptide Hearings Mean Transcript

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Introduction and Guest Credentials

It is my absolute pleasure to introduce our next guest, a physician who truly sits at the leading edge of longevity and regenerative medicine. Doctor Elizabeth Yurth is the co-founder and chief medical officer of the Boulder Longevity Institute, which she established back in 2006 with a simple but powerful mission to bring in her words, tomorrow's medicine today to the people she serves.

Doctor Yurth earned her medical degree from the University of Southern California's Keck School of Medicine, completed her residency at UC Irvine, and holds a prestigious Sports and Spine Fellowship through the Stanford affiliated Store program.

She's double certified in physical medicine and rehab and in anti-aging and medicine, and she carries an extraordinary list of advanced fellowships in cellular, regenerative and epigenetic medicine, along with national peptide certification through a forum with more than 30 years in clinical practice and over 600 hours of dedicated training in longevity, cellular medicine, and peptide therapeutics, she's become one of the most sought after educators in this space.

She lectures nationally for the A forum, and the International Peptide Society, serves on the Scientific Advisory Board for Longevity Labs, and teaches thousands of practitioners and patients through her Human Optimization Academy.

In today's conversation, we have something especially timely. Doctor youth will be giving us a firsthand update on the FDA proceedings on peptides, which she personally testified in at the end of July.

So we truly are getting news from the front lines, and then we go on to have an amazing conversation about how to use different peptides in different contexts.

Now, simply put, when it comes to peptides and the science of getting ourselves to age better, there are few people on the planet more knowledgeable or more generous with that knowledge.

Please join me in welcoming the brilliant Doctor Elizabeth Yurth I you know, I always love spending time with you and talking those years we just spent the last hour talking.

So now we're going to actually record. But it's so nice to be here and be able to talk more peptides. Yeah. So more people are really like literally our favorite topic.

So number one, I'm going to explain my face quickly. I'm not wearing any makeup, guys. I look a little weird because I had micro needling on this and I can't put any makeup on.

So for those of you watching, that's why not. Looks a little odd. Now enough about that. Let's move on to. First of all, I just want to clarify for the audience where we are in the regulatory landscape right now.

You spent all of last week in Washington with a host of other providers and compounding pharmacy owners and politicians and all kinds of people going through this FDA process around it was seven peptides.

We now six have survived the day. Right. Can you talk to us very quickly about what you saw happening, where we're at? What does this mean? Because you and I are both seeing things on Instagram that's making us kind of just right smack our heads.

So could we just bring some clarity to the picture here?

FDA Peptide Regulatory Update

So first of all, you know, I've kind of recently only gotten into this a little bit of political world, and it's never been something I've really wanted to stumble into.

And yet I found myself a little bit now, you know, feeling compelled that, you know, with physicians, we aren't we we we don't like this world. You know, I know you have a son who's going into law.

Last thing doctors want anything to do with in general as law, right? And yet you mean it's a necessary evil, right? Right. And we as physicians start being a little bit more advocates out there than other people are going to be.

And that's where I think we need more, more, more physicians to actually get involved in this. And and before I went out to, to D. C., I was actually in Montana, and I was I was talking to you about this in Montana recently.

Last year passed a right to try law here in Colorado. We have a right to try if you have a terminal disease in Montana, they passed a right to try law.

If you and your physician agree that you want to do something, you can do it there. So biotech companies are moving there to try things. That's kind of where I would like to see our world go.

Should really be the patient and physicians decision on what they want to do. And obviously, if you're a horrible physician and you want to do things that kill people, you're probably going to be a practice law.

So most of us are going to stay within the lines of safety. But I think that's really important that we really need to look at this peptide step that we're taking is hopefully the first step in making the care back to the patient, the patient being their own advocate.

The patient working with the physicians is to have some other governmental agency or pharmaceutical company being in charge. And that's where I really hope that we start focusing our attention a little bit more.

So and as you and I talked about, you know, I think there's a lot of misconceptions about what happened last week because everybody said all of these are off the category to us.

They came off the category two less back in April. Right. But that did not authorize compounding. They basically stayed in this limbo zone. So they were no longer on the main not to do lists.

They were not on the made list. They just were in limbo. And that's kind of still where they are, I'm afraid. What happened last week was that we all testified, and this was a two days of really long, long days.

I mean, the first day went from eight in the morning till eight at night with people arguing, arguing for and against the safety of peptides. And really, it wasn't even efficacy at this point.

It really is more are they are these categorized appropriately and are they safe? And we presented a whole lot of data. So it was a close vote. But six out of the seven peptides did make it through from the Physician advisory Committee, recommending to the FDA that these be moved into category one, meaning that the compounding pharmacies have full right to compound them.

What we need to remember is that nothing right now is legal. All right. There's three separate events and the market keeps kind of collapsing those all into one.

So removal from category two happened a pcap recommendation happened, but the actual placement into category one compatible list is maybe a year out. We have no idea.

You know, what happens now is the FDA publishes a notice, a proposed rulemaking, I think it's called. And then there's this public comment period where people can put back in comments again.

And then there's the final rule in the Federal Register. And that's once that final rule is that's when those can be legitimately pushed onto category one and the compounding pharmacies make.

So right now we're back into the same green zone that we were before. And and you know and so is it a first step. Yes. We at least have moved them into the point where the compounding Advisory Committee has said, yes, the FDA still has the ultimate decision.

Now, most of the time, the FDA will go with what Peacock recommends, but there have been cases where they have not. Well, in Peacock has never been composed of the constituents it's composed of.

Now, that's the other thing. I think that what's changed here, and this is the work of RFK at the end of the day, is that he created a PKC committee that are not just another bunch of FDA scientists, so that you're not in an echo chamber with two groups of the same group of people supporting each other's opinions.

So he went out and, you know, his credit really found like, whether it's physicians, compounding pharmacy owners, like people who've actually worked with peptides to try and amass a body of knowledge upon which to try and start to bring context to these conversations and decisions, which is the only reason, frankly, why we've even moved half a step closer to six of the eight members that were sort of the positive members of TC were from clinics practices where peptides are administered.

Right. And so there certainly was a positive bend that way. And I will tell you, the FDA didn't like that. No, it actually brought that into point quite a bit that these people had ulterior motives.

I think the physicians that I very well know, the physicians who were on the panel, all of them are very you know, they are physicians who are not doing things for money.

They're doing things for the best interests of their patients. And and that's really what was presented this we presented so much data to the FDA on safety of these people say there's no human data.

There is. We've been collecting human data. We had 16 million cases of BPC being administered with a.00 3% complication rate. The data is out there. They just don't want to look at that data.

The only want to look at these double blind, placebo controlled states, which we don't have yet, but we have so much data from clinics now that we've been collecting and looking at safeties and calling poison control centers and calling areas to find out. Do you ever see these things?

Right. And interesting that the FDA brought up the few, you know, a few cases that really had nothing to do with, you know, what we do? You know, these like the Rad Fest cases where two people got it wasn't even peptides in that case, like peptides in case or this NAD case, the young woman just just died, you know, again, not a peptide.

And yet they brought up these cases, as you know, reasons we should not be authorizing these these are unsafe things. So we'll see what happens. And you know, it's very frustrating because if you go look at most drugs and the adverse events that have been reported on most approved medications, I mean, you'll find deaths from aspirin and Tylenol and way more mind the prescription way more.

There is not a prescription drug out there. And I will say, I've been using peptides in my past by longer than just about anybody over ten years or a decade of using these.

And I use a lot of, you know, traditional medications as well. And I will honestly say, and I know this, people will argue this, I have never seen a significant complication from the peptides I use used appropriately in the right patient. I've never seen.

I can say that about nothing else, that I prescribe nothing else, and certainly not for a lot of things I use for like arthritis, where we have NSAIDs, which are responsible for a rendus number of deaths, right, or steroids or surgeries.

So I think that even if you look at the FDA themselves authorizing the peptide GLP ones of all the peptides we have, ones are probably one of the ones that has more side effects, right?

Yes. Authorized that one. Exactly. Exactly like you don't. You can't get gastroparesis from BPC 157, right? You just can't. I mean, in a disaster, maybe we see people that develop anhedonia or, you know, like, and these are people that already have imbalances going on and somehow it triggers them the wrong way.

But I mean, it's anyway, it's remarkable how to sort of stay now in that we this battle isn't over, that we need to keep you know about it more writing letters, keeping it, keeping that we need physicians involvement.

We need to, you know, rightfully, we need to keep collecting data. Yeah. It is hard. You know, as a physician, you know, the last thing I want to do is be collecting all this data and send it off to somebody.

You almost need a full time person to be able to that. We're trying to make that simpler for positions so we can get data more simply and really get the, you know, the more and more and more data.

But I think we hear so often there's not data support these. And there is it's just not the controlled study data. Yeah. Which, you know, I mean we're not going to I don't want to I don't want to stay on this too long.

But even the double blind, controlled, placebo controlled study has its own limitations. Well, they're artificial conditions that are created, and you still can't you still can't account for all the external variables.

So often some of those drugs actually down the road right now, we've been using, you know, these peptides for over a decade. So, you know, down the road, a drug that passed its little trials ended up being a problem and being pulled off market.

Right. So, you know, we have now all this data. Yeah. All right. So that's the state and nation guys I you know we're recording this podcast days before the summit starts.

Almost like this was a last minute episode. I really wanted to include this piece of information in this summit because Lord knows if the summit needs anything.

It's context and understanding about what's happening in the industry right now, which is really important. But now let's move on to the next piece of the puzzle, which we thought we would.

You know, we everybody's talking about jail peas. Everybody's talking about all the things. One thing I would love to talk about is what have you observed clinically.

And this is going to sound boring to people, but honestly, with BPC 157 and even when it's when it's stacked with the TB 500, when we're looking at healing of musculoskeletal injuries, whether it's tendons, ligaments, muscles, bones, whatever it is, where are you seeing them really work?

And, you know, we're going to bring in a third peptide here, not even a peptide, but just the third component that people just don't think about when they're thinking about healing musculoskeletal injuries.

So I'm going to let you fly with this. But basically that's what we decided we would pick as our topic because we there's about 500 of them we could have chosen.

So let's just go with that one. Yeah I think this is really important because honestly, you know, some of you guys know I come from an orthopedic world and I really think that orthopedics in itself is really not it's kind of lost baby because people's pain, people's arthritis.

People think, oh, well, that's that. But they don't think of it as something that's going to kill people like heart disease or, you know, some of these other, you know, other dysfunctions.

And so we sort of put it down a layer when we're looking at some of the peptides and their effectiveness for things like like a metabolic disorders. Right.

Like the, you know, for some we look at metabolic disorders says, okay, well we know diabetes kills millions of people. We know kills millions of people.

And we don't look at arthritis the same way. And so one of my passion projects, and, you know, it's one of the reasons I actually flew to, to Montana last week, was before last was to meet with the biotech company that's working on cartilage regeneration with exactly the same thing.

They said. Nobody's putting their money here because it honestly is not something that everybody has as much interest in as cancers and heart diseases.

But I think it really is probably the most debilitating of almost everything we deal with. And so when we look at things like BPC and TD 500, I think they are marvelous entity for helping tendonitis, you know, inflammatory stuff in a joint.

You hurt yourself, you sprain your ankle. They do remarkably well. Remember increasing vascular flow or getting stem cell migration there. Those are all the things you need to heal an acute injury or for instance, post-surgical.

Love them.

Peptides for Musculoskeletal Healing

Amazing outcomes by you. I have somebody who just had an ACL reconstruction because those are the pieces we need, right? We need increased vascular flow.

We need stem cell migration. We need normal actin polymerization. So we need all these things that these peptides do where they fall short unfortunately I think is in that arthritis.

Well because they're great for anti-inflammatory. They are great for helping tendons, ligaments. They're not so great at regenerating cartilage. So what do you do with a patient that has significant cartilage loss.

And they come to me and they think okay I want BPC TB 500. Is that going to get them where they want to go? Probably not. Right. Probably. If I have somebody who has, you know, significant cartilage loss in a joint, maybe I can get some of the inflammation down.

But I'd probably not going to dramatically restore their function. And so that's where these peptides fall a little bit short. We have to say okay, where can we pull in other things.

And then use the peptides adjunctive but not as the sole treatment. Because I think anybody who tells you they are going to cure your artwork knee is probably giving you a load of BS.

They're not. Well, yeah. What about the something like a CFPB, which is much more focused on being an anti-inflammatory peptide? Can that be a player here again?

I mean we're not talking about necessarily cartilage regeneration, although we could talk quickly about Edwin Lee, Doctor Edwin Lee's study that he, you know, he injected BPC intra articulately into knees with Halo Nordic said.

I think it was anything else. And he showed so. So I think he has he had you know, last I saw maybe 20 patients, maybe it was 30 now. But again, pain relief is different.

Yeah. It's different than all sunlight restored function. So and again I will tell you like you I have horrible I have end stage my knees. But I don't have pain because I do have the inflammation under control.

Are my knees normal? No, I still have some Lockey to my knees. There's still, you know, grinding to my knees. There's positions I can't get into. There's things like, you know, trying to do a deep squat I can't do.

It's just as mechanically the joint does not have the stability to do those things. So functionally I'm pretty good at my where I would love to be. No, I'm not where I was when I was 20 and you know, and had perfect knees.

So but I gotten the inflammation control. And yes, CFPB can certainly be an adjunct there as can copper. Right. So copper also in restoring some of the collagen function that so the memory you're dealing with most of these things again in soft tissue cartilage is this very own entity.

And if you have an acute care of a car like that, maybe increasing vascular flow depending on where the tear is, can help that to heal a little bit in a younger person.

But where I think we need to sort of be a little skeptical is that we're going to use peptides in this realm of where's that that play a role on helping cartilage?

I think we have to use them as adjunctive tools to other things. You and I have talked about Pedersen poly sulfate as one of those tools has probably sulfate, which is a approved drug called on, and it actually works on reducing all of the inflammatory markers that are causing destruction of the cartilage.

But also these substances can also help to potentially rebuild cartilage. So at least in the studies a year post on Pedersen, we saw significant improvements in cordless space.

You can't say that from any peptide. That, including Edwin Lee's studies, did not show significant on MRI scan imaging changes in caudal structure. Okay, okay.

But let's let's say they if I use Pedersen to help that, I'm also going to pull in my other things to BPC times in beta 500. So I think that those are going to still be really adjunctive there.

I do think where we may be looking at some hope is maybe looking at some of the mitochondrial peptides, because what we've now found is that one of the biggest dysfunctions, just like what we're finding with every tissue, one of the biggest dysfunctions lies in when we have cartilage loss is in the mitochondria of the cartilage.

Wow. Yeah. So what if we rebuild mitochondria? Can we actually within the countryside, remember, these are cells just like any other cell. Rebuild the mitochondria within the site.

Can we see regeneration? And there's some suggestion that that might be the case that using mitochondrial peptides like SS 31, like mod SC may be helpful?

Dad is not out there yet. We don't have the data. So look at some of the MRI scan. But in theory we do see contrast sites and at least in animal models become healthier.

And that and then they can replicate and make new caller cells. Right. So I do think that may be our our bastion of some hope here. We also know that GLP ones, interestingly enough, besides their anti-inflammatory effect, may have some boost on some of the condo sites in terms of helping them to be healthier as well.

So dependent of weight loss, independent of metabolic changes, that we are seeing some improvement in cartilage in animal studies with the GLP ones, even at low doses.

So I do think that there's a role of peptides that are outside those traditional ones that we're used to looking at, you know, the peaks and valleys of the 500.

And we probably need to be looking more into the mitochondrial realm, which is kind of my belief of anything. Well, it comes down to and it's so interesting how everything comes back to the mitochondria, I know.

Right. While yes, I just got involved with a not for profit called countdown and their sole, I'm talking to them to now. You okay? Their mission is to fund mitochondrial research.

Like one of the podcasts that I did this year, I released, I think it was this year or late last year that blew my like. I literally had to go lie down after recording.

It was with the biotech company who are basically have mastered transplanting healthy mitochondria into cells that are lacking mitochondria and then reintroducing those back into bone marrow.

Right. And seeing like the propagation and all of a sudden you see a whole body start to better, right? And to regenerate. Like I see that with mitochondrial transplants that we can't truly regrow tissue with mitochondrial transplants.

And so we it does really come down to those are the energy sources within the cell. And there are where our focus needs to be. Yeah I love what Countdown's doing, because I think that this is where our focus has to be for every single disease, including some of these diseases.

We don't really think of mitochondrial diseases, which arthritis may well be more so than we noticed too. Yeah. Yeah. No. And I it's and you know and the mitochondrial peptides are again they're very interesting.

And we can go back a little bit to last week. You know, what's interesting is because of the way the FDA functions, they're not in a world where they're going to say, oh, we're going to assess moxie for mitochondrial health.

They decided that where they got this from that mozzie would be measured against its efficacy to treat osteoporosis, which based on this conversation, is not maybe out of the question, but it certainly is not where our, you know, where we look at using SC so much, right?

No, it is very interesting. One of the problems with the FDA shows and again, we weren't trying to prove efficacy in this hearing. But the as they as they go down the road, you have to take basically for an FDA approval of a drug, it has to be for a certain indication.

So BPC was going in for ulcerative colitis, right. You might ask for us to process epithelial on for insomnia for Sonia. Right. That's not where we use these drugs or these peptides.

And so it is a little bit again to try and you know, to try. And once they get FDA approved for education then we could use them off label for those indications. But right now they're not anywhere near that.

And I think it's going to be hard to get those indications approved because we as we know that that's not the primary thing we're using it for. Yeah, yeah.

It'll be you're right I think that could osteoporosis. Could we I'm not that much into mitochondrial or using a mystical process. Patients using mitochondrial peptides that much enough.

But maybe it's something to look at. Maybe there is more of a piece there. As we talk about the, you know, the role of mitochondria and everything, including muscle loss.

Right? It's just the only problem. I think the challenge with that is if we think about how the body works when we introduce any compound into the system, certainly when it comes to peptides or, you know, if you if you've listened to any of its podcasts from Young Goose, the body is going to prioritize the tissue or the or the application that it considers is the most is the greatest threat to your survival.

So you bring Mozzie into your body. Is it going to consider the bones first, or is it going to consider your brain that might be lacking mitochondrial energy, or is it going to consider something else like we you know, it'll be very interesting to see how anybody thinks, like if we're going to to measure Moses efficacy against osteoporosis, are we injecting it into bones?

Are we like like how would we do that? The other thing would you remember about what I see is it actually only acts as a sickly molecule when exercise is put in.

Right. So that's the only problem is people are injecting modesty thinking it's going to be sort of an exercise because that's how it's been advertised is an exercise enhancer without exercise, quite frankly, it doesn't have the similar needs.

And that's really where when you look at it for osteoporosis, maybe because if I could stimulate muscle, muscle actually makes my Myakka that actually help both.

We know that muscle is conducive to bone growth, right? But what I see given in somebody who is laying in bed will do absolutely nothing. It's an interesting peptide in that it's only signal occurs when it's given on top of exercise.

So, you know, if I have somebody who's completely unable to exercise, Maya C is not going to be something I can go to. I need to go to something that helps the mitochondria to function better, like human in like guesses.

31 elaborated. Those would be my first choices to get the mitochondria healthy enough. Now I can get the person maybe moving and add modesty on board, right?

And then, yes, if I have modesty on board and I'm exercising and helping muscle growth, can I then say muscle growth is going to help? But one, most certainly I can't.

But it's sort of a, you know, a distant down the road. Yeah, it's a multi-step process. Okay.

Mitochondria, Cartilage, and Regeneration

So before we close up, one other way that we see people really using the BPC with the TB 500 combo, and sometimes they'll stack on growth hormone, which we don't need to talk about right at this minute.

But and they will do. They're like, well, I just use them all the time for anti-aging purposes. I'd love for you to address this because it makes my skin crawl a little bit.

I just, I and, you know, I'm starting to feel like a really old woman at this point because I feel like I'm the one. I'm like, I feel like I'm always pumping the brakes.

But it just seems to me that because the way that peptides have come up and they've kind of captured the imagination and the enthusiasm of these of people who just want to do things on their own kind of thing.

There's all kinds of stuff flying around right now which, which is it's concerning. Right. And in a world where we're trying to get the FDA to move on their opinion on this stuff, the last thing we need is somebody actually doing something and hurting themselves, because that's all they need to say.

You see, I told you so. Can we just and there's a million of these we could address. But because we're talking about BPC and TB 500. I'd love for you to talk about clinically how you're helping your patients to figure out how often do I use it.

Do I using it the heavy training cycles? How long is it safe to use? Maybe if we're not seeing any results, it says that mean you haven't actually gotten to the bottom of it.

Maybe you need to take care of your mitochondria, like, right. That kind of stuff. So first of all, I think that BPC and TD 500 need to be separated out because from a safety profile, probably you would do no harm by running BPC continuously okay versus TD 500, which potentially we are going to create more vascular growth to things and are we going to cause and there's no real data support.

But could you potentially enhance tumor growth. Certainly from a mechanistic perspective that that's the case. But

a caveat that was saying I don't think anything we do short of some very basics, like your B vitamins and your magnesium and your feet should be run continuously.

It's not a way our body works. A body doesn't like to be signaled continuously all the time. In one way, you'll actually change the body's entire responses by giving a continuous, ongoing stimulus as opposed to a pulse of tile stimulus used appropriately, timed appropriately, and with other things you're doing right. So.

So I like to use EPC 500 and kind of my more growth phases. Right. So in like a spring. And some of you guys heard me talk about using peptides sort of seasonally, is that there's times when our body is meant to sort of just settle down or we shouldn't be pushing that.

Winter is really that time. What are we decided to do in winter? We're designed to actually sort of hibernate. That's what most animals do. So very interestingly, a lot of our receptors to things like our growth hormone receptors become much less responsive during those seasons, even though we sort of say our circadian clocks are all messed up because we don't we live in this controlled environments.

It's not the case. Our bodies still have a Cirque annual rhythm, because they're getting a rhythm means that if I pound growth hormone and it's winter, my receptors are much less likely to respond, and I am more likely to actually see some downsides effects from that or some effects.

I don't want more edema, more things that I don't really want to see with these. So I like to use peptides kind of cyclically with the seasons. So my I always think about like sort of springtime as our growth rebirth.

That's our time of growing. Use your growth go a little harder because that's what you're going to hit your BBQs, your thigh. And then again, potentially in the in the fall as we're getting into the winter time, you know, and then summer again a little bit more of a laid back time.

So unless I'm treating injuries in the summer I lay back off those things a little. I'm more relaxed adult you know, so and then using my by myself for one my more immune modulating peptides are going to be doing, you know, as I'm getting into that, you know, sort of spring the auto when everybody's getting sick and people are, you know, deciding when they want to get back seasons and things.

So I like to always use things in cyclical matters. And it's really the way our body has designed itself to work. And there's a lot of evidence on this.

When you look at responsiveness of people in labs and other studies, when they cycle things, they get much more robust responses than running them continuously.

And again, I will tell you that very few things that I run continuously, a handful of my supplements, I run continuous. Otherwise I cycle things through.

It's really just, you know, if you think mechanistically, our body was never designed to be pounded with something all the time. Yeah, like reminded all the time. Hello, hello.

Right, right, right. And so uses a signaling molecules appropriately to the time that you that you want certain results. Right. So if I'm going to be, you know, my autumn gained a winner, I want to maybe push a little bit harder.

Food is robust. Think about exactly what you know what happens in animal world, right? Food is more robust. In the autumn. We have all this food coming out of a harvest is coming in. I'm in.

Eat a little bit more. I'm going to grow a little bit more on a bulk. I'm going to use my growth. So guys, I'll maybe go higher on my anabolic hormones.

I'll maybe hit with my BPC, my growth, my, you know, regenerative peptides. And then once I can lay off. Right. Yeah. Relax a little bit, you know, and it just makes number one.

It helps with cost. Number two it helps with fatigue of having to do these injections all the time. And there were three. You're going to get better responsiveness with less adverse events.

Thank you. That was great. So you mentioned TB five. Now when you talk about TB 500 you're talking about TB 500 not TB for or like what is the FDA looking at here.

Are they looking at the 43 amino acid peptide or are they looking at what's TB 500. So when you so recently we went after TB 574 because I honestly quite frankly I use TD for much more often than I used to 500 we went after TB 500 because it's a smaller peptide.

It's a frightened right. And so as you got into the 43 amino acid, you start pushing into that biologic role that the FDA is not going to be happy with.

Right. So we went after the TV 500 because it's a much safer zone where that fragment was much easier to pass through in these regulations, you know. So TD TB for unfortunately is going to stay in this kind of maybe pushing into the biologic zone where it's going to be hard to be able to get compounding pharmacies to be able to really such a shame because it's such a powerful from a value of, you know, I'm using them a little bit interchangeably and that, you know, I'm more of a fan of TB four than I am a TD 500.

Same. Well, because it has all these immune options as well. Immune effects. Right. It is the peptide our thymus gland makes right. You know so for 1000 for those are the peptides our thymus land makes before we don't have a diverse anymore which is you know by the time 25.

Yeah. Right. So not a bad thing to bring on board.

Cycling Peptides and Practical Use

Although anyway some very cool stuff going on in that thymus regeneration role beyond just like the, you know, the studies that were going on with just using, you know, growth hormones and all those things that were going on.

There's actually some really cool research going on with actually regenerating the thymus gland. So as you talked about with this, you know, being able to regenerate.

There are some very interesting companies I heard present recently that are doing some very remarkable things with dinosaur regeneration, which will be a game changer because our thymus degradation, you know, as we age, is one of the things that's responsible for us getting cancer and getting, you know, viruses.

And we're doing the best we can with assignment cut ties. Those are certainly useful. But if we could actually have a new thymus, that would be great.

And what are they using? So the whole technology was a little bit odd. Me so kind of light or substances like energy or substance to know it was actually regenerate.

So they were actually able to regenerate a thymus gland. And wow, the technology was a little beyond me. But all right. But we'll record a podcast on that or we'll get or get the researcher doing it to get the researcher to come into my guest with us.

Okay. Thank you. That was phenomenal. I mean, you know, we could go a lot deeper, but hopefully people walk away from this with better understanding of what's happening with peptides from a regulatory perspective, some better understanding of the BPC and thymus and TB 500 in terms of what they can do.

And sometimes they don't work right. How the mitochondrial peptides may or may not help out in these situations. The last thing I wanted to ask you actually, before we go is you've mentioned blood vessel like blood flow regeneration, like bringing more blood to the area.

But you mentioned it in context of TB 500, not BPC 157. Isn't BPC 157 also known for stimulating angiogenesis? But yeah, but it is much more homeostatic.

So we will never create this huge robust vascularization. It's very homeostatic. So it's never been shown. Any studies have shown that you would over vascularized to create feeding blood vessels to tissue that you don't want.

Okay. So the studies on and again it's not a lot of compelling data even with the TB for CB 500 down that shows that either. But if we were to look mechanistically Deep-Sea is so homeostatic we use the BPC somehow knows it is very much knows when to stop and when to grow.

And so it's a much more interesting cup tie from that role. Yeah. Well and I think because it's so pleiotropic will be the one that evades categorization the longest. Right.

Because it does so many different things anyway. Things right. So many things we can. Yeah. But but we digress. So folks, hopefully you got some incredibly valuable tidbits out of this short conversation.

Doctor, you're thank you so much for taking the time out of your insane schedule to do this. Why don't we let people know where to find you and follow the work that you're doing?

So, guys, you can always join our academy Bleed Academy. We do these great monthly Q&A and they're really fun. People ask really, really good questions and it's, you know, open to physicians and lay people, whoever wants to join.

But people who are just want to learn more about functional medicine, peptides. And then we just go through a list of questions that people send. And it's very fun.

Some academy, you can come to our website, forlongevity.com we see patients from all over the country. So we are I'm licensed in 48 of 50 states so we can see patients all over.

And certainly one of my passions arthritis. So we do a lot of work in that realm as well. So usually that involves him to fly out here for things. But we can do a lot online to with our patients or helping people surgery to.

I think that's a big place where we need to be easy peptides more using that pre and post surgical population, because I think they sort of have sort of resigned to the typical orthopedic doctor who doesn't know anything about these, and they need to be working together with us.

Yeah for sure. Thank you so much. This has been a pleasure as always. Thank you always.