Combatting Environmental Toxins with Peptides

Dr. Kent Holtorf interviewing **Dr. Cory Tichauer, ND**

Dr. Kent Holtorf (00:00:03):

Hello, it's Dr. Kent Holtorf with another episode of the Peptide Summit. Today we're going to be speaking with Dr. Cory Tichauer, and we're talking about biotoxin illness and basically peptide use in biotoxin illness. A little bit about Dr. Cory, he grew up in Omaha, Nebraska, so a farm raised boy. As early as he can remember, he wanted to be a physician, which is interesting. It's rare it seems these days. He graduated with honors from Cornell University with a BA in neurobiology and behavior. He earned his doctorate in medicine at the National College of Naturopathic Medicine. He's the owner and lead physician at Bear Creek Naturopathic Clinic in Medford, Oregon. Believes that the body has within itself the inherent ability to heal. Dr. Cory utilizes integrative therapeutic models designed to remove obstacles to health, simultaneously optimizing the self-healing mechanisms of the body. Healing is accomplished through the rational and sequential elimination of infections and toxicity from the body while helping normalize immune dysfunction, mitochondria energy production, and cellular toxification repair, and really looking at the whole system. It's the one thing that I think standard medicine is just missing, you know? So he—I know—I consider him a great friend. In fact, we're talking forever before we interviewed here. He's just always on the cutting edge, treats everything, the sick of the sick, and just loves a challenge, is just so knowledgeable. I know you're gonna love this interview. He focused on functional medicine approach within the realm of chronic infectious illness, neurodegenerative diseases, and autoimmune disease for the past 15 years—he looks a little young, I'm going to question him on that—with emphasis on tick-borne illness such as Lyme disease. He's a member of the International Lyme and Associated Diseases, ILADS, he's been a member of International Lyme and Associated Diseases Society since 2009, when he received a prestigious fellowship to receive formal training and treatment for Lyme. Who did you train with?

Dr. Cory Tichauer (00:02:37):

Steve Harris, actually, and prior to that Chris Green.

Dr. Kent Holtorf (00:02:42):

Wow. So, he's put his time in. He also is an active member of the International Society for Environmental Acquired Illness. So that's what we're gonna talk a lot about today. He is well

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versed in the treatment of mold illness and CIRS, Chronic Inflammatory Response Syndrome, and all these things are connected and they're so multi-system, and it's so difficult. I think of like what standard doctor would even look at that stuff? But it's just—I see him at all the conferences and he's just passionate. I love it, and he just wants to do the best for his patients and always investigating new treatments. He's always striving to improve outcomes and provide the best possible care. He's really successful in the patients that have been everywhere. Lucky you, I know how that goes, you get patients that have been everywhere and he's just doing such a great service and getting great results. So, hear a lot of great things about him as well. Welcome.

Dr. Cory Tichauer (00:03:58):

Thank you.

Dr. Kent Holtorf (00:03:58):

Thank you for being on, I'm looking forward to learning new things. Again, we talked about so much beforehand and so many things are changing in medicine and some things for good, some not for good, but I think all these sickest patients are getting left behind, you know? If a doctor doesn't know what it is, it doesn't exist or it's the patient's fault. But just tell me a little bit—I didn't even—hello! Welcome, I didn't even give you a chance here. Thanks for being on. You're up in Oregon and I see the news of the crazy stuff going on up there, but again, thank you for taking the time. I know you're a busy guy.

Dr. Cory Tichauer (00:04:51):

Hey. Yeah. You're welcome Kent. Yeah, we just got through the fires down here in Southern Oregon. But we're looking good moving into the fall here, and I wanted to say thanks to you too on this topic because my knowledge and my passion for learning more about peptides really started from you as being the cutting edge on this topic yourself. I think that was maybe 5 years ago at ILADS when you first presented on peptide therapy as a unique option that I'd never heard of. [Laughing] I don't know if you remember, but I think it was me like just pestering you for months after that and emailing you nonstop.

Dr. Kent Holtorf (00:05:33):

"Who is this guy?" [Laughing]

Dr. Cory Tichauer (00:05:33):

"I've gotta learn more about this!" Yeah. I didn't leave Kent alone, and here we are 5 years later and peptides have been a huge, huge part of my practice and improving outcomes and restoring physiology and neuroendocrine function and getting all these chronic people who are suffering

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with this multitude of chronic functional illnesses, fatigue and brain fog and pain and all these things that really the standard medical model doesn't have any answers for. Peptides have been a huge component of the successes we've seen in restoring people's health.

Dr. Kent Holtorf (00:06:16):

Yeah. It's interesting and I give lectures on it and people just go, "I can't believe there's all these studies. Why haven't I heard about it?" You know? Well, because there's no drug rep selling this stuff." It's changed my practice and I know it's changed your practice for everyone from healthy people—I think it's the best anti-aging, longevity, to stay healthy, you look at Epitalon increasing telomere length—to the sickest of the sick. It's been those things that people have tried, IV antibiotics for years, you know? Then it's like—and you specialize in some of the toughest things like biotoxin illness and what the heck do you do? I mentioned in my own story my girlfriend just recently—I'm feeling—I'm good. I don't know if you ever get rid of Lyme. I think it's kinda like a virus that—but if you keep your immune system up and all that it's fine—but she just developed basically dermatographia out of the blue. So we had a mold guy come around, we couldn't find any mold, but coming underneath the bathtub there was mold toxins.

Dr. Cory Tichauer (00:07:37):

Yeah.

Dr. Kent Holtorf (00:07:37):

And right in the bedroom, so it's major. Let me ask you just one question though, do you find—because my thoughts are if someone gets Lyme, they're probably—even if they're not treated well, they get 2 weeks of doxy, which studies show they relapse like 3 or 4 months later 80% of the time—but if you have like nothing else, they're not going to be terrible. It's like when all of a sudden they get—they seem to be more sensitive to molds. Like, there'll be everyone in the house—this is what I'm hearing from my friends and like all our staff, like Lyme patients, Biodox patients, EMFs seem to be causing a problem and cause actually mold to grow and especially the husband goes, "Ah, that's crazy!" You know? But the people that have the Lyme with another infection are much more sensitive now to the biotoxins. Can you comment on that?

Dr. Cory Tichauer (00:08:43):

Yeah, absolutely. So much to say about that topic. Definitely in these chronic infectious models, there is often a trigger that seems to precipitate the immune dysfunction and either the growth of the organism that previously may have been managed by the immune system or accentuates the immune inflammatory response to the presence of a latent organism that may not have actually been causing tissue damage in the first place. I think Lyme is still something we really don't understand as you talked about, can we ever really get rid of it? It's one of these intracellular

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infections that it's doubtful that we really can and then you start talking about potentials for sexual transmission or in utero transmission and—

Dr. Kent Holtorf (00:09:38):

I think in utero is the biggest problem. I mean, I know my whole—that's where I got it. I look back, one pupil was bigger and I don't mean to make it about me but like one side of my body flashing, my left arm would stop working, you know? I think that's just a huge—the biggest transmission rate. But anyways, I decided to comment on that.

Dr. Cory Tichauer (00:10:00):

Yeah, yeah. I know. I mean, it's—absolutely. If you start looking at just like PCR, like urinary PCR analysis, like there's—I know at least one labs reporting almost 94% positives in cases that were sent to them, which obviously presents itself as an issue in of itself. I mean, if you want to diagnose everyone with Lyme, great, but that's probably not accurate. It probably represents that there's carriage stages of Lyme and there's a lot of people who have small amounts of it in their body and have been exposed to it. It doesn't necessarily mean you have an infection, but it's one of these—

Dr. Kent Holtorf (00:10:37):

[Inaudible] sending people who you think have the symptoms, you know?

Dr. Cory Tichauer (00:10:40):

Yeah. Yeah. So I mean, biotoxin illness itself is a term that I think is so associated with mold. Dr. Shoemaker really popularized that and a lot of what he wrote about is really brilliant actually, but biotoxin illness is just this topic that incorporates everything that's exogenous from molds and solvents and heavy metals and really anything that your body can create an immune inflammatory response to, to endogenous things that live in our bodies. We're carriers for a number of things, there's pathogenic organisms that are present that we can't get rid of, Lyme and Chlamydia, Coxiella and Brucella, and all these intracellular infections. Then there's the question about opportunists, we talk about Pseudomonas or Klebsiella Proteus, even strep, that if it's in the wrong place or if it grows too much, we also can see an immune inflammatory response to that. That question brings up well, endotoxins and lipopolysaccharide and antigenic debris in general that generates these chronic immune inflammatory responses. How do you restore immune regulation? I think is the big question in this. Even going back to the chronic Lyme talk we discussed, I think that while certainly I ascribe to the idea, as you talked about, that 2 weeks of doxy or 3 weeks of doxy is often not enough, especially if someone's had this infection for more than 6 months say, but endless antibiotics, isn't the answer either. There needs to be a point at which you say, "Okay, if you can't get off antibiotics because you just continue to have symptoms, then we gotta lower the threshold at which your immune system is reacting because it's unlikely

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this organism is causing tissue damage anymore. It's more likely that your own immune system is responsible for the damage and the inflammation that's coming and really restoring immune regulation and get rid of these toxins." That's part of it and it's a process for sure.

Dr. Kent Holtorf (00:13:06):

Yeah. I think we're just bombarded with so many things like—and so many things we can't even test for, but glyophosphate, why is that even on the market still? PCB, it's actually kind of ironic, I went to an environmental conference and I stuck out [inaudible] sitting there, I opened up USA Today and on the inner section of the cover page was a killer whale died. They found the eyes and they did a blubber analysis and it had a thousand fold the lethal levels of PCBs, which was banned what, 50, 60 years ago, you know? Then I think also, emotional stress just wipes out your immune system. We used to think it lowers it, but it really modulates it. So you can't fight the infection, you get tons of inflammation. With it all now it's like—before I remember when we were growing up, it's like, "Oh, we'll send a letter, we'll wait a week, get it back." Now it's like everything's instantaneous, on our phones, we got traffic. It's like all just so many different—like even in California, the regulations for fire retardants are so much higher and everyone's just full of this toxic stuff, even more in California. I mean, there's so many things and it's just—I think it's killing us, you know?

Dr. Cory Tichauer (00:14:34):

Yeah. I mean, it's all getting into the groundwater. It's going up into the—it's part of the whole water table and getting in the rain. I think they found glyphosate in the Sahara desert, there's no place it isn't. Just incidents of chronic illness and incidents of cancer, like these are things that have been increasing over the last 40 to 60 years. I don't think it's a coincidence that that same time period represents the highest increase in our belief that better living through chemistry, right? That we can add more chemicals, we can manage agriculture, we can manage our forest, we can manage our food, we can do all this stuff. Yeah, maybe in the short term it helps, but in the long term these—biotoxins by definition—I don't know by definition, but the primary problems they represent is that they are fat soluble. So these things end up depositing into areas of our body where we don't easily excrete it. So, they affect things like our endocrine function pretty proportionally, neuroendocrine system, our hypothalamus, our pituitary gland. Then just cell membranes. People don't realize, they think, "Oh, it's in our fatty tissue." It doesn't mean it's in your butt, it means that it's taken into the cell membranes, it's in the mitochondrial membranes, and it causes these long chain fatty acids, these odd chain fatty acids, that really it's like cell scarring. Right? These are things that impair membrane fluidity, the ability to exchange nutrients and waste, protein binding, second messenger molecules, fluid balance, peroxisomes function, and ultimately you get this auto intoxication as cells enter this cell danger cycle, right? As we've all heard about, which creates this senescence where the cell just kind of stops really operating.

Dr. Kent Holtorf (00:16:37):

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We've probably already talked about it, but can you give your little short definition of the cell danger response? Like how mitochondria—

Dr. Cory Tichauer (00:16:45):

Yeah. I'm not gonna profess to be an expert on Robert Naviaux's work, but the way that I see the cell danger response is that when you have an intracellular toxicant, whether that's an environmental toxin, something exogenous, or whether that's like the presence of an intracellular infection like Lyme or something else, that our bodies aren't able to clear, right? So we have certain immune cells that are dedicated to this. We have peroxisomes that are supposed to push this stuff out. We have subsets of our natural killer cells, like our CD57 sets that are designed to try and address this. But when the toxicity or the infections kind of reach these critical thresholds that the immune system can't manage it anymore, in order to prevent further damage to the body and the cell, you get senescence. You basically get a phenomena where the cell goes to protect itself, and in so doing you stop seeing recycling, this autophagy I guess is the opposite of cell danger response. You stop recycling mitochondria, you stop your ATP and your krebs cycle slows down. You start to see lactate increasing instead of pyruvate. You see all these phenomena associated with impaired mitochondrial function, impaired cellular function, you see increases in toxicity. You see cytokines that go up and really all of this is self preservation, is the way I think of it, you know?

Dr. Kent Holtorf (00:18:25):

Yeah, I agree. Everything's a vicious cycle, you know? It's like, you don't have enough cellular energy to kick the stuff out of the—like heavy metals, you need energy to get it out of the cell. If you don't, it's stuck. I don't care how much chelation you do, it's stuck in there.

Dr. Cory Tichauer (00:18:45):

Yep.

Dr. Kent Holtorf (00:18:45):

There's just so many things like that. It's either you're getting healthier or you're getting worse. I don't know, you may see the same, I think it's—like I can't go to a party where someone comes up and either they're so sick or their family member, or their friend, you know? I know you didn't see that 10 years ago, 20 years ago, you know?

Dr. Cory Tichauer (00:19:09):

No, and it's—yeah. It's an interesting phenomenon. I think a lot of people ask the question of—like what you're saying, you see this person at a party, you're talking to a friend, and he talks about an

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acquaintance or his wife, or someone like, "Oh, why is she so sick?" And the question is always like, "Well, we live together." Or, "We're in the same—we're exposed to the same thing. Why is this person sick and why am I not?" We already covered these sort of direct effects of biotoxins, how they impair our membranes and our cellular function, but the indirect effect, which is really what CIRS is all about, that Chronic Inflammatory Response Syndrome, basically says that about—call it 20 to 30% of the population lacks what's known as these HLA receptors that are needed to recognize toxins as they're presented from dendritic cells that are normally bound to these major histocompatibility complexes. So, when you can't generate an adaptive immune response, because you can't create CD4 antigen specific T-cells, you start driving a chronic innate immune inflammatory response, and you start to see cytokines going through the roof. You start to see impacts as the toxins end up binding into the hypothalamus and the leptin receptors. So then you see this whole cascade that happens where melanocyte-stimulating hormone drops off, and then you see a cascade of vasoactive intestinal peptide levels dropping down, and then the pineal gets affected. Of course, we all love Epitalon, which is—personally I do as well. So you see this huge array and as you look at the biotoxin pathway, you go, "Well, why is it I have GI symptoms? Why is it I have pain? Why is it that I'm cold all the time? Why is it I'm achy? Why did my libido drop off? Why am I peeing all the time?" It's because these upstream neuroendocrine hormones kind of direct a lot of these things and when you shut off the spigot up here, you're not going to water any of the plants down here.

Dr. Kent Holtorf (00:21:34):

It's a controller, it just—and even like mast cells, such a huge thing. I know you're on the Mast Cell Mastermind group and they seem stuck on directly affecting the mast cells. I'm like, "Look upstream!" You know? It's funny, the little things. I ask patients, "Do you drink like a fish and pee like a race horse?" They're like, "What? Yeah!" You know? It's interesting. So many things, I've been doing some deep dive on some of these bio regulator peptides and like inflammation of the hypothalamus just causes so many issues.

Dr. Cory Tichauer (00:22:10):

Oh, yeah.

Dr. Kent Holtorf (00:22:10):

It just affects everything, yeah. So when you have a biotoxin illness, you're like—I guess the standard is the mold everyone thinks of, but really it's everything, right?

Dr. Cory Tichauer (00:22:25):

Yeah, that's just it. As you just brought up with mast cell activation and—you know, why is this happening? Sure, we know ways to manage that with stabilizing the histamine response, but the

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question is like, what's driving it? So that process of discovery of trying to understand what it is, is I think the first step in this. There's definitely different ways that you can assess or diagnose someone with a biotoxin related illness. The visual contrast sensitivity test, I think, is still very helpful. You can do it online at vcstest.com for free, or you can—

Dr. Kent Holtorf (00:23:09):

You might want to mention more what—like, why does that work? What is it?

Dr. Cory Tichauer (00:23:14):

Yeah, so I think it was developed by the air force if I remember right, somewhere in like the sixties or seventies, to find out when pilots had been exposed to excessive amounts of jet fuel, which is of course a solvent and it would impair their bodies, their central nervous system's ability to work. So the visual contrast test is—it's looking at your brain's ability to distinguish contrast. So really it's like these gray circles with gray lines that go—that are hatched one way or the other, or vertical. You put yourself a fixed distance away from the card or the screen and you're looking to see which way those lines are going, these gray lines on a gray background. What they've found is there is a strong correlation between the presence of biotoxins in the brain and the inability to process that contrast to actually see it. The visual processing centers in the brain aren't capable of doing it. It's fairly accurate, actually, it's a good way and it's an inexpensive or even free way to actually say, "Hey, look, I think there might be something going on here." So that's that first step and part of a big picture, of course. From there, you can do a variety of things. You can say, "Well, let's find out what it is." So the way I think of biotoxins is there's direct and indirect ways to assess for them.

Dr. Kent Holtorf (00:24:49):

Yeah, yeah.

Dr. Cory Tichauer (00:24:49):

So, directly, we know that you can measure mycotoxin in the urine, like you can use ELISA or mass spec to look for certain mold toxins. You can look for heavy metals, you can just do a blood draw and compare like, is your level of mercury higher or lower than the 50th percentile that you find in the NHANES data?

Dr. Kent Holtorf (00:25:15):

Let me ask you, what tests do you like to do for biotoxins? You know, like the RealTime or Great Plains, you look at urine and—

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Dr. Cory Tichauer (00:25:24):

Yeah.

Dr. Kent Holtorf (00:25:24):

People just like—everyone has some, you know? It's like, when does that become significant in your mind? Associated with symptoms? Then also with the heavy metals, what type of testing do you like?

Dr. Cory Tichauer (00:25:40):

Yeah. So, I've gone the circuit, honestly, in a lot of these tests. I tend to prefer using ELISA studies or antibody based tests with RealTime Labs right now for mold toxin because it captures all of the metabolites, whereas mass spectroscopy, like you're only looking at a specific molecular way, right? So you're only able to capture that toxin in it's unconjugated form. So if glutathione, for example, is bound to ochratoxin or gliotoxin, you're not gonna pick it up. So the—[inaudible].

Dr. Kent Holtorf (00:26:17):

That's the problem [inaudible] this stuff.

Dr. Cory Tichauer (00:26:19):

Yeah.

Dr. Kent Holtorf (00:26:20):

Yeah.

Dr. Cory Tichauer (00:26:21):

So—yeah, exactly. So the ELISA I use from RealTime Labs, but if I'm looking at solvents, there's only a few labs that are doing this. US BioTek or Great Plains are both labs that I think are both good. I see great results on both and looking—and those are mass spec tests, but they're looking at metabolites. So I think it's a better option because you're not looking at the unconjugated form, which gives us better data sets. So if we're looking for petroleum distillates or herbicides, insecticides, plasticizers, PCBs like you were saying, all that can be reflected on those urine tests. I still tend to recommend that people do a glutathione challenge for a week before those tests, taking a thousand milligrams twice a day to mobilize all this toxin. Then I tend to have them stop it within 24 hours so that's we're—

Dr. Kent Holtorf (00:27:24):

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Just real quick, how do you like to give that?

Dr. Cory Tichauer (00:27:26):

I use liposomal glutathione, so—

Dr. Kent Holtorf (00:27:27):

[Inaudible]

Dr. Cory Tichauer (00:27:27):

Actually orally. I do it oral, yeah. Oral lyposomal glutathione. If they're able to do a sauna say for the night before they collect their urine, I think that helps to mobilize things out of fatty tissues because that's really what we're talking about right now. Then of course in the mold toxin world, this has been a big topic, but you want to avoid foods that might have mold toxin in them for ideally a week before you do the test, if nothing else, at least 3 days.

Dr. Kent Holtorf (00:28:03):

The problem is it's some of the healthy foods, right?

Dr. Cory Tichauer (00:28:05):

Yeah, you talk about nuts and seeds, or coffee, or fruit, right? Like a lot of fruit, or berries, or aged cheeses, or wine, or any grain. Corn is notorious. All of these things are—they're siloed in the United States. They can be siloed for years at a time and you get mold forming in the column of grain and then it gets milled into flour and now you've got mold toxin mixed with all this, which may or may not affect things like our gap junctions in our gut, but ultimately it's gonna result in false positives because you're gonna be picking up things that are moving through your body.

Dr. Kent Holtorf (00:28:48):

Hey, it's thought to be the reason for one of the plagues on Egypt and the first born dying from mycotoxins in the grain, yeah.

Dr. Cory Tichauer (00:29:00):

Yeah.

Dr. Kent Holtorf (00:29:00):

It goes way back.

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Dr. Cory Tichauer (00:29:01):

Yeah. Everyone with their—like even, what was it? The French revolution or all those things like ergotamine in the grain supply, everyone's hallucinating from mold.

Dr. Kent Holtorf (00:29:11):

Yeah, and do you wonder too—I wasn't planning, but I'm wondering are people's brains changed now and different? Are they more like, I think, kind of fight or flight? Basically polarized. Like, is that part of toxins? Stress plays a part, but I think toxins probably play a part too, you know?

Dr. Cory Tichauer (00:29:35):

Definitely they do. I mean—so, again, like how toxins affect us, like we know they create these immune inflammatory reactions with all of these innate driven cytokines, like IL-2 and interferon gamma, IL-6, and all the things we don't want to see. But in the central nervous system, which is mostly fat, you start creating activated microglia, these cells that once they get turned on, they're always screaming in panic. You start to see NMDA— like all of these toxins tend to have what they call excitotoxins because they stimulate the NMDA receptors and drive intracellular calcium build ups and things that actually do impair neurogenesis and [inaudible] and affect both our cognition as well as potentially creating or setting people up for things like dementia or cognitive decline, or worst case, neurologic autoimmune symptoms.

Dr. Kent Holtorf (00:30:46):

Yeah, because it's that glutamate and basically cytotoxin, which is—just a side story—is that I started stuttering so bad, right? I couldn't carry a cell phone because I couldn't say hello, you know? Then I read—I was going to go to actually one of the doctors I did a residency with and was on his team. He stuttered really bad, but he opened a stuttering center in Irvine. Then I read an article on aspartame and stuttering, and I stopped, and I stopped stuttering in 2 weeks.

Dr. Cory Tichauer (00:31:23):

Wow.

Dr. Kent Holtorf (00:31:23):

All of a sudden I get—like one time I changed from Starbucks to Coffee Bean, and they didn't have—instead of sucrose, they had aspartame. I started stuttering again, I'm like, "What's going on?" But it's very—it's like diet Coke too. I'm like, "I can't get off of it." It's like addictive, it's an excitotoxin, you know? You get amped, but it caused stuttering in me. Talk about a neurotoxin, you know? And that's mild compared to all this other stuff we're taking in.

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Dr. Cory Tichauer (00:31:54):

Yeah. Thankfully a water-soluble thing that you stop it and within a few days, ideally it's clearing out of your system.

Dr. Kent Holtorf (00:32:00):

Yeah.

Dr. Cory Tichauer (00:32:01):

Yeah. No, that's a good example for sure. Yeah—

Dr. Kent Holtorf (00:32:06):

Oh—so how do you approach a patient? So I'm sure you get these patients that have been everywhere, they have these complex symptoms, they get transferred from doctor to doctor, GI, neurology, whatever. They come to you, what—how do you start? What do you do?

Dr. Cory Tichauer (00:32:28):

I take a really, really good history. That's the first part of it. I think that one of the worst problems we see in the medical system right now is—

Dr. Kent Holtorf (00:32:37):

Nobody does that, what are you talking about? [Laughing]

Dr. Cory Tichauer (00:32:37):

[Laughing] Yeah! I mean, managed care, right? Managed care has been a—it's great if you have a bladder infection, but if you've been suffering from chronic fatigue, I don't know how much someone's gonna accomplish in 10 minutes. So, you know—

Dr. Kent Holtorf (00:32:53):

If you're inside the box. They're great if you break your arm or something, but if you're outside the box.

Dr. Cory Tichauer (00:32:59):

And that's what I say, you know? I say, the way the medical model right now is great. It's set up for "heroic medicine". Like if your life is in danger, by all means I would—I'm appreciative that the

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medical model we have exists, but for the millions of people who are suffering from chronic conditions, there is a process of discovery. It's as you said at the beginning of this talk that it's a puzzle. It is kind of gratifying to try and understand or unravel this whole puzzle. So I'll start off with usually an hour and a half to two hours with someone which gives me enough time to hear their story, ask detailed questions on all of the different systems in their body. Go back to when things started, try and understand the lineage, whether it was maybe they were in a house, maybe they were traveling, maybe they got a tick bite. Maybe they were emotionally abused, or had some sort of trauma to them. There's usually some sort of a trigger and you start there. You know, in the absence of that, what I tell people is let's throw out a big net, right? Because there's usually some—[Inaudible].

Dr. Kent Holtorf (00:34:15):

I like that term. I love getting lots of information.

Dr. Cory Tichauer (00:34:20):

Right.

Dr. Kent Holtorf (00:34:20):

So you're not running down a lane that—not that you miss this over here, you know?

Dr. Cory Tichauer (00:34:27):

Right.

Dr. Kent Holtorf (00:34:27):

People are like—it's like we do so many tests it freaks out the phlebotomist at like Quest, or whatever. I remember I went in myself and they're like, "Oh, this is the doctor that orders all those tests." I'm like, "Yeah, I've heard he's like really cute." [Laughing]

Dr. Cory Tichauer (00:34:46):

I will say it helps to have—we have a great lab in our office and our lab director is unparalleled in her ability to process. She comes with a wad of tubes this big. Like, "This is what you want to order?"

Dr. Kent Holtorf (00:34:59):

What—if you don't mind—what labs do you use? What company?

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Dr. Cory Tichauer (00:35:05):

Yeah. So, it depends on what I'm looking for. So that wide net question that we sort of talked about a second ago. So if I'm like—I'm always gonna say it's some interplay between infections, immune dysfunction, and environmental medicine. So that's kind of the 3 points on the triangle, right? I mean, infection level, depending on their history, I might do a really broad like antibody based study like we've see from like Cyrex has got a great pathogen associated immune reactivity. It just tests for antibodies, it doesn't mean you actually have it of course. I think that's an interesting topic in of itself because in medicine we all hear about these IgM and IgG antibodies and okay, IgM means it's recent and then you should get IgG. But in these intracellular infections, as you know Kent, like you see these IgM spikes that continue to happen, but at the same time I've seen ILADS doctors, I've seen other Lyme doctors saying, "Well—" At least for me, I'm initially treating IgM patients and once they seroconvert to IgG, or if I get an initial patient that's IgG positive, I'm going to say, "Is this really an infection? Or is this just an immune inflammatory response to the presence of this infection?" Maybe you do an anti-microbial challenge, [inaudible] antibiotic, or a series of them, or maybe you do some herbal therapies, but if it doesn't make them better, or if it just makes them worse, like you need to think that maybe the issue is really they've got this chronic immune driven inflammation.

Dr. Kent Holtorf (00:36:43):

Just a little comment on the IgM. So like infectious disease doctors, regular doctors, they say, "Okay, we've been taught from medical school, you get IgM antibodies and you get IgG." But a couple of things is that if you—like with the immune system dysfunction you see in these conditions, so that TH1, Treg is low. Then TH2, TH17 is high, that you can't convert IgM antibodies to IgG.

Dr. Cory Tichauer (00:37:12):

Yes.

Dr. Kent Holtorf (00:37:12):

IgM antibodies are basically like, I think of them like a dog holding onto your pant leg. But IgG are more specific and they activate, compliment and they explode [inaudible], you know? Then all of a sudden you treat—you either treat the immune system or treat the infection—all of a sudden they switch to IgG. But they'll go to the infectious disease doctor who says, "Well, this is a false positive because you've had these symptoms for a long time." And it's IgM. It's like, "No!"

Dr. Cory Tichauer (00:37:41):

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That's just it. It's interesting because, again, as we go through this there's clues along the way, like you're saying. You can look for a split compliment, you can look at C4A levels and you see a number at 20,000 and it's exactly as you're saying, this is part of the reason why they're not seroconverting. Their bodies are constantly pushing this TH2 inflammatory reaction, they're not seroconverting, they're not getting an effective immune reaction. They're just generating a lot of smoke, right?

Dr. Kent Holtorf (00:38:15):

The body is trying.

Dr. Cory Tichauer (00:38:15):

Yeah, yeah.

Dr. Kent Holtorf (00:38:21):

It's not effective.

Dr. Cory Tichauer (00:38:21):

Hey, let me close this blind really quick. I'll do that, it's driving me nuts Kent.

Dr. Kent Holtorf (00:38:27):

Hey, live TV.

Dr. Cory Tichauer (00:38:31):

Hey, there we go. Getting a lot of lines on my face. So, anyway, so testing—so direct testing, I'll do—again, like we can look at individual organisms, individual infections. I use iGenics for a lot of that testing, but broad nets, things like Cyrex. For mold I'll use urine mycotoxin with RealTime. For solvents I tend to use Great Plains Lab and for heavy metals, it's a whole topic, but I think a big part of the problem is people jump straight to doing challenge tests. They start doing EDTA, DMPS, things like that. Of course you're going to be high. There is no reference range for someone after they—[inaudible].

Dr. Kent Holtorf (00:39:15):

Everyone's got it.

Dr. Cory Tichauer (00:39:16):

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Everyone's high. So the way that I think is most high-end—the best integrity way of looking at heavy metals is just do a blood drop. Just measure your blood mercury, blood lead. You can do urinary arsenic. And there's the—

Dr. Kent Holtorf (00:39:31):

Isn't that gonna show just recent exposure?

Dr. Cory Tichauer (00:39:35):

So if they're having recent exposure you're usually gonna see really, really high levels or you're going to see it in urine, right? Like you shouldn't ever see urine mercury or urine lead. Arsenic, definitely. You're going to see that no matter what, but other things you're gonna—

Dr. Kent Holtorf (00:39:54):

Where does the arsenic come from?

Dr. Cory Tichauer (00:39:54):

Arsenic. Well, it's in rice. It's in certain—like if you have chickens or livestock, I know you'll see it in some of those. It's a contaminant in well water for certain areas of the country.

Dr. Kent Holtorf (00:40:07):

Is there anything you can eat? You know, it's like—it's scary.

Dr. Cory Tichauer (00:40:11):

Yeah.

Dr. Kent Holtorf (00:40:11):

Because it's like [inaudible] gets up in the atmosphere and it rains, like even all these basically biodynamic stuff. It rains on there, you know?

Dr. Cory Tichauer (00:40:24):

There are things that would be helpful and maybe it would be part of this preventative—like do you want to stay healthy? Like humic and fulvic acid is a great way to bind stuff in the gut. Chlorella probably has some good binding ability. I mean, there are binders, but if you start getting into talking about like clay, or charcoal, or prescription cholestyramine, or glucomannan,

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or any of these other things, my concern long-term is that you might be impacting your ability to [inaudible] nutrients.

Dr. Kent Holtorf (00:40:58):

A bunch of stuff. Can you just mention the theory with the binders?

Dr. Cory Tichauer (00:41:03):

Sorry, what was that?

Dr. Kent Holtorf (00:41:04):

Mention the theory, like why you do binders.

Dr. Cory Tichauer (00:41:08):

Yeah, for sure. So, again, if we're talking about the chronic patient and we're looking at like toxins embedded in fatty tissue, well your body's always trying to move this stuff out, right? I mean, on some level your body is trying to get it out. It's maybe not efficient, maybe you don't have this HLA receptor recognition, but you're still going to mobilize things on some level. So anything that's fatty is gonna ultimately end up in your bile and get eliminated through renal excretion. Usually you see this hydroxylation followed by conjugation in the liver, and that comes out through bile, which of course is where most fat-soluble toxins go. That's going to get in—it's secreted into the small bowel and ideally it's going to get eliminated with stool, but the problem with fatty things like fatty toxins is you get enterohepatic recirculation. So all of this gets reabsorbed back through the distal part of the small intestine back into the bloodstream, back into the [inaudible] where it gets redistributed back into the tissue. So again, it's just driving all this. So binders, like we're talking about, whether it's a natural binder like green clay, or charcoal, or a prescription like Cholestyramine, it's designed to grab onto that bile and prevent those toxins from being reabsorbed back into the body so that you actually have a net loss, right? So things are moving out of you. So it's one of the reasons why you're always gonna take these binders an hour or an hour and a half before you eat. In my patients, I'm always working to give them some cholagogues, something that's going to stimulate a bile release, right? That could be something simple, like a bitter, or you could use something stronger that also has benefits, repairative benefits, like phosphatidylcholine or some lipotropic formula to really get the—

Dr. Kent Holtorf (00:43:16):

Make a nice drink with bitters?

Dr. Cory Tichauer (00:43:16):

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What's that?

Dr. Kent Holtorf (00:43:18):

Make a nice drink with bitters?

Dr. Cory Tichauer (00:43:18):

Yeah. Yeah, exactly. [Laughing] Get a Manhattan, you know? That's the best way to get your bile moving.

Dr. Kent Holtorf (00:43:24):

But it's scary. I mean, it should be everyone taking binders all the time, you know?

Dr. Cory Tichauer (00:43:30):

Yeah.

Dr. Kent Holtorf (00:43:30):

If I eat sushi, I take chelators with it and I take Alinia for parasites.

Dr. Cory Tichauer (00:43:37):

For parasites.

Dr. Kent Holtorf (00:43:37):

Dr. Steppie, who is in LA, a GI, did a little study on—oh, what was the parasite? But on where all the parasites—where all the patients he had and they were not in the low income areas, they were in the high income areas. So we're trying to figure out why, and my thought was either cats or sushi, you know?

Dr. Cory Tichauer (00:44:03):

Don't even get me started on cats, Kent. But it's funny because we call it the executive problem. You see the same thing with heavy metals, right? Like people who are not often in the most socioeconomically depressed area are buying more fish, eating more sushi, and predictably mercury levels are much higher than in many other [inaudible].

Dr. Kent Holtorf (00:44:31):

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Oh, you can't eat anything, you know?

Dr. Cory Tichauer (00:44:34):

I know. So you gotta take your DMSA and, like I was saying, with heavy metals it's really not magic. You can Google the NHANES data, it's a federal NHANES data, it's updated every six years typically.

Dr. Kent Holtorf (00:44:49):

It's not alternative, quacky stuff, you know?

Dr. Cory Tichauer (00:44:53):

Not even alternative, not wacky. If I remember right, the way—so it's all divided into percentile. So you're at the 25th, the 50th, the 75th, 90th, or 95th percentile for mercury, lead, arsenic, cadmium, whatever. If you're at the 75th percentile or higher, I think the terminology is it's likely that the heavy metal load in your body is contributing to some disease process. As soon as you reach the 90th percentile, the terminology changes to say it's likely that the heavy metal level in your body is causing a symptom.

Dr. Kent Holtorf (00:45:31):

The problem is though, they'll just adjust the reference range to be 95% of the people.

Dr. Cory Tichauer (00:45:37):

Well that's just it!

Dr. Kent Holtorf (00:45:39):

So now you're normal. It's like with testosterone, they keep lowering the range because people are lower now because of all the different things, you know?

Dr. Cory Tichauer (00:45:47):

Right, right.

Dr. Kent Holtorf (00:45:47):

It's nuts.

Dr. Cory Tichauer (00:45:51):

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It's totally true. What is normal? And this also brings up the idea of like—

Dr. Kent Holtorf (00:45:56):

Cancer is normal when you get older. Cardiovascular disease, "Oh, you have cardiovascular, you're normal." You know?

Dr. Cory Tichauer (00:46:01):

Yeah, right. There's really sensitive people and people react individually and you can't treat everyone like a cohort, right? This brings us to the topic of like, well, how do you know if it's affecting you? So now you have high mls of mold or heavy metals. So that brings to the indirect testing and that's all of the Shoemaker markers. That's like looking at your MSH levels, your VIP levels, TGF beta-1. I love that test. No one ever—I don't think people understand it very well, but—

Dr. Kent Holtorf (00:46:34):

What lab do you like to get that from?

Dr. Cory Tichauer (00:46:38):

Yeah, so I bounce around. But MSH, VIP, I use LabCorp. TGF is LabCorp. C4A we were using National Jewish Health out of Denver for that.

Dr. Kent Holtorf (00:46:49):

They screw it up like half the time at least.

Dr. Cory Tichauer (00:46:52):

Well, actually in truth—[Inaudible].

Dr. Kent Holtorf (00:46:55):

Quest [Inaudible] sending it.

Dr. Cory Tichauer (00:46:55):

Yeah, so Quest has told us they won't do pass throughs anymore. We live in too small of an area, so we're not even able to do C4As now. We use a lot of LabCorp. We do VEGF and MMP9 through LabCorp. ADH and osmolarity is Quest.

Dr. Kent Holtorf (00:47:11):

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VEGF with Quest, it's zero 90% time. It's just they process it wrong.

Dr. Cory Tichauer (00:47:19):

Yeah, so—

Dr. Kent Holtorf (00:47:19):

I don't want to be a downer with patients, but—labs are like the gold standard. I sent our web guy just for basic labs, he did LabCorp—or LabCorp, Quest at the upper level. You walk downstairs, their labs are right above each other. Walked down, did the same test at Quest. One, he was diabetic. The other one, he had great insulin sensitivity, like A1C was 6, the other one was 5.4. Insulin was 18 on one and I think 8 on another. Like that's basic stuff.

Dr. Cory Tichauer (00:48:05):

Yeah.

Dr. Kent Holtorf (00:48:05):

Think about all these other tests, you know?

Dr. Cory Tichauer (00:48:09):

I have seen so many botch tests. I mean, I could go off on a whole—someone who I had a simple UTI—well, it was pyelonephritis but she had— they reported no bacteria, right? At all. So I'm thinking, "Oh my God, this has—"

Dr. Kent Holtorf (00:48:28):

Get a new test, look in. Yeah.

Dr. Cory Tichauer (00:48:29):

Yeah. You know what I said—what I get as an answer is like, "Well, have you ever tried to look at an anthill under a microscope? It's all black. So if they have too many bacteria, you can't see it." I was like, "Oh my God." Meanwhile, I'm ordering all these other tests, sending someone to urgent care when really they just needed to be treated with an antibiotic for an infection actually. It was—

Dr. Kent Holtorf (00:48:51):

It seems like you have to be an expert in everything.

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Dr. Cory Tichauer (00:48:51):

[Laughing] Right. Right. Exactly. But yeah, all those indirect markers are really helpful to understand, "Okay, now you've got the toxin, how's it affecting you?" A couple other markers I really like, 80HDG is—and don't ask me to tell you what the full name of that is—but you can do that test with Doctor's Data. It's a urinary test and it's actually a marker of DNA damage.

Dr. Kent Holtorf (00:49:19):

What was it again?

Dr. Cory Tichauer (00:49:19):

80H—like 8 hydroxy—DG. It really tends towards heavy metals in saying like, "Are the heavy metal levels actually affecting your DNA?" But it can be used for a lot of things. Tiglylglycine is a marker of mitochondrial—impaired mitochondrial function that you see on the Great Plains solvents panel. These are markers that you can see improve, right? So it's great. Similarly we talked about—

Dr. Kent Holtorf (00:49:54):

[Inaudible]

Dr. Cory Tichauer (00:50:06):

That's right.

Dr. Kent Holtorf (00:50:06):

So you can save these people. I was still a doctor—I think our first job is to convince the patient they're in the right place. How do you do that with—okay, these tests. I love to get all these tests, right? But a lot of times it's not cheap.

Dr. Cory Tichauer (00:50:22):

Yeah.

Dr. Kent Holtorf (00:50:22):

So it's kind of the art, like, do you do some indirect tests? Show, "Hey, there's going on." Which I kinda like to say, "So now we need to dig deeper." Do you have a little kind of a strategy to how you—? Because it's rare the patient will go, "Okay. Give me all these 10 different panels from different labs." How do you approach that?

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Dr. Cory Tichauer (00:50:48):

Yeah. So I guess there's two answers to that. One is what can you get away with, with insurance? Right? So all these Quest and LabCorp tests that we talked about, a lot of the times we can get insurance coverage for that, so that's hugely helpful. In a scenario where we're looking at out-of-pocket testing, hopefully a good history sort of helps to direct in that way, but ultimately there's no easy answer Kent.

Dr. Kent Holtorf (00:51:17):

It's a lot of gut, right? It's a lot of seeing a lot of patients.

Dr. Cory Tichauer (00:51:21):

It's just a lot of familiarity. I know that there is energetic testing, like ART, autonomic response testing, or kinesiology or electrodermal testing. I don't do that. There is a provider in my office who, in some cases, I'll send to him and say, "Hey, run up one of these energetic tests for me and just give me your top two things that are hits." That helps sometimes to hone things in for some people. But as I kind of alluded to earlier, like these big nets, this idea of like, "Let's just do a general antibody study." Maybe we need to measure immunoglobulins to make sure they have enough of them to even see a result that's quantifiable. But assuming that their humoral immune system is working, you can maybe do just general screenings for—like, again, like a chemical immune reactivity, which is a Cyrex test or a mucosal immune reactivity. These are gonna look at solvents and some heavy metals and some infections. You combine it with a pathogen associated immune reactivity test, you get this—you test for everything from strep to chlamydia. You know, there's—

Dr. Kent Holtorf (00:52:33):

[Inaudible] not the antibodies, but the basic lymphocyte test to see their reactivity. So it's a different type of test.

Dr. Cory Tichauer (00:52:43):

It's a different—yeah. It's just saying you've been exposed, right? It doesn't really mean anything more than that, but it does help to funnel things a little bit more. If I had my way and ultimately I try and encourage patients to do as much as they can, because the more information you have when you start, the quicker you can get from point A to B. And honestly, a lot of the times the less expensive it is because you're not heading into tangents that you don't need to go down.

Dr. Kent Holtorf (00:53:14):

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I know, and it's—but it's hard. It's like, "Well, I don't want to do that. I want [inaudible] the patient who is so sick. No, I don't do that. I don't do that." Like, I want to get the information because there's likely—look, you've been to 22 doctors, right? This is something, let's look down some different paths, but it's tough. I mean, people are paying a lot. They have insurance like, "Oh, it's not covered."

Dr. Cory Tichauer (00:53:39):

Right.

Dr. Kent Holtorf (00:53:39):

That's what the medical system is, it's tough. These patients with these chronic multi-system illnesses are—it's just a tough [inaudible].

Dr. Cory Tichauer (00:53:52):

But, you know Kent, even speaking to that, like maybe even just leap into the topic of peptides a little here. Like, we had this idea of like upstream versus downstream things, right? Like we know how things get affected. Sometimes it's helpful to just test for these upstream modulators. Like if you test an MSH level in someone and it's not measurable, like it's less than 8 quantifiably, you know something is probably bound to that leptin receptor. You know something is disrupting the melanocortin system and you've already identified one thing. So, this is where like Melanotan comes in and I don't think people really realize that Melanotan is synthetic MSH and you can use it. It works great to work on all these peripheral cytokines, work on reducing activated microglia in the brain, like preventing these NMDA receptor constant stimulation. So there are simple ways, but, you know—

Dr. Kent Holtorf (00:55:03):

Let me just mention, like Melanotan is sort of like the Barbie doll peptide where you basically get tan, you lose weight, you lower inflammation, and yeah.

Dr. Cory Tichauer (00:55:13):

[Laughing]

Dr. Kent Holtorf (00:55:13):

And you increase libido! Like, Hey, sign me up! But you do get pigmentation change. If you're young, you're gonna like it, but Oh my God, I did it and I turned so dark. It's like, "Oh my gosh, what is this guy?" You know? But also if you're older some dark spots can come out, so it's not the

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best. But that whole system is something that I think is—finally doctors are recognizing. It's so anti-inflammatory, mast cell activation.

Dr. Cory Tichauer (00:55:44):

Yep.

Dr. Kent Holtorf (00:55:44):

I think inflammation is what's killing everyone. I mean, there's one common pathway, inflammation, mitochondrial dysfunction, which all go together. I think that's a great—so there's KPV, which is the tripeptide is the piece of it, which attaches to those receptors, but doesn't cause the hyperpigmentation. Yeah.

Dr. Cory Tichauer (00:56:07):

Yeah. People don't—I don't think it's really realized, as you mentioned, inflammation drives all of this and Melanotan and KPV have both been shown to have anti-inflammatory properties comparable to prednisone without any of the negative consequences of using a systemic corticosteroid. So, wow! Right? Like, isn't that a huge deal? And similarly BPC. So you start thinking of like inflammatory bowel diseases, or rheumatoid arthritis, or other things that really—or ankylosing spondylitis, all these things that people are on chronic steroid therapy, this is such a better option for so many of these folks.

Dr. Kent Holtorf (00:56:49):

Yeah. Even if they're on steroids, you give it, it counteracts it, you know?

Dr. Cory Tichauer (00:56:54):

There you go.

Dr. Kent Holtorf (00:56:54):

And it's like, yeah, you're reducing inflammation, but actually anabolic rather than catabolic. So what are your favorite peptides? Or what are typically the order you use them? I understand there's gonna be variation, like what tests come up.

Dr. Cory Tichauer (00:57:11):

Yeah.

Dr. Kent Holtorf (00:57:11):

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But what in general are your go-to peptides?

Dr. Cory Tichauer (00:57:17):

So, I guess what I'd start off by saying is like, I categorize peptides in terms of like what they do. So the way I deal with any biotoxin illness is I kind of have this 7 R program in my head that I think of. The first one is always removing or detoxifying the substance, right?

Dr. Kent Holtorf (00:57:36):

Yeah. Get out of that environment or whatever it may be.

Dr. Cory Tichauer (00:57:40):

Yeah. Get it out of the body, okay? Whether you gotta kill something or help excrete toxins. Then we have replenishing upstream neuroregulatory hormones, then reducing inflammation, then rebalancing the immune system, restoring endocrine function, repairing mitochondrial function, and then finally rehabilitating impaired neurologic function. The reason I'm telling you that is because I start in that top down approach, okay? So as we talk about the first thing—well, the second thing after removing the substance—replenishing neuroregulatory hormones. So we already talked about Melanotan, I love the stuff. I use it a lot in a lot of patients and I find it's incredible. VIP—

Dr. Kent Holtorf (00:58:26):

Do you have problems with people getting dark spots or—?

Dr. Cory Tichauer (00:58:31):

Yeah, I do actually. So the way I tend to use Melanotan is I tend to kind of think of it as a priming the pump where I'll use higher doses for roughly sometimes 6 to 8 weeks, which is the life cycle of a T-cell, right? We're trying to actually impact that immune inflammatory response, and then I'll reduce the dosage frequency or amount pretty significantly because by that point, as you're saying, you're seeing Melanocyte deposition. You're seeing dark spots, you're seeing all of this stuff happening. That's helpful to sort of modulate it. KPV, as you talked about, won't do that. Unfortunately, as soon as I had wanted to start using it, regulatory bodies that we shan't speak of sort of like pulled that off the ability to use.

Dr. Kent Holtorf (00:59:24):

Hey, we're bringing it back! We should have it in a month, I hope. Yeah.

Dr. Cory Tichauer (00:59:29):

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Yeah. Well, I'm gonna—yeah. I'll be all over you on that one because I'm excited because theoretically KPV, as you mentioned, has some of the same benefits of using Melanotan from its ability to reduce all of the inflammation in the body. Cutting down on—[inaudible].

Dr. Kent Holtorf (00:59:48):

[Inaudible] one is more potent.

Dr. Cory Tichauer (00:59:49):

Is it? Okay, I didn't even know that. Yeah. So that's something I didn't know. But people don't realize these MSH, or the terminal fragment with KPV, it upregulates IL-10 and it induces CD4 and CD25 markers on T-reg cells. So it improves antigenic tolerance, the presence of these things. In models of RA and inflammatory bowel disease—

Dr. Kent Holtorf (01:00:17):

I think it's gonna be huge and even—you have psoriasis, you rub it on, hour later, it's gone. When my girlfriend was getting the dermatographia, rub it on, like 10 minutes later it's gone.

Dr. Cory Tichauer (01:00:31):

Yeah.

Dr. Kent Holtorf (01:00:32):

Yeah.

Dr. Cory Tichauer (01:00:33):

The other one is rapamycin for that, but we'll get down to that topic. That's another one that I'm really liking to use right now. But Melanotan I do a lot of. VIP is great.I really like VIP. There's this myth that you shouldn't use VIP until like years into treatment, that's at least as Shoemaker initially said it. I don't agree with that. I think—

Dr. Kent Holtorf (01:00:55):

Everyone has their protocols. It's like asking 5 chef how to make a cake, you gonna get 6 different answers, you know?

Dr. Cory Tichauer (01:01:02):

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Yeah. Well, that's just it. You ask a ton of people and yes, you do have to monitor serum lipase. You will see pancreatic inflammation in scenarios, in certain cases. Ultimately I will say like the 2 things I tell patients about VIP, you have to pass a VCS, you have to pass your visual contrast test, and you have to have a home where your ERMI—the moldiness index in your house needs to be ideally less than 2.

Dr. Kent Holtorf (01:01:32):

So don't do it if you're—

Dr. Cory Tichauer (01:01:35):

Exposed.

Dr. Kent Holtorf (01:01:35):

If your gut mold and your visual contrast is not normal yet.

Dr. Cory Tichauer (01:01:43):

You'll just see it make it worse, yeah. You'll see pancreatic inflammation and people will talk about upper left quadrant pain. So you gotta do lipase levels regularly enough and I tend to start pretty low on that. We're not starting at 50 microgram 2ID dosing. It's like 5 to 10, start them real slow. But VIP is—it's just huge. It's a vasodilator. It regulates smooth muscle and increases blood flow to the GI tract. It works as a paracrine mediators, so cell to cell communication. In studies where people use the VIP in biotoxins they found that the treatment group after—I don't remember the time, I want to say maybe 6 months—their symptoms eventually equal the control group. Meaning like everyone—they normalized in most of their symptoms. You see hormones improving, estrogen, testosterone, vitamin D levels. You'll see markers like C4A [inaudible] improving. It's great.

Dr. Kent Holtorf (01:02:49):

Yeah. That's what I love is these upstream—like the Epitalon. We're using more Pinealon and—

Dr. Cory Tichauer (01:02:55):

Yep.

Dr. Kent Holtorf (01:02:55):

You and I were talking before, like hypothalamic inflammation is causing insulin resistance.

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Dr. Cory Tichauer (01:03:02):

Yeah.

Dr. Kent Holtorf (01:03:02):

You get—basically you don't secrete the hormones, you get less bioactive TSH. So the TSH that they check is just the amount of protein, but it matters the carbohydrates and how active it is. It affects everything, you know? Fix that, you're gonna fix a lot of stuff.

Dr. Cory Tichauer (01:03:26):

And that's the idea behind why I said I tend to move in this order because you can throw a bandaid on something but you're not really fixing it at the end point.

Dr. Kent Holtorf (01:03:36):

It works the other way.

Dr. Cory Tichauer (01:03:39):

It works—yeah, that's right. It works from a bottom up approach but if you go top down and you say, "Oh, your testosterone's off." And, "Oh, you've got problems with auto-immunity and you've got inflammation and your mitochondria aren't working well." You can start there, but if you start upstream, a lot of times a trickle down effect happens and you see those sex hormones normalizing, and you see energy levels improving. We don't need to do more stuff, right?

Dr. Kent Holtorf (01:04:06):

It's like POTS patients, they go to a neurologist, they go, "Oh, you basically got POTS. It's causing your fatigue." No, that's a symptom of it. They try to treat that like, that's not the problem! Well, it exacerbates, but you fix it upstream and it's not an issue, you know? Yeah.

Dr. Cory Tichauer (01:04:30):

Right, yeah. Yeah. It's not a [inaudible] deficiency, right?

Dr. Kent Holtorf (01:04:34):

Yeah, exactly.

Dr. Cory Tichauer (01:04:37):

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[Laughing]

Dr. Kent Holtorf (01:04:37):

Depression and prozac deficiency, yeah.

Dr. Cory Tichauer (01:04:38):

Florinef, or whatever. But yeah, so I will say those neuroendocrine ones, Melanotan, VIP, and Epitalon are all things I really love. I really like and I'm thinking Epitalon is getting more affordable now, which is going to be huge for people because it was quite expensive. But Epitalon as well in terms of—

Dr. Kent Holtorf (01:05:00):

It's probably—I think it's one of those things that I think everyone should be on it.

Dr. Cory Tichauer (01:05:05):

I agree. Yeah. Kent, you're really responsible for even me doing Epitalon because those studies on cardiovascular mortality and the studies in cancer incidents and lifespan overall, it's—the question when you read those studies is why isn't everyone doing this? Then you talk about adding like Thymosin beta-4 into that and the synergy you get, it's mind blowing. I mean, this is our modern day fountain of youth. This is how we avoid serious medical costs as we age. This is how we retain our vitality. This is how we—

Dr. Kent Holtorf (01:05:47):

Wait, wait, wait. We gotta cut this out because you don't want to cut out the number of bypasses.

Dr. Cory Tichauer (01:05:51):

[Laughing]

Dr. Kent Holtorf (01:05:51):

And all that. Yeah, it's like they put people on a thymic peptide and Epitalon with significant cardiovascular disease and they followed them for 15 years and the standard treatment got worse and the people on that combo, even also each one of them separate, but together even more powerful that their cardiovascular disease got better and dramatically less mortality, morbidity, reduced quality of life, less cancer as a nice little side effect. Yeah. It's crazy.

Dr. Cory Tichauer (01:06:31):

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One of the things that I think was remarkable in that study you're talking about is after that 13 or 15 years where they did the study, those people were in their 80s and they had a 10% increase in exercise tolerance compared to where they were almost 15 years prior. It was—in that study, they barely treated them. I mean, imagine if they—[inaudible].

Dr. Kent Holtorf (01:06:55):

It was the lowest dose. Yeah, they treated them—what, twice in 10 years?

Dr. Cory Tichauer (01:07:03):

Yeah, it's so tiny. It really shows like how shifting the dynamic and the ratios in the body and those anabolic, catabolic ratios and all this stuff. And the pineal gland, I mean, why does it calcify? Why is it just an MRI marker for us? Like, is it solvent? Is it TV? Is it EMF? I don't know. But it's obviously a major key to longevity and health and I think it can be huge. I'm still working out its role in biotoxicity, but it synergizes great. It especially is good for people with chronic insomnia because its ability to restore melatonin levels is incredible. I mean, we have DSIP, which is Delta sleep-inducing peptide, which is a knockout. It works great. I mean, it's as effective or better than any sleep med I've ever used or naturopathic—

Dr. Kent Holtorf (01:08:02):

Yeah but just to tell everyone, it's not like a sleep med. It doesn't make you sleepy. It resets your body to sleep, you know?

Dr. Cory Tichauer (01:08:09):

Yeah.

Dr. Kent Holtorf (01:08:09):

It takes a couple of weeks. It's not like you take it and you're sleepy, it's fixing the problem, you know?

Dr. Cory Tichauer (01:08:17):

Yeah.

Dr. Kent Holtorf (01:08:17):

And I'm horrible. I'm, "Do as I say, not as I do."

Dr. Cory Tichauer (01:08:20):

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[Laughing]

Dr. Kent Holtorf (01:08:20):

Like, I'm passionate about exercise. It's religious to me. I work out every 4 months for 8 minutes, you know?

Dr. Cory Tichauer (01:08:27):

[Laughing]

Dr. Kent Holtorf (01:08:27):

And I stay awake for 2 days doing PowerPoints, which is horrible for you! Horrible.

Dr. Cory Tichauer (01:08:38):

Right.

Dr. Kent Holtorf (01:08:38):

But, I'll take a shot. [Laughing] So—

Dr. Cory Tichauer (01:08:41):

Giving away all your secrets.

Dr. Kent Holtorf (01:08:46):

Yeah. But, yeah, it's funny. It's amazing that it's one of those things that I really think everyone should be on. It's kind of the same thing—although totally different—"Oh, everyone should be in Statins!" Which is the worst thing to do.

Dr. Cory Tichauer (01:09:04):

Right.

Dr. Kent Holtorf (01:09:04):

Which I think they have a small place and they tried to make it into a giant wide place and it's hurting more people than it's helping. But, I mean, it's just stuff that—also when you can't find a toxic level, try that with any medication. Try it with water! A thousand times a dose and they can't find toxicity?

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Dr. Cory Tichauer (01:09:27):

Right.

Dr. Kent Holtorf (01:09:27):

There's nothing like that.

Dr. Cory Tichauer (01:09:28):

No. No, I know. That's the beauty of peptides in general is the safety of these things is incredible. I mean, they don't work on nuclear receptors. They work on these membrane receptors, so they've got really selective effects and there's no real known toxicity. Yes, there's things you need to be aware of like we talked about with VIP, but if you're talking about compared to alternatives, like what Prednisone? Like what you're using Florinef? Or Midodrine? Or any number of interventions to treat symptoms that are hundreds of times more potential side effects or toxic for the person and affect cardiac, all these things.

Dr. Kent Holtorf (01:10:11):

But the FDA wants to get rid of them.

Dr. Cory Tichauer (01:10:13):

Yeah, I know. Well, that's—yeah. Let's not even go there. I mean, I'm—one of my medical assistants is pulling her hair out dealing with every compounder I'm trying to chase around the country that has advertised some new peptide available right now because they're—it's all this ephemeral in and out sort of—

Dr. Kent Holtorf (01:10:33):

It's horrible. I didn't say it, it was Corey, just depending on who watches this.

Dr. Cory Tichauer (01:10:38):

[Laughing] I was being prompted. Yeah. So that's the first thing, that upstream neuroendocrine stuff. Then from there, if it's not working, we'll move into inflammation reduction. I use BPC-157 a lot. I, of course, use the BPC from Integrative Peptides, which is amazing. It works great for GI tissue. It has equal parts systemic absorption, so we can see things. Like people who are having joint pain, or myofascial pain, or whatever, reducing that inflammation. I'm hoping it becomes injectable again. I really did like using it as an injectable.

Dr. Kent Holtorf (01:11:21):

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We find some people—just oral seems to work better systemically, other people shots. Like anything, you know?

Dr. Cory Tichauer (01:11:27):

Yeah, exactly. Usually we're going to try—well, most people don't want to do shots if they don't have to. KPV, as we talked about, is another great anti-inflammatory. One that I really don't have a ton of experience with, but would like to see available, is amlexanox, which is an oral anti-inflammatory peptide that inhibits histamine and leukotriene release. It's traditionally used to treat ulcers, but as you mentioned, I see a lot of mast cell activation and I see hyper IgE syndrome, and I feel like this could be a huge—something that's not sedating, like [inaudible], that we can use to prevent histamine systemically and in the mucus membranes for these people, which would allow them to tolerate a wider array of diet and they can get out in the world a little more.

Dr. Kent Holtorf (01:12:19):

I mean, yeah, there's so many people and no one knows about them because they don't go out.

Dr. Cory Tichauer (01:12:23):

Right.

Dr. Kent Holtorf (01:12:23):

But all these—like IgE patients, I don't think I've seen one that didn't end up being Babesia. Or [inaudible] esophogitis, horrible illness. They get treated—like they get steroid drip, lidocaine drip. I mean—and everyone that I've seen—it hasn't been a huge amount, but they're all Babesia, you know?

Dr. Cory Tichauer (01:12:46):

You know what's really hard about that? You're right, and I've seen this in some of the worst mast cell or hyper IgE cases, but the problem is you start trying to treat the infections. You take a single infection and now you just exploded it into 300 little pieces and now their immune system is worse—is freaking out. So you're—it's this cycle.

Dr. Kent Holtorf (01:13:11):

It is. It's one of the most immuno-suppressing. We had a patient—so we had actually an awesome microscope and we were flushing antibodies, which were highly specific and we could tell Babesia, or Lyme, and you can see them. This person had so much Babesia. I mean, it was just

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covered, right? So we put her on like triple therapy, the standard "best stuff" for Babesia, checked it I think 6 weeks, 8 weeks later, it was multiplied by 10.

Dr. Cory Tichauer (01:13:46):

Oh, wow.

Dr. Kent Holtorf (01:13:46):

Yeah. I mean—so it shows this stuff is tough. You know?

Dr. Cory Tichauer (01:13:52):

It is, and this is where, again, like these peptides, I think of them as being so potent because they can break the cycle where you can actually finally start treating someone. I mean, trust me, I'm trying to use things like Xolair, which is crazy expensive and not as effective as I'd want, but peptides, there's no problem. There's no side effects. So this isn't great. We're just moving [inaudible] my progression, because the next thing I would do is immune modulation, as we're talking about right now. The 2 primary things I'd use for that are the thymic peptides, so Thymosin beta-4 is more commonly what I'm going to be using in biotoxin cases because its ability to stimulate T-cell differentiation, help develop B-cells, while suppressing toll receptor production of IL-6, IL-1, IL-8, NF-kappa B. It's perfect for someone who has an innate immune inflammatory response and you see it effective in other fibrotic diseases like RA, and MS, and Alzheimer's. All of these TH1 sort of dominant illnesses, but people don't realize there's models of using Thymosin beta-4 for neurologic injury, for cardiac injury.

Dr. Kent Holtorf (01:15:21):

It's huge.

Dr. Cory Tichauer (01:15:24):

It's huge, yeah.

Dr. Kent Holtorf (01:15:24):

As you know, all the TH1—they say if you look at, "Oh, TH1 auto-immunity, it's all wrong." It's actually TH17. They couldn't differentiate the two and TH1 actually suppresses TH17. Have you tried the TB4-FRAG?

Dr. Cory Tichauer (01:15:41):

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I have. I've been—we're using the TB4-FRAG plus right now and we're just really getting into that. I love that you brought up the TH17 part because we didn't really talk about TGF beta-1, right? This is like—if you look at the literature, it's anti-inflammatory, it's pro-inflammatory.

Dr. Kent Holtorf (01:16:00):

Yeah, exactly.

Dr. Cory Tichauer (01:16:00):

The way I think of TGF beta-1, and I do this on a lot of my patients, is I say, "Look, it's the shut off valve." When you have too much TH2 or TH1 we have too much inflammatory driven immune response, TGF beta-1 shuts it down, but it drives TH17. So then you suddenly see high IL-23 and you start seeing autoimmunity coming into the picture.

Dr. Kent Holtorf (01:16:27):

With autoimmunity you get fibrosis, you get kidney disease, you get cardiovascular disease, like all these diabetics. And you're right. I think there's so much confusion in the literature. It reminds me of the same thing as when I was doing all the studies on bioidentical hormones. They would, in the studies, call progestins progesterone.

Dr. Cory Tichauer (01:16:49):

Ah!

Dr. Kent Holtorf (01:16:49):

You know? So basically it's—they confuse like—okay, what is TH1? Is it something that secretes that? Or—because usually it secretes something that's opposite to balance it out. So, well, what really is it? TH1 or TH2? Or TH—you know? So it's such a gross oversimplification all the time, but we've gotta do that or else you'll never understand it.

Dr. Cory Tichauer (01:17:17):

Yeah.

Dr. Kent Holtorf (01:17:17):

But it's—yeah, it's very complex. I think the literature becomes very difficult to understand because they'll call it one thing in this study and another thing in this study.

Dr. Cory Tichauer (01:17:30):

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It's true. So then my thought along those same lines Kent was let's test cytokines, but it turns out that cytokines in blood, versus cytokines in tissue, versus cytokines in your brain are all different. How much value is that? And how many—

Dr. Kent Holtorf (01:17:47):

Plus, all these things are great in a research setting where you have—you get the blood, you have the people that are totally—they're basically doing the study, they run it, but no, you go to a commercial lab, they let it sit, they go to lunch, they don't spin it, and everything is zero. It's a different world, yeah.

Dr. Cory Tichauer (01:18:10):

Yeah, yeah. So, yeah, I use a lot of TB4, I use TB4-FRAG. I'll do injectable TB4. We'll do whatever, we'll mix it with ms—with Melanotan and have them do them together. The contrast to that, of course, is Thymosin alpha-1, which I love dearly as well. I use that more to increase natural killer cell function. I use it more in scenarios where we see these TH2 dominant immune inflammatory responses, we're trying to help clear infections. I'll use it with LL-37 a lot, or I used to when LL-37 was available, as an anti-microbial agent to assist in clearing it, but—

Dr. Kent Holtorf (01:18:53):

Yeah, that will be available.

Dr. Cory Tichauer (01:18:55):

Yeah. That's the—yeah. You keep saying great things Kent about all the—I'm excited!

Dr. Kent Holtorf (01:19:02):

2 weeks, right? [Laughing]

Dr. Cory Tichauer (01:19:02):

[Laughing] But yeah, people don't realize it's like—it increases antigen presenting cell signaling and so it augments T-cell function and it increases the MHC class I toll-like receptor expression, which is for intracellular infections, right? So it's ideal when there's still an infection present that you're trying to get rid of, as opposed to a truly [inaudible].

Dr. Kent Holtorf (01:19:28):

So for the viewers, it's an anti-microbial peptide. So it works directly, it punches holes in—like it works better on the Lyme cyst than Tinidazole, broad spectrum, and also immune modulator. It's

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inflammatory to some point, but it's also anti-inflammatory. It's unique and again can be very beneficial.

Dr. Cory Tichauer (01:19:57):

It's great. It works well and you know it works, you see perks reactions on it in some people, for sure.

Dr. Kent Holtorf (01:20:05):

When I first did it many ago, there was no dosing. So I'm like—

Dr. Cory Tichauer (01:20:10):

Uh, oh.

Dr. Kent Holtorf (01:20:10):

"All right!" And I have Lyme. So I did it and I went to work and I was gonna jump out of my skin. People were like, "Oh my God..." I had to see patients and I'm like—

Dr. Cory Tichauer (01:20:28):

[Laughing]

Dr. Kent Holtorf (01:20:28):

I remember this guy, a friend of mine was like, "I've never seen anyone like that." You know? I was just herxing and just like sweating and I'm like, "Okay, wrong dose." [Laughing] You know? But then some better studies came out after that. But yeah, I always try everything first. It works for a lot of things. Yeah, it helps. Like, I think everything's a tool, right? Everything's a piece of the puzzle. There's no one magic bullet. I think with the peptides, I think you'll agree, is actually they get even better the more of them you use. Like, it's 1+1=5.

Dr. Cory Tichauer (01:21:05):

Yeah, and that's exactly it. That's this sort of synergy effect you get. I mean—and again, like the next step in this whole process is endocrine restoration, right? This is, as you just said, like the synergy you see, because guess what? Not only is there a physiologic aging and things that happen to our hormones, but we see the effects of infections, or chronic, or biotoxin exposure. And guess what? You'll see low levels of growth hormone, you'll see low levels of sex hormones. So I'll run IGF-1, I'll look at standard deviations and say, "Look, this might be helpful." If you have someone who's got—

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Dr. Kent Holtorf (01:21:46):

Now everyone's sick, they don't have to go down or—I can't stand it, a lot of hormone levels our normal is 0 to something.

Dr. Cory Tichauer (01:21:54):

Right! It's—yeah. What is normal? I mean—and that's where you come up with your own values. Like MSH, if you measure MSH, there's no—they're just looking for tumors that are MSH producing tumors. There's no—

Dr. Kent Holtorf (01:22:12):

Yeah they don't get it. They don't get it.

Dr. Cory Tichauer (01:22:12):

There's no marker to say it's too low, right? So if it's less than 25—and this is kind of my thought with KPV and Melanotan—is if it's really low, I'll use that Melanotan. But if your MSH is maybe 20 or above, I'm trying to get it at least 25, then I'd want to use KPV because it's gonna have less tanning effect, as you talked about. VIP, same thing, there's no marker for low VIP levels.

Dr. Kent Holtorf (01:22:37):

It's interesting that you said about hormones. So I ended up giving a talk, it was a peptide conference and a thyroid conference. I said, "Let me combine it." I'm a big T3 guy, I'd say it was one of the things that just made my life—I was able to function, was high dose T3. My levels were "normal". I love T3 for so many patients. But I showed that really the thyroid problem is not a thyroid problem, it's everything else. It's the hypothalamic pituitary thyroid access. It's the [inaudible], it's the transport, and how you can get peptides to actually fix that. One study which I came across showed that the Epitalon will actually take out the pituitary and it increased TSH.

Dr. Cory Tichauer (01:23:34):

Huh.

Dr. Kent Holtorf (01:23:34):

Where the hell did TSH come from?

Dr. Cory Tichauer (01:23:38):

That's what I was just gonna say. [Laughing]

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Dr. Kent Holtorf (01:23:38):

It came from the thymus!

Dr. Cory Tichauer (01:23:39):

Wow.

Dr. Kent Holtorf (01:23:41):

You know? It's amazing. The level—so they took out 2 doses—people's thyroids should be at zero, right? It didn't bring it back to normal, but it significantly brought it up, and the TSH!

Dr. Cory Tichauer (01:23:57):

Wow. That's incredible, yeah.

Dr. Kent Holtorf (01:23:59):

Yeah.

Dr. Cory Tichauer (01:24:00):

Another example of using Epitalon for everyone, right? Because we know that thyroid resistance happens. We know we lose sex hormones. I mean, why wouldn't you want to have your levels restored to where they were when you were 30, 35 years old.

Dr. Kent Holtorf (01:24:17):

I don't know, are you seeing this too? Like, I see kids coming in seemingly healthy, 18, 22, 25. Their testosterone levels are 200.

Dr. Cory Tichauer (01:24:29):

Yeah, I see a lot of that.

Dr. Kent Holtorf (01:24:31):

In a 19 year old, it's scary. In plastics, pesticides, all this stuff, it's nuts.

Dr. Cory Tichauer (01:24:38):

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You're totally right. Ideally these things change it, but—you know, there's things we can use to try and increase it. Like unfortunately out of the secretagogues we have available to us now, right now I think the only one I can use is Sermorelin, which—it's a growth hormone releasing hormone analog, right? So it causes increases in IGF, in human growth hormone, but it has sort of broader effects. It affects hormone balance and sleep and sex drive and muscle mass and all these things. So I've actually really liked it. But prior to that, I guess I was using a little more of the Ipamorelin CJC combination. I feel like that was just a knockout. The CJC has got about a 3 time longer half-life than Sermorelin.

Dr. Kent Holtorf (01:25:28):

So you can't get it?

Dr. Cory Tichauer (01:25:30):

I don't think you can get CJC-1295 and Ipamorelin—

Dr. Kent Holtorf (01:25:33):

Oh, no. Yeah, you can.

Dr. Cory Tichauer (01:25:35):

Oh, you can? Okay. Sorry.

Dr. Kent Holtorf (01:25:37):

We'll get it.

Dr. Cory Tichauer (01:25:38):

All right. We're getting—yeah.

Dr. Kent Holtorf (01:25:38):

That's what I've been working on, I've been frustrated, but it's coming.

Dr. Cory Tichauer (01:25:43):

What we all need from you Kent is a spreadsheet with every peptide telling us where to get it because it's like—

Dr. Kent Holtorf (01:25:49):

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I've been trying! I'm getting—it's the people I'm working with, their problem.

Dr. Cory Tichauer (01:25:53):

[Laughing]

Dr. Kent Holtorf (01:25:53):

Yeah. I find some people do better on straight growth hormone.

Dr. Cory Tichauer (01:26:02):

Yep.

Dr. Kent Holtorf (01:26:02):

I think the whole craziness on that has died down.

Dr. Cory Tichauer (01:26:06):

Yeah.

Dr. Kent Holtorf (01:26:06):

We're getting the fear of growth hormone, like who's died of growth hormone?

Dr. Cory Tichauer (01:26:11):

And they get cancer.

Dr. Kent Holtorf (01:26:13):

There's no study that's ever shown that giving growth hormone causes cancer.

Dr. Cory Tichauer (01:26:18):

Right.

Dr. Kent Holtorf (01:26:18):

And people say, "What about [inaudible], where it increases that?" I basically say, "I've never seen a person rich enough to do that—"

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Dr. Cory Tichauer (01:26:30):

[Laughing]

Dr. Kent Holtorf (01:26:30):

"Except for Barry bonds." [Laughing] Yeah, his head got bigger!

Dr. Cory Tichauer (01:26:40):

It did! [Inaudible] grew a lot, didn't it?

Dr. Kent Holtorf (01:26:40):

Yeah. I know we've been—I love talking to you, we've been going on for a while. Other peptides you like?

Dr. Cory Tichauer (01:26:47):

Let's see. I use Ibutamoren as a secretagogue for people that are cachexic, really have a lot of weight loss. I think it helps.

Dr. Kent Holtorf (01:26:55):

It makes you really hungry though, right?

Dr. Cory Tichauer (01:26:57):

It does, yes, which is great for people who need to gain weight. There's a whole sex hormone world of things. I don't use a lot of them, there's selective androgen receptor modifiers, I will use those in women sometimes.

Dr. Kent Holtorf (01:27:12):

You know, I was just talking to someone about that, who supplies all this stuff. He had bad effects from the SARMs, you know? Selective androgen receptor modulators, but I love [inaudible], you know? So, the problem is you give testosterone, especially if they are obese, [inaudible] inflammation, they're going to make it all into estrogen. It upregulates basically the aromatase, especially if you do the cream, it upregulates and they just make a bunch of estrogen. So for diabetics, I like nandrolone, but it's also considered a "bodybuilding hormone". But it's been around forever. It's equal potent to testosterone, so I find—let's say you do half and half and it doesn't come up on the test. So let's say their testosterone level—and also the normal has shrunk down because everyone's low and they're like, "Oh my gosh, they're high testosterone", everyone

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freaks out, but the nandrolone is not going to come up. So let's say they're 400, you really know they're 800. They don't make so much estrogen, so you can give testosterone with aromatase inhibitor and all that. But I like doing that. Yeah, I've kind of shied away from the SARMs just from—there's not a lot of studies on them and I've heard some people have some negative side effects from them.

Dr. Cory Tichauer (01:28:35):

What do you think about Follistatin? Because, I mean that—there's another one really sarcopenic patients, where you get a testosterone-like effect, right? Independent of testosterone, without actually affecting testosterone levels.

Dr. Kent Holtorf (01:28:52):

Yeah. I love Follistatin! I found it either is amazing or just doesn't seem to work on people. It's like we've had some women come in, "I got a wedding coming up, 6 weeks, I gotta lose 20 pounds." Give them the Follistatin, boom! You know? Increases body fat. I unfortunately became allergic to it, also the 344 and 305, and I'm really bummed because I ended up gaining weight from it because it was like keeping my weight down. I eat terribly and I have a liquid breakfast that—just kidding! No, I really like it. It's just—it's expensive.

Dr. Cory Tichauer (01:29:41):

Yeah.

Dr. Kent Holtorf (01:29:41):

It is a complex molecule, but I think it can really work. Humanin I'm liking a lot, which goes along with more—kind of mitochondrial peptides, which we haven't talked about. Maybe briefly we'll just talk about those. Humanin really reduces insulin resistance, a beneficial effect. Mitochondria, there's MOTSc, which I think I like, I don't know. I've had some people, "Oh my gosh, their triglycerides came down. Their—" You know? Then there's SS-31, which I haven't used a lot of because it's expensive and really hard to get. I don't know if you can really compound it because it's in clinical trials. But the 5-Amino-1MQ we've had great results with. We were mentioning before we talked how people with bipolar, Lyme disease, like more energy, the bipolar went away. Another doctor's family member had OCD, 2 days later of taking it's gone. Depression, so that's been one of my favorites. Dihexa, I don't know if I [inaudible] mitochondria, it's more of a brain stimulator, but yeah. I think part of that thing of aging and disease is mitochondrial dysfunction.

Dr. Cory Tichauer (01:31:25):

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Yeah. I mean—so you're echoing so much of what I would say too Kent. MOTSc, weekly MOTSc, I've seen it really help with some people. In the biotoxin world it acts on the cell nucleus in the very—the cell danger response. So, in response to metabolic stress, cellular energy deprivation under toxic conditions, that's kind of the keynote for it and it's great. But I also like NAD. We do IV NAD, we're starting to do patches for it. Really, really helpful at reducing free radical damage from biotoxins, increasing mitochondrial biogenesis, all these really great things.

Dr. Kent Holtorf (01:32:16):

Do you do oral NAD or NR? My thought is like, take that. I think I have—

Dr. Cory Tichauer (01:32:27):

No, I don't do a ton of it. I mean, we're using a combo of resveratrol and I think it's like nicotinamide, it's the precursor—[inaudible].

Dr. Kent Holtorf (01:32:40):

Now, resveratrol, get the methylated. It's about—let's see—7 times a half-life.

Dr. Cory Tichauer (01:32:49):

Wow.

Dr. Kent Holtorf (01:32:49):

20 times the potency. It's—

Dr. Cory Tichauer (01:32:51):

Who are you using?

Dr. Kent Holtorf (01:32:51):

What's the name? [Inaudible], or something like that.

Dr. Cory Tichauer (01:33:04):

[Inaudible], yeah, yeah, yeah.

Dr. Kent Holtorf (01:33:05):

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It's—yeah, so it's a methylated resveratrol. If you look at the studies head to head people use Quercetin, you compare that to Vicetin bioflavonoid, Vicetin blows it away. It's probably 7 times as potent.

Dr. Cory Tichauer (01:33:24):

Cool.

Dr. Kent Holtorf (01:33:24):

It's a mast cell and I'm loving the bioflavonoids. When I did my—and we're doing more and you may be doing it—genetics testing, which I think has its issues because genetics are genetics. Epigenetics are—but it'll tell you what to try to fix. Like, everything was, "Take bioflavonoids. Take bioflavonoids." It was weird because the things that it told me to take, I just kind of naturally gravitated to because I felt better with them, you know? But I think that's a huge part.

Dr. Cory Tichauer (01:33:55):

I'll try that. I'll try that methylated version. I mean—yeah. I mean, I love NAD. We use it a lot. I think it's just great. It increases—improving the krebs cycle, energy production, but my—one of the newer one—and SS-31, I can't even tell you how excited I am about that one because I'm a membrane guy. I kind of always am thinking of Forskolin and Cardiolipin.

Dr. Kent Holtorf (01:34:18):

Yeah, just to tell people, SS-31, it's kind of a mitochondrial antioxidant a little bit, but it does other things. It's in a lot of clinical trials. [Inaudible] do it all for neurodegenerative diseases.

Dr. Cory Tichauer (01:34:32):

Yep.

Dr. Kent Holtorf (01:34:32):

It helps so many things. All these mitochondrial things do. Also I think like, well, what's your thought on PQQ, MitoQ? I think those are good to take. I kinda rescued someone that—when I gave my assistant the 5-Amino-1MQ, then I gave her Dihexa on top of that. I think I just stimulated her mitochondria too much and she had no antioxidants, so we gave her PQQ and MitoQ and then she went back fine. But I think that's—there's a lot of money being—billions being put into those.

Dr. Cory Tichauer (01:35:13):

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Yeah.

Dr. Kent Holtorf (01:35:13):

Because they work!

Dr. Cory Tichauer (01:35:16):

They do, they really work and you're right. PQQ I like too because it also has got that—it's a neurogenic factor too, so it increases neurogenesis. But the new thing I'm really playing with right now that I've really seen some great results with is rapamycin actually. Oral rapamycin, it's great. It's really affordable. You can do it a couple times a week. It has 2 really pronounced effects that are, in my opinion, huge in the biotoxin world. So one is—I hate to use the word immune suppressant, but in high doses, we know it's kind of an immune suppressant.

Dr. Kent Holtorf (01:35:55):

Yeah, that's why I've been a little reluctant to do it.

Dr. Cory Tichauer (01:35:58):

So, if you start off with low doses, low like one milligram twice a week, or even once a week, it inhibits antigen induced proliferation of—[inaudible].

Dr. Kent Holtorf (01:36:07):

It matters what part of the immune systerm, if you say immune system, that's like—it could be any part of it, right?

Dr. Cory Tichauer (01:36:13):

That's what I'm saying. It's not a global suppressant. So, as we talked about, like so much of the problem with say chronic Lyme is that your immune system is just constantly responding to the presence of a latent organism, even if it's not harming you, or antigenic debris in some cases. Sure, maybe you need to get rid of that infection, but the fact of rapamycin—its ability to prevent that T-cell proliferation and then B-cell based antibody production. It can—so in conditions where biotoxin exposure is due to the presence of a latent infection, it can break the cycle of immune activation with my theory being that it's possible for the body to reset immunogenic sensitivity and gain immune tolerance in the future.

Dr. Kent Holtorf (01:37:06):

True, yeah.

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Dr. Cory Tichauer (01:37:06):

And then the second thing—

Dr. Kent Holtorf (01:37:07):

Just like how something sets it off, you can unset it.

Dr. Cory Tichauer (01:37:10):

You can unset it. You can restore T-reg cells and you do that with some of these other things like we talked about, like VIP, Melanotan, or KPV that work on T-reg cells. You get the best of both worlds. But rapamycin also reduces mTOR and we talk—we started this whole lecture about the cell danger response and senescence, cellular senescence and rapamycin inhibits cellular senescence. It reduces mTOR, so it increases autophagy, so you'll see mitochondrial recycling, you'll see dysfunctional mitochondria improving—[inaudible].

Dr. Kent Holtorf (01:37:52):

Just quick, autophagy is kind of—the body, as it gets older, the cells get senescent, they don't work. They almost don't have enough energy. They're supposed to be programmed to die when they don't work and if you don't have autophagy, which is getting rid of these old cells, they're pumping out all these toxins and inflammation. So getting rid of the bad cells is important as well.

Dr. Cory Tichauer (01:38:18):

Yeah. So, rapamycin upregulates NRF2, right? And downregulates mTOR and reduces immune-mediated constant T-cell proliferation. I'm—you know, ask me in six months, I'll have a lot more data to tell you about, but right now I'm seeing some really cool results and we're combining it with stuff like low dose immune therapy to improve that immune tolerance and work with the IL-10. We're using things like homeopathic IL-10 to sort of stimulate all this—[inaudible].

Dr. Kent Holtorf (01:38:49):

You know, I like that stuff. I'm not a homeopathic guy, but I've been—I bought a bunch of those things. GUMA, I think it was.

Dr. Cory Tichauer (01:39:04):

GUMA, yeah, GUMA.

Dr. Kent Holtorf (01:39:04):

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I think they work, you know?

Dr. Cory Tichauer (01:39:06):

They're German, they have to.

Dr. Kent Holtorf (01:39:11):

[Laughing] Yeah, and then there was—well, what was the famous study? So it was rapamycin, Metformin, and was it CoQ10? In longevity? I think, yeah. Yeah.

Dr. Cory Tichauer (01:39:25):

Yeah, so there's mitochondrial ones. Then we kind of touched on this, the last step is all the brain stuff, so Cerebrolysin. Aniracetam I use for movement disorders, Parkinsonian syndromes. Cerebrolysin I'm hoping—I hear that you're going to be able to source this stuff soon.

Dr. Kent Holtorf (01:39:45):

No, we have it, we just—we're doing so much other stuff, but it should be out. So, you can't get it as a shot anymore, it's just not allowed, but it—all the studies show it works orally because of small molecular weight peptides. They have EEG studies, they have human studies on it. So, we'll actually have that. Then we're doing a lot of combining with other bioregulators, we're kind of moving in that direction. So, yeah. I mean, it helps and usually like— I don't—I'm so dumb. I mean, sleep is so key and I'll be up all night. I just—all of a sudden I'll start doing research and then all of a sudden it's light out, you know? "Oh shoot, I gotta be in the clinic in an hour." I do a Cerebrolysin shot, I do the oral, I do the mitochondrial boosters. I'll do MOTSc. I'll do the MMQ and I feel okay!

Dr. Cory Tichauer (01:40:55):

[Laughing]

Dr. Kent Holtorf (01:40:55):

But it's probably not the best way to go. [Laughing] You know? it's like—yeah, the 5-amino-1MQ. I was a little worried about Dihexa because they've had a growth factor as some—it's great for brain basically rejuvenation, like with—and stuff. But there were some negative effects of hepatic growth factor—it's a double-edged sword, but I know it doesn't seem to have that effect, but so we may use more of that. But, yeah, I think mitochondria just another whole area that—and there's—Big Pharma is pumping so much money into it because it works.

Dr. Cory Tichauer (01:41:35):

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It does, yeah. Well, and that's like— I think, what is it? FGL loop peptide? I think they're doing a ton of studies on that right now, as far as its ability to treat traumatic brain injuries and stroke. If I remember it, they got 50 or 60 million dollars as a grant for that in 2016, or somewhere in that zone, that they're looking at. I don't know what the outcomes of those—[inaudible].

Dr. Kent Holtorf (01:42:04):

Yeah. I mean, you look at TB4, TB4-FRAG, BPC for traumatic brain injury, I mean—just like football players should be on it.

Dr. Cory Tichauer (01:42:17):

Yeah.

Dr. Kent Holtorf (01:42:17):

I remember I was at, it was a STEM cell conference and it was someone from the NIH and they did a study on football players and they could tell what position they played by where the brain damage was.

Dr. Cory Tichauer (01:42:30):

Oh, wow. That's interesting. Crazy. Don't lead with your head, I think is the motto of that story.

Dr. Kent Holtorf (01:42:36):

Yeah, but you can reverse it! I know a lot of doctors that treat these athletes and things, and even ones that are playing, they're like, "Hey, they're not all there." You know?

Dr. Cory Tichauer (01:42:47):

Well—

Dr. Kent Holtorf (01:42:47):

They can't [inaudible]. Yeah.

Dr. Cory Tichauer (01:42:52):

Yeah, and I'll tell you, in a lot of these really neurodegenerative cases—like we'll run encephalopathy panel or we run what's called the Neural Zoomer Plus. They're labs that are looking for auto antibodies to neuronal structures. So that's when we really start getting into these types of things and the Cerebrolysin, I mean, it's great because we know it has an effect

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similar to brain derived neurotrophic factor. It's great, but I usually combine most of these with hyperbaric, okay? I mean, we tend to get people in the chamber, increase oxygenation to the central nervous system, use it with these peptides and it's just a phenomenal synergy actually, for so many of these people.

Dr. Kent Holtorf (01:43:38):

Do you have a chamber?

Dr. Cory Tichauer (01:43:41):

We have a chamber, yeah.

Dr. Kent Holtorf (01:43:42):

Oh, you do. That's awesome. Because—I mean, it's not cheap. It's a time commitment. I remember when I had Lyme, I would—I went and then I told the guy, the tech, I said, "Just crank it up." He was like, "No, I can't do that." I'm like, "Crank it up!"

Dr. Cory Tichauer (01:43:57):

[Laughing]

Dr. Kent Holtorf (01:43:57):

Then the guy leaves and all of a sudden I start having a panic attack. It was so—"Help!" But [inaudible], yeah. You gotta do a number of treatments but it's—yeah. Again, all these things are very synergistic, you know?

Dr. Cory Tichauer (01:44:18):

Yeah, I agree. If you're at—my last 2 peptides that I'd have to speak on right now, Selank, nasal Selank. Selank and C-max, they're both MSH-like, ACTH-like peptides. We know they improve attention, learning, memory, while reducing inflammation. So, you see a lot of anxiety and panic, you kind of reminded me of that with your story. [Laughing] Just nasal Selank, it's inexpensive, it works great. I know effects are comparable to benzos without all the side effects and the withdrawal. C-max increases circulation to the brain, so when you start looking at—

Dr. Kent Holtorf (01:45:00):

And they have all these other effects, like Selank also is great for like basically immune modulating. Hey, for COVID, take Selank to prevent. You know?

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Dr. Cory Tichauer (01:45:09):

Right.

Dr. Kent Holtorf (01:45:09):

I noticed too, as I found that when I was stressed at work, I'm looking for my Selank, you know? It helps that tolerance to stress. But yeah, and I have the worst memory of anyone I've ever met actually and people will test to that. I can remember medical stuff, but I can't remember anything else. So I'm just like pumping all the neurotropic stuff. So I do like this stuff, I think all combined. I'm scared of taking an Alzheimer's test, I might fail, but—

Dr. Cory Tichauer (01:45:46):

[Laughing]

Dr. Kent Holtorf (01:45:46):

But I would have failed it in high school, I couldn't memorize anything. So, I mean, I think I'm even better now, I can do that, but it's still—because I think I've had Lyme all my life, you know? In utero, I was born at six months. I was supposed to die or be retarded, had one blown pupil all my life and stuff like that. So I think these things like—and also, I just think like all these people with Alzheimer's and Parkinson's, and it kills me because I know we can help them.

Dr. Cory Tichauer (01:46:26):

Yeah.

Dr. Kent Holtorf (01:46:26):

But they go, "Oh, my doctor says that they're doing everything." You know? Or they're coming [inaudible] and go, "Oh, my husband has this..." You tell them this. They go, "Well, the doctor says no that won't work." Well, why are you asking me? But I just—it breaks my heart because I know we can make dramatic changes in these people.

Dr. Cory Tichauer (01:46:45):

We can. I mean, you see in Parkinson's, I will say alone, solvents are a huge deal. We see a lot of herbicide pesticides. Just detox and getting—I mean, you ask, "Why just glutathione—?" Just independent studies on glutathione, give someone 4,000 milligrams of IV glutathione, watch their tremors improve right in front of your eyes and, why? Well, glutathione is probably getting rid of some of the cause that's driving this—[inaudible].

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Dr. Kent Holtorf (01:47:15):

Then you look at the studies by McDonald where he basically was head of the Harvard Brainbank, did biopsies and found all the Alzheimer's patients had Lyme.

Dr. Cory Tichauer (01:47:26):

Yeah.

Dr. Kent Holtorf (01:47:27):

And he wasn't allowed to publish it because it would cause too much fear. Like, hello? It's nuts. Also they're finding Epstein-Barr that probably comes up from the nose and travels up the olfactory, and they're thinking that the plaques are actually antimicrobial and are actually a defense against the infection but then [inaudible].

Dr. Cory Tichauer (01:47:53):

Yeah, yeah, I agree. It's creating like a sequestrations of those infections or those toxins. I totally agree. You know what's really interesting that we started noticing in some of these Lyme cases or solvents cases with Parkinson symptoms? Is they were atypical. Sometimes you would put someone on Levocarbidopa and they actually get worse. Then what I—and I worked with Moleculera with this for a little while, is we would start to see anti-D2 receptor antibodies. So it wasn't that they weren't producing enough dopamine, it's that they lack the receptors for dopamine to bind to because their immune systems are attacking the receptor sites. My plan is still to write to Michael J. Fox Foundation and ask for IVIg trial on these patients.

Dr. Kent Holtorf (01:48:47):

Ah, we called them too! I'm like—and I called Stephen Hawking, and Michael J. Fox who said, "He needs to be checked for Lyme." We said, "He had Lyme and it was treated."

Dr. Cory Tichauer (01:49:00):

[Laughing].

Dr. Kent Holtorf (01:49:00):

Two weeks of doxy.

Dr. Cory Tichauer (01:49:01):

Right! Yeah.

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Dr. Kent Holtorf (01:49:03):

And they said, "Stephen Hawking likes being the way—" I think, has he died now? But—that it made him more special or something like that. He wasn't interested.

Dr. Cory Tichauer (01:49:15):

[Laughing]

Dr. Kent Holtorf (01:49:15):

I swear! We could totally help them. I mean, you've probably had ALS patients that they've come in in wheelchairs, they're jogging. You send them back to their neurologist and the neurologist goes, "Oh. Well, yeah, occasionally you get just reversal for—we don't know why." Like, so you want to call it a miracle? Like, you know? Or misdiagnosis they'll say, but there were 3 of you that made the diagnosis. But it's interesting and I see this so much is that—say someone has ALS and you tell them, "Here are some treatments." And they're like, "No, I don't want to. My doctor says I got the treatment." I'm like, "How's that working for you?" You know? But anyway, it's human nature. I've learned not to tell people like—some person was telling about how wonderful her surgeon was who took out her uterus and I said, "Well, he could've prevented it by giving you progesterone five years earlier." Oh my God, she's gonna kill me! [Laughing] But yeah, so there's some psyche in there too. But we could go on forever, I don't even know how long we've gone on!

Dr. Cory Tichauer (01:50:26):

Yeah. I don't know either, but yeah. I don't know, I guess the moral of the story is I have a lot of favorites and I individualize for each person, but you know, I start with that—

Dr. Kent Holtorf (01:50:38):

That's the way you do it, but that's not standard medicine! It's algorithmic, it's—there is going to be a point where there's going to be, like in the ERs, there's going to be—you plug everything into the computer. There's going to be artificial intelligence and there's going to be one guy in Nebraska, "Dr. go on, okay, approve that." You know?

Dr. Cory Tichauer (01:50:59):

Yeah.

Dr. Kent Holtorf (01:50:59):

So, we'll see, but people don't fit in the box, man.

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Dr. Cory Tichauer (01:51:05):

It's—you know, the way I say it is the art of medicine has changed from the art of treating people and understanding what's going on to the art of diagnosing and naming things, right? Can you name what someone has? It's MS.

Dr. Kent Holtorf (01:51:18):

Yeah, put them in a box. You probably had this too, is that we have people crying on the first visit just because we believe them.

Dr. Cory Tichauer (01:51:27):

Yes, yeah.

Dr. Kent Holtorf (01:51:27):

I'm like, "Of course, I believe you and I'll show you on blood work." And they'll say, "Oh, everything's normal." Well, if you don't check anything, you check cholesterol, a CBC, and a chem panel of course you're not gonna find anything. Or people will call and go, "Well, what if you don't find anything?" I say, "It has never happened."

Dr. Cory Tichauer (01:51:45):

[Laughing].

Dr. Kent Holtorf (01:51:45):

If you have symptoms, we will find something, you know? So it's nuts. So I think we have parallel lives here. But it's challenging, it's tough, it's rewarding. I think doctors—why should a standard doctor—I don't wanna bash on standard doctors—but what incentive do they have to go learn new stuff? They can't do it.

Dr. Cory Tichauer (01:52:13):

No.

Dr. Kent Holtorf (01:52:13):

They aren't allowed.

Dr. Cory Tichauer (01:52:15):

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Not allowed.

Dr. Kent Holtorf (01:52:15):

Aren't even allowed to run labs. They lose money if—like Kaiser will take the lowest 20% or the ones that do the most tests, that make the most diagnoses, and say, "Well, they're not cost efficient." So they get rid of those. So they just keep getting the doctors that do nothing, you know? But is it their fault? Like I do blame them a little bit, but it's also the system, you know?

Dr. Cory Tichauer (01:52:44):

I agree Kent. Yeah. I know. It's a mystery, it's a puzzle unsolved. I think it's a good thing there are many good functional doctors out there like yourself who are educating others and putting together PowerPoints on topics like peptides. Because, as I said, I don't know how I would've ever learned about this if you hadn't like been so cutting edge and put this out there for me to think about. And these light bulb moments, you know? All of these things happen from some other person who's thought about it and done it in some way.

Dr. Kent Holtorf (01:53:18):

I swore that—it's a horrible illness. You cannot describe to someone how bad you feel when you have Lyme. You know? And people don't believe it! "You look fine. Oh, just exercise." You know? So I remember saying, "Just get me well, take all my money. I don't care." That's gonna happen—but I got divorced. [Laughing] So, yeah.

Dr. Cory Tichauer (01:53:43):

Didn't have any money anyway! [Laughing]

Dr. Kent Holtorf (01:53:43):

Yeah, yeah. It put things in perspective, you know? It's like, when you don't have your health and you can't get out of bed, like it doesn't matter what you have. So you're doing some amazing work and just hear great stories about you and love talking to you and learning new things and bouncing stuff off you. So, how do people—if they want to find you, where did they find you?

Dr. Cory Tichauer (01:54:10):

Okay, yeah. So you can go to the website, which is bearcreekclinic.com. You're always welcome to call the clinic. We have a phone number on there. You can email, there's links right on there to email us. We have a Facebook page, of course, you're welcome to go on there. We can always link you to someone. There's 3 other clinicians in our clinic right now who are all really incredible doctors as well. Dan Smith, Tom Messinger, and Margaret Philhower are all just people that I

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would trust my own health to in scenarios that were—you know? So we've got a really good physician group. We do rounds, we talk, we do case reviews. We've got a large infusion center. We've got hyperbaric, where you do LDA, LDI, and peptides. I mean, more things than I guess I can probably think of, right? [Laughing]

Dr. Kent Holtorf (01:55:13):

Real quick, with the chambers, is it a heart chamber?

Dr. Cory Tichauer (01:55:15):

We're using a soft 1.3 right now, yeah.

Dr. Kent Holtorf (01:55:19):

With the regulations I was like—yeah, they treat it like a giant bomb, which I guess it could be, you know?

Dr. Cory Tichauer (01:55:23):

Yeah. It's something we've really talked about. Believe me, I have more than one time threatened to open a hyperbaric center in Medford with a couple hundred chambers just to make that a separate sort of facility that ideally we can get other people referring to.

Dr. Kent Holtorf (01:55:42):

Yeah, but then you get into, do you care for it yourself? You get kick back laws, you try to do what's right and you get slapped down. But anyways...

Dr. Cory Tichauer (01:55:52):

Yeah.

Dr. Kent Holtorf (01:55:53):

I hate to be negative, but everything is like nuts, but anyways. Hey, so I think this was awesome. I think this has been a great interview. I don't know how long—I'm scared how long we went. I'm scared to look at the time.

Dr. Cory Tichauer (01:56:07):

Probably a couple hours [inaudible]!

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Dr. Kent Holtorf (01:56:09):

But I coulc keep going! I love talking to you because it's just so much knowledge and God bless, you're doing great things for people. I'm proud to say you're a friend of mine and thank you for taking the time.

Dr. Cory Tichauer (01:56:26):

Yeah, you're welcome. Thanks so much Kent, it's really great seeing you and getting to finally talk to you in this Zoom COVID world. Hopefully we'll get a chance to sit down again in the future.

Dr. Kent Holtorf (01:56:38):

Sounds good. Look forward to it. Yeah, the last dinner was awesome.

Dr. Cory Tichauer (01:56:46):

[Laughing] Memorable, definitely.

Dr. Kent Holtorf (01:56:46):

[Laughing] All right. Take care. Thank you.

Dr. Cory Tichauer (01:56:49):

All right. Thanks Kent.

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