The Metabolic Code, Drug Induced Microbiome Disruption, Aging, and More!

Dr. Kent Holtorf interviewing **Dr. James La Valle, RPh, CCN, MT**

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

Hello, this is Dr. Kent Holtorf with another episode of the peptide summit. Today, we are honored to have Dr. James LaValle to talk about metaflammation and aging. This is just such a key topic. It's a term that you'll hear more and more about, and we've got James here. Thank you. He is a renowned speaker and everyone wants a piece of him, so thank you for letting us have a piece of you. It's much appreciated.

James LaValle (00:00:36):

I'm glad to be here, man. I'm always excited to get to chat with you over the latest and greatest of what's going on with chemistry. So, it's going to be fun.

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

Awesome. Just a little bit about Jim, he is very humble in his bio. People just seek his advice from everywhere, the sports world to the celebrity to all the rich and famous around the world flock to him just to get that little extra edge in whether it be sports or in life. He's been internationally recognized as a clinical pharmacist, author board certified clinical nutritionist, expert and educator, who is so generous with his knowledge. I've seen him speak so many times and just love sucking up all his information. He pretty much knows everything about everything. I think that sums it up. Really, integrative precision health, he's known for his expertise in integrative therapies and metabolic issues I think is his really core passion and really keeping people feeling healthy, vital, everything from that athlete to the couch potato, and how to make them look better and look better longer. He's a thought leader to say the least, drug and nutrient depletion. He's published four books, three databases in this area alone.

Dr. Kent Holtorf (00:02:21):

He has algorithms that he's been working on to help doctors actually treat patients, and make it simple for them. So he takes the super complex and makes it seem like, damn, that's not too bad. With over 35 years of experience in natural and integrative therapies, various medical and

business, he's a consultant to, I think, pretty much everyone I know. His latest research is a drug induced microbiome disruption, but he's got his hands in everything. There's not much he doesn't know a ton about. And so, thank you for being on. I don't know where this is going to go. It's so fun to talk to him because we have so many doctor's like Oh, I gotta prepare for this. He knows this, want to talk about that, want to talk about that, want to talk about that. He will tell you things that, you never know. In fact, just before we were on, I learned like three new words. So, it's awesome. Again, thank you for being on. It's such an honor. So metaflammation in aging. What the heck is metaflammation?

James LaValle (00:03:47):

Yeah, It's interesting, when I wrote the book Cracking the Metabolic Code back in 2002 - course it took me three times writing that book and it was 660 pages to get it right, so it took a while.

Dr. Kent Holtorf (00:03:57):

600 pages.

James LaValle (00:03:57):

Yeah, it was one of my short form books, unfortunately.

Dr. Kent Holtorf (00:04:06):

I'm surprised you finished it, because I can never finish a book because I keep wanting to add to it.

James LaValle (00:04:11):

Yeah, it's interesting, I had trouble with that initially, but I'm on book 22 now. I've got two books coming out this year. One is the new rendition of the metabolic code and then another one's on sports performance and maximizing performance and recovery through looking at biomarkers and through that lens. I've always got this one more thing I need to write about and it's just kept me on that journey. I'm hoping these are the last two books, but I think I got a few more coming. Yeah, metaflammation. So when I wrote the metabolic code, I was looking around, I'd been working on people for about 15 years and I'm going, you know what? Metabolism is way more than how many calories you're burning.

James LaValle (00:04:57):

And so my original premise on metabolic code was your metabolism today, so where are you're sitting today if you're listening, it's really the sum total of everything that's gone on from the time you were gestated to now. So when you think about that, epigenetics, if you think about that aspect of even generationally two or three generations back, your family lineage was giving your

information, your DNA, a way to behave. Maybe even if you weren't exposed to that, maybe your grandparents were exposed to something like lead arsenic and it effected their DNA. We end up playing that out right from the start. And then from that point forward, it's what's my stressors like, what's your diet like? When I was a kid, I was the guy to know, because I would bring a box of Hostess HoHos into school and give them out to everybody. My mom was a Hostess mom, right?

Dr. Kent Holtorf (00:05:59):

You're like, first one's free. It's interesting with that, so [inaudible]showing that, let's say the mom is stressed and not only affects the baby, but her baby's babies, and how the genes are translated.

James LaValle (00:06:17):

That's exactly right.

Dr. Kent Holtorf (00:06:18):

And handle stress as well.

James LaValle (00:06:20):

That lineage is interesting because back in 1756, there was a guy by the name of Samuel Hahnemann. Hahnemman wrote the Organon of Medicine. He was the founder of homeopathy. And when he talked about this genetic transference, he called them miasms, well everybody laughed at Hahnemann. Everybody's laughing at Hahnemman up until about five years ago until all this stuff has come out about this trans generational genetic information that gets passed on. And he really said -

Dr. Kent Holtorf (00:06:54):

[inaudible] for genetics, it's not.

James LaValle (00:06:56):

That's exactly right. It's all malleable and moldable. And you know what? It's our responsibility to talk about this with folks so they start to clean their act up so two and three generations down, maybe our offspring have a chance, right? When you look at that, then you look at, well, what was my diet? For me as a child, I thought I thought the pink stuff, the bubble gum flavored Amoxicillin, that was a part of my meal plan. I'd had that like part of my meal plan. And then the biggest treat was when I got my Dimetapp, the grape flavored Dimetapp at the end of the night because I couldn't breathe through my nose. Because for me, I was very allergic to dairy. I had multiple rounds of antibiotics.

James LaValle (00:07:39):

My gut microbiome got messed up and so a pretty sickly kid. When you start to look at what is your metabolism, so your metabolism is all of the biochemical reactions in your body that are going on right now. It's that sum total of what I call whole body metabolism. It's either driving you to homeostasis, meaning I'm somewhat suspending aging or I'm triggering metaflammation. What is metaflammation? Metaflammation is metabolic inflammation. So your body starts to make more disruptive chemistry. You stop making the signal substances that allow for your body to repair. And instead you're in this low grade inflammatory fight that leads to another term that's in the literature, inflammaging, inflammatory aging. Great example, unfortunately, with the pandemic people that had diabetes, people that were overweight, people that had heart disease, people that already had preexisting inflammatory signaling in their body were more prone to this infection. Well, guess what, that's been happening.

James LaValle (00:08:54):

And here's the thing. If somebody has an accident and they're a diabetic or they're overweight when they hit that emergency room, many more times, they have adverse events going on because they've got that inflammatory chemistry happening. So it's not just a matter of it's a bug, it's any stressful event, because when you have metabolic inflammation on board, your metabolic reserve to be resilient and your metabolic reserve to have durability in terms of the way you're living, all of that starts to dwindle. And so when you think of metaflammation what I really hope people understand it's kind of the position that your body is in and what you're going through and how your future is going to be molded because of that. So am I going to end up with autoimmune disorder or plaque in my arteries?

James LaValle (00:09:51):

Am I going to have dementia? Am I going to have kidney failure? What's going to be the process, or am I going to move towards a better lifespan where there's health in it? And I think that's one of the things. I know we're talking about the peptide summit. So for me, I think peptides are important from the standpoint of, Hey, it's another signaling compound. It helps us get us there. But it's important to understand that once you're metabolically inflamed, here's what starts to happen. You get disorders in iron metabolism. So you start to see a loss of being able to store ferritin. And I know you're the thyroid man. And I have no doubt I'll never know half as much about thyroid metabolism as you do, but we know that you need ferritin to make thyroid hormones function. And you don't store ferritin in your bone marrow, in your reticular and affiliates system. You don't make EPO.

Dr. Kent Holtorf (00:10:50):

Yeah. You get a thyroid resistance. Yeah,

James LaValle (00:10:53):

Exactly. So that's step one. So that means people start to feel palpitations. They feel fatigued, they get lethargic. they don't oxygenate their tissue as well. And you and I both know when you're not oxygenating your cells well, you're creating oxidative damage in that cell, which is going to lead to different kind of stuff.

Dr. Kent Holtorf (00:11:13):

Which seems opposite. No oxygen, no oxidative damage. But the dysfunctional mitochondria, when they're not making energy, they're pumping out reactive oxygen species, all this oxidation.

James LaValle (00:11:29):

Well, and the by-product of that is as soon as I become less efficient at that Ox-phos relationship, that oxidative phosphorylation relationship, my cell is forced into a different way of doing things. I can't carry glucose into my cell anymore. And that means I can't make 38 packets of ATP every time I carry that glucose in. Now I turn into what's called the Warburg effect. I actually wrote a chapter in a book called diabetes and cancer, epidemiologic links and molecular evidence. Perfect for nighttime reading, it'll put you right out, you read one paragraph and you're gone. But the point is that as you get metabolically inflamed you become less efficient at energy production. You make more light lactate, you make more pyruvate. You only make two packets of energy. So do you want to make 38 packets or do you want to make two packets? And when you're only making those two packets, your cells getting toxic and making more oxidative stress and free radicals.

Dr. Kent Holtorf (00:12:32):

Why is that different than doing sprints and getting anaerobic exercise?

James LaValle (00:12:39):

Because in the end you're getting reprofusion and getting oxygen efficiency after you do that sprint. The problem you get into is when your body's operating that way all the time. So as you increase that lactate in the cell, you trigger something called hypoxia inducible factor. And that tells your DNA that, Hey, you could be immortal. So it starts to change the way your cell behaves. And now all of a sudden we have what's known as the Warburg effect, but that's pretty far down the line. I mean, the early things that start to happen after the iron stores are going bad and you're not oxygenating well -

Dr. Kent Holtorf (00:13:22):

All the sick Lyme patients have no iron.

James LaValle (00:13:26):

Exactly. That's because they're metabolically inflamed. And a lot of people don't relate to that because they go, what do you mean, what are you talking about? I got an infection, what's that got to do with my iron,

Dr. Kent Holtorf (00:13:37):

Because they also think acutely, ferritins acute phase reactants should go up. Right. It may at one point but then it goes down. I think it plays to the point where your body's made like, inflammation, you get an infection. Inflammation is not bad, but it needs to go back to baseline. But when it's constantly up, it's a whole different story.

James LaValle (00:13:58):

That's exactly it. You're supposed to reset that inflammatory defense, right? And once it stays up that's where the iron metabolism comes in. And then dyslipidemia. I get tired of people saying to me lipids don't matter. Sorry, if -

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

It's a statin deficiency.

James LaValle (00:14:17):

Of course It's a statin deficiency. Isn't it in our water? Yeah, it is. But that's beside the point. The reality is when you look at a lipid profile if you're looking at oxidized LDL, and apolipoprotein B and lipoprotein little a, you're looking at all these fractions of lipids that are bad actor lipids that are damaging your tissues. That's because of metabolic inflammation that's taking place.

Dr. Kent Holtorf (00:14:42):

And they want to treat this, where they need to be treating upstream

James LaValle (00:14:48):

Way upstream. Absolutely. It's interesting, it's different for different populations. So for example, if you look at lipoprotein little a, if you're not diabetic, having a high lipoprotein little a is really bad. If you're diabetic, the lower your LPA, the more you're at risk. That just came out.

Dr. Kent Holtorf (00:15:13):

Really?

James LaValle (00:15:13):

Yes, really. In an excess of 12,000 diabetics that were followed the lower the LPA, the more their cardiovascular damage occurred. But it's just what you said as you're ramping up and creating these high numbers in some of these particles that are bad, it's creating damage, creating damage, creating damage. And then all of a sudden, the ceiling falls. And now all of a sudden that number is different for a different population.

Dr. Kent Holtorf (00:15:44):

And it's kind of like with our Lyme patients, their hypercoaguable, their excess clotting and their SED rates are super low, CRPs low. Oh, you're so healthy. Yeah. Uh, no.

James LaValle (00:15:59):

Yeah, not quite. It's like that thing you hear about all the time, at least I learned in pharmacy school, was it a biphasic response? Right. A little bit of something is good. A lot of something's bad. And if you do a lot of something for long enough, it creates a little bit of something again, right. That's the biphasic response laws in pharmacology. And so you start to look at okay, my oxygen is disturbed. My lipids become more damaged. My insulin receptors now progressed to that insulin receptor resistance, where now I'm more sympathetic dominant, right? Because when you're pumping out insulin here comes the adrenaline and noradrenaline man, I'm pumping that out. And now my blood vessels are getting really tighten and not distensible. And then in addition to that, you start to let your nervous system ride into this point of releasing a lot of corticotropin-releasing hormone into the periphery.

Dr. Kent Holtorf (00:16:58):

Ah, mast cell

James LaValle (00:17:00):

So the mast cells, the [inaudible], you get the leaky gut phenomenon from it, all of that starts to cycle in because I've now created this metabolic inflammation. And that was due to, maybe you were in an accident, it's psychogenic stress, it's diet, it's drug therapies, there's drug therapies that do a great job of doing this. Right. I mean, we know that, it could be a vector, could be a biotoxin, it can be mold. It could be Lyme. It could be any infection.

Dr. Kent Holtorf (00:17:31):

Stress. I think it's so much harder nowadays. I mean, everyone I know, if you're at a cocktail party or something. They come to you probably all the time. I mean, they're sick or their brother, cousin, friend, everyone's fricking sick. And they go, I went to my doctor, they said I'm fine, but I can't get out of bed. I mean, I don't think we saw this stuff 20 years ago.

James LaValle (00:18:01):

I'll tell you what it's pretty amazing. As I look at this, I was very blessed to literally be doing this work starting in 1985. And when I saw everything going on then versus what I see today, it's a lot more work to get somebody well, way more work than what it was when I started out. And I was lucky. I had incredible mentors and their practices, they were seeing 600 patients a week doing personalized medicine. I mean, they were cranking five rooms at a time and it was like drinking from a fire hose. But what it taught me was you've got to look at this metabolism because the other thing is it progresses. So as your oxygenation is poor, you're damaging your enterocytes, right? The lining of the intestine, you're damaging the endothelium, that one cell lining in the arteries, and you're damaging the blood brain barrier, which is one cell layer thick. Now all of a sudden we start to see neuroinflammatory responses, right? We turn on the glio cells in the brain.

Dr. Kent Holtorf (00:19:05):

Yeah. Brain on fire, man.

James LaValle (00:19:07):

Brain's on fire. And now all of a sudden I start to change my plasticity. I get an aberrant neuronal signaling. I'm not making neurotransmitters anymore. I'm making phenolic compounds like beta carbaleen and [inadubile] instead of making dopamine and serotonin, and now it starts to create mood disorders. And then the last piece to this, which is exactly what you talked about before we even got on and were recording that's when you start to get into the mitochondrial failure and the loss of mitochondrial biogenesis and the ability to create mitochondrial resuscitation and that's metaflammation. Metaflammation is what causes us to age. It's our metabolic clock and the reality is we've got to get all the tools out and we've got to create as much of force against that as we can, especially the sicker someone is so that we can start to reprogram our, literally, our cellular signaling to say, Oh, it's okay.

James LaValle (00:20:13):

We're back to normal, our allostatic load, which is kind of what happens, right? When you get under stress long enough, no matter what kind of stress, physical, whether it's a premiere athlete, an executive or a working mom, whoever you get under enough stress and you go from proper signaling of your brain to all the hormonal and catecholamine networks and neurochemical networks we need to what's called allostatic load, where it changes the way your brain

fundamentally communicates with the rest of your body. I spend as much time working on that gut -brain connection so that I can make sure I'm getting that more harmonious signal to the adrenals, the thyroid, to the kidneys. We need that harmonious signaling. And I think that's what we're really raging against when we're talking about metaflammation and inflammatory signaling known as inflamaging.

Dr. Kent Holtorf (00:21:16):

What percent of mood disorders do you think have metaflammation?

James LaValle (00:21:22):

Oh my gosh. 90.

Dr. Kent Holtorf (00:21:25):

Yeah. You're like me, don't want to ever say a hundred percent because someone's going to come with one case or whatever.

James LaValle (00:21:30):

Yeah, there was this one person.

Dr. Kent Holtorf (00:21:31):

Yeah. And then also it inflames the hypothalamus, which then causes insulin resistance and leptin resistance and a little thyroid and low hormones, low growth hormone. But the tests we have show those are normal, Or you check the person's estrogen level. Normal is zero to something, what? It's crazy. And I don't know, for some reason you were talking and I'm thinking like, are we devolving? We have all this information, but what is standard medicine doing?

James LaValle (00:22:14):

Yeah. You mentioned statins and look, whatever you think about statins, I'm not here to like bash or embellish the statin because there's people that aren't going to take care of themselves and a statin probably helps them more than hurts them. If they're not going to take care of themselves in any other way, shape or form. Because it's an anti-inflammatory, it reduces damaging lipid compounds in the body. So from that standpoint, statins aren't really known - if you talk to a doctor they go well statins, who cares about the cholesterol? It's decreasing all the inflammatory signaling that affects the vessel.

Dr. Kent Holtorf (00:22:53):

Yeah, but it also affects mitochondrial function.

James LaValle (00:22:56):

I'm not saying it's good. There's always a risk with the reward when it comes toto a drug. There's always a trade off because the thing about a statin and I remember when I first broke the story on statins and cocuten, I wrote an article and I think it was Drug Topics or Drugstore News.

Dr. Kent Holtorf (00:23:16):

Really, you're the one who said, Hey, by the way.

James LaValle (00:23:18):

Well, yeah, I was one of the ones, we really wrote the handbook on drug induced nutrient depletion.

Dr. Kent Holtorf (00:23:24):

I'm surprised you're still alive.

James LaValle (00:23:27):

I'm Italian.

Dr. Kent Holtorf (00:23:29):

You knew someone to protect you.

James LaValle (00:23:31):

So it was interesting because when I wrote this, there was a rebuttal that got published and it was by a Pfizer chemist who was like, there's no evidence of this. This is irresponsible for you to print this, and then it was funny because my response was, because I got to rebut the rebuttal, I listed a patent number. And the patent number was the patent that Pfizer held for Cocuten and Lovastatin combined. And I was like, well, gee, I'm just going off of your science in patents. And then I didn't get another letter. Beause I got a warning letter from them, if you're going to continue to talk this way... Oh, it was funny. It was like, I got lit up and I just went -

Dr. Kent Holtorf (00:24:18):

I used your own data to show and I I'm getting threatened. That's the way of big pharma.

James LaValle (00:24:26):

From my end, when I was talking about drug-induced nutrient depletions, everybody thought I had two heads. Everybody like, what are you talking about?

Dr. Kent Holtorf (00:24:33):

These are miracle drugs. They're all miracle drugs.

James LaValle (00:24:35):

Yeah. It's all beautiful. But yet at the same time, there's these black box warnings. For example, if you take a proton pump inhibitor, there's a black box warning that it depletes magnesium.

Dr. Kent Holtorf (00:24:46):

Ah, whatever, who cares

James LaValle (00:24:47):

Only in one person. But I think that's why when I try to talk to folks about their global health, you've got to take into account, not just the drugs you're on today, but were you on, say for example if you're a woman, were you on oral contraceptives for 15 years? Changes your microbiome, changes your mitochondrial energetics. Ask how many women if they've taken an oral contraceptive if they lost any weight on it.

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

Oh yeah. They say it's weight neutral. Yeah. Right.

James LaValle (00:25:18):

Yeah. You talk to somebody in the real world to go, yeah, how's weight neutral. 15 pounds plus.

Dr. Kent Holtorf (00:25:23):

Yeah. One of our staff members was this skinny Asian medical assistant and she got a Depo-Provera shot and I swore I could see her growing as I was watching her. And it's the whole thing. Calories in calories out. No,

James LaValle (00:25:45):

Yeah. That's a crazy one because we did this whole program with Lifetime Fitness on about 240,000 lives actually, where we taught them that weight loss was more than calories in calories out. And what we did, we did a survey and a lab test. So the survey was answer these questions. Are you stressed out, answer these questions is your thyroid off? Answer these questions is your gut off, Where are you metabolically broke. Let's give you a nutrient to neutralize that. No, by the way, let's look at your labs and see, like your blood sugar is 95. The doctor pat you on the back, well you're at 60% risk of being diabetic at a blood sugar of 95. You get 6% risk for every point over 84. Right? So people were walking around with these and we're not putting them on diets that are appropriate for that 95. So we did that with Lifetime Fitness

Dr. Kent Holtorf (00:26:36):

Or their blood sugar is fine but their insulin is sky high.

James LaValle (00:26:39):

I had that today.

Dr. Kent Holtorf (00:26:40):

and they give them insulin, or something to boost insulin.

James LaValle (00:26:44):

Yeah. So it's really interesting that when you talk about global metabolic dysfunction, I don't think people are quite there yet. I mean, one of the reasons we developed the metabolic code platform was to take lab values that all doctors are familiar with insulin, cystatin, LDL particle number, oxidized LDL, homocysteine, all the inflammatory markers, maybe a little dioxin guanosine, stretch them a little bit, get them a little out there with maybe beta two, microglobulin those kinds of things, but things that you could get at any major lab and say, here's what showing for your metabolic processes, if you're the patient and here's what you can do about it. And , one of the things over the last five years is understanding that people are really broken. Sometimes you're pushing upstream so hard to get them back to neutral.

James LaValle (00:27:45):

It's kind of why I thought that I liked peptides because to me peptides helped people to regain the normalcy of homeostasis in signaling in their body. So they could take that inflammatory process that's supposed to get downgraded and back to normal, much like Navio's concept of the cell danger response signaling concept and turn that off so that they can repair again. And I think that's what I thought was so novel and intriguing and look, I mean, it's not like peptides is a dirty word. There's 150 peptides, I think, in the pharma pipeline.

Dr. Kent Holtorf (00:28:25):

Yeah. About a third of the meds and it's like a cast, or it's even like thyroid, when people say, well, it's not really a thyroid problem. They're right. It's a metabolic problem, but the body's not getting thyroid. and they say, well fix the problem. Well, I can't fix a problem without thyroid. I say it's like a cast, and when you're better, you can go off of it. Even though they feel good, but it's really the whole dogma of, Oh, don't do this. You can't because it's not due to that. Well, okay. But it's still a problem. Your thyroid is actually fine. That's not the problem. It's the cells. It's like insulin resistance, thyroid resistance.

James LaValle (00:29:21):

Well, I've always said, like, when I wrote the metabolic code I took a big chance. And I think it was a little bit before its time. I talked about receptors in the first place

Dr. Kent Holtorf (00:29:31):

You gotta watch out about before your time. It's timing. Yeah.

James LaValle (00:29:34):

Yeah, exactly. I've learned. Now I do my books in crayon. It works way better.

Dr. Kent Holtorf (00:29:41):

If we're doctors, you gotta like write slow,

James LaValle (00:29:45):

But it's not about the hormones you're giving, it's about the receptors ability to hear the hormone that you're giving. And if you cannot get that receptor to wake up, and a lot of times the mistake people do, especially in the hormone area, where they hammer people with a lot of testosterone, they create tachyphylaxis, they just freeze that receptor

Dr. Kent Holtorf (00:30:08):

They down-regulate it. Although it's like, elderly people like yourself, no, I'm kidding

James LaValle (00:30:16):

No, call me grandpa or no, just pop pop

James LaValle (00:30:19):

You look younger than me. It pisses me off. So they have testosterone resistance but they allow the level to be lower than a woman. And they say, that's fine. The guy has erectile dysfunction. He can't get off the couch. He has grumpy old man syndrome. But there testosterone may be 700, like great. But they have all the symptoms. So I'm like, okay, let's give it a therapeutic trial, give it a shot. And they're like, Oh my God, my life has changed. But it's horrible medicine, according to a lot of people.

James LaValle (00:30:58):

Yeah. And I think it's interesting because it goes both ways, right? Because I'll get a 40 year old who thinks they need a ton of testosterone and really what it is. They're stressed out. Their free cortisol has shut down their gonadatropin releasing hormone. And so they're not making enough because it's their HPA axis. And that's where things, I think, are interesting. Like kisspeptin, for example, really great at helping to reinvigorate that ability to say, Hey, yeah, that's right. I'm supposed to make testosterone. Right.

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

Can you just mention what kisspeptin does?

James LaValle (00:31:33):

Yeah. So kisspeptin is a peptide. And basically it's a gonadatropin releasing hormone support. It literally triggers you to start making your hormones again. And I think that it's really important because that's what I think is what's really happening when people get metabolically inflamed is you're shutting down things like growth hormone releasing hormone, you're shutting down gonadotropin-releasing hormone, when you get under metabolic stress and insulin resistance, you shut down your thymus' ability to make mature thymus T killer cells.

Dr. Kent Holtorf (00:32:08):

And then that's a vicious cycle.

James LaValle (00:32:11):

That's exactly right. And so I really think that in the end, as we start to work with people, it's about that re-invigoration process that you have to do and you have to take into account, Where's their gut at, where's their brain at, what's going on with the relationship between these organ systems. And hormones, they're just important, man. If you want to age quick, make a lot of stress hormones and a lot of insulin that'll age you really quick.

Dr. Kent Holtorf (00:32:40):

It's true. You've seen it. I mean, I have kids coming in 22, 25, 28, their testosterone level is like a 90 year old.

James LaValle (00:32:51):

I see it all the time. It's really sad.

Dr. Kent Holtorf (00:32:54):

I hesitate, I don't want to give them testosterone like you were saying, I want to fix the other stuff. It'd be easy to just give them a big slug of testosterone, but I don't think that's really the long-term solution.

James LaValle (00:33:05):

I couldn't agree with you more. I see it so often. So when I brought my son out here, we moved out here about 10 years ago and out here, man, if you're playing baseball and football, it's serious. I mean, you're, playing baseball year round, football's tough, and I would know parents who would have their kids going to a baseball practice, then a football practice, then to their coach because they thought that a child was just a little version of an adult. And that's not the case. You can't stress a child with that much workload and not expect to see some changes. And they wondered why they weren't growing.

James LaValle (00:33:53):

And so I would literally have to get them to understand that, look, I know you feel that little Johnny or Susie is going to make the Olympics or be a professional athlete, but you know what, they're only 10, maybe they don't need to -

Dr. Kent Holtorf (00:34:08):

And the pressure.

James LaValle (00:34:08):

Add that, add the stress to it too, right. And so what I see a lot are my 22 year old professional athletes, the ones that manage the way they train and don't overdo it and they've got great strength coaches that are working them, their testosterone tends to be pretty good still, and the ones that are just over-trained, their testosterones are low

Dr. Kent Holtorf (00:34:31):

Over training's a huge problem.

James LaValle (00:34:34):

It's a huge problem. And people that aren't even athletes, right? I mean, everyone, this is my pet peeve, honestly, because I have a lot of people that they go to a trainer and they want to do the workout that a pro athlete does. And my first answer to them is well are you a pro athlete? No, damn Skippy, you're not, and there's a reason. you're not. It isn't how much muscle you have on your body. It's the fact that their nervous system is more efficient than yours. They reset the trauma of inflammation and excessive sympathetic tone quicker and with more elegance and repair than you do. And so people start getting into all kinds of conduction problems with their heart. They get anxiety, they get fatigue and they start to break down.

Dr. Kent Holtorf (00:35:26):

That's what I'm on right now. I'm on the over-training prevention program,

James LaValle (00:35:33):

But you know what, you're storing up bonus points right now. You're making up for those years you spent training.

Dr. Kent Holtorf (00:35:38):

I'm religious about working out, I go religiously every four months for eight minutes.

James LaValle (00:35:45):

That's very Hahnamennian of you, it's very homeopathic. That's good, but it does make a difference. And so I think when we see people that are already stressed out at work, and then they're going and they're training for their Tough Mudder or they're training for their Spartan race, and believe me, I want people to achieve their goals

Dr. Kent Holtorf (00:36:04):

People are crazy about it. Like, Oh my God, it's worse. And I've also had, I remember this was a couple of years ago, but brought in for short stature and the kid was older, but I look and the kids like six four, right? and they're like, well, he's gonna make a lot more money if he's a center rather than a power forward, can you give him growth hormone. I'm like, no. But he's probably right, it's millions of dollars difference.

James LaValle (00:36:40):

I'm surprised that they didn't have you break his legs and extend his bones. They've done that too.

Dr. Kent Holtorf (00:36:49):

Especially in the Asian communities do that.

James LaValle (00:36:52):

That's exactly right. So, I think it's important.

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

I'm thinking about doing that. When you were talking about the transgender, like my mom was smoking five packs a day when she was pregnant doing Adderall to keep her weight down, I was born at six months, so I was supposed to be retarded or not live.

James LaValle (00:37:13):

or not have any lungs.

New Speaker (00:37:14):

Yeah. Well, one out of two ain't bad. But I could have been like 6'4" full head of hair and everything.

James LaValle (00:37:24):

That's what I thought you were. I guess I can't tell from the chair.

Dr. Kent Holtorf (00:37:29):

Thank God for hair formulas with the peptides.

James LaValle (00:37:34):

Exactly. So, I guess for me, the big interest is how do we start to look at these? Obviously I understand the advantages of it [inaudible] and the whole family of the GHRP and GHRE.

Dr. Kent Holtorf (00:37:51):

Can you just explain those just a little bit.

James LaValle (00:37:53):

Sure. So these other peptide compounds that have obviously been popular for quite a while are compounds that either help your growth hormone receptors to awaken or tells your brain that you need to release growth hormone. Because as you age, or if you're under a lot of stress, you got plenty to release out of your pituitary. You just don't release it. And so there's peptides that can help you to endogenously instead of injecting growth hormone, right? You just help your body release your own. And that, to me, helps to reset what you're supposed to be doing. And I think that's why I'm valued, doing the research on peptides. I've got a little handbook coming out on peptides that I wrote in my spare time.

Dr. Kent Holtorf (00:38:49):

What did you do in your spare time? Yeah, I wrote this peptide -.

James LaValle (00:38:55):

Some people have issues, Kent, and I'm one of them.

Dr. Kent Holtorf (00:39:01):

It could be worse.

James LaValle (00:39:02):

Yeah, exactly. So when you think of the value of what these signal compounds do, I really believe they're strategic. Because as people get more and more disrupted in that metainflammatory state, we have to try to bring everything we can to get them back out of that state so that they can repair their tissues again. Because you're only doing one of two things. You're either repairing or you're breaking down. That's it. It's either destructive or it's in homeostasis in repair. And that's a big issue. And when you combine that with in general people eat too much. They eat too often, they eat too late. They pick the wrong foods, they don't get enough sleep. And they're under a lot of stress. You don't know anybody like that. Come on.

Dr. Kent Holtorf (00:39:56):

What? What are you talking about?

James LaValle (00:39:56):

Yeah, exactly. So you layer that on because why that's important is that starts to disrupt your circadian rhythm of your hormones. Right? That's the other thing that people need to understand. As you get metabolically inflamed, and you're pumping out more cortisol and your cortisol curve is staying flat instead of having a nice pattern to it, all your hormone signaling starts to get screwed up. So for example, if my cortisol is high enough and I don't go into deep wave

sleep, right? We're supposed to go into deep wave sleep to tell our neurochemical buckets to get refilled so that we've got the chemicals in our brain to signal the next day that, Hey, I'm alert. I'm ready to go. If you are pumping out enough of that corticotropin-releasing hormone, which remember when you're under neuroinflammation you keep pumping that stuff out, that blocks melatonin.

James LaValle (00:40:56):

Now, not only does that block melatonin release it blocks growth hormone release. And not only does it block growth hormone release - and look melatonin is super protective for your brain as you're aging, right? And it's protective for your intestine. But the big thing people don't understand is when you disrupt melatonin signaling at night, your insulin function the whole following day is disrupted. So you don't release appropriate insulin from your beta cells, which is a part of your pancreas. And when you don't release insulin appropriately, the number one most inflammatory thing in your body that goes on is when your blood sugar goes up and you can't appropriately use it. So the higher you spike your blood sugar, the biggest inflammatory event in your body is a high postprandial blood sugar. And so you start to see how all of this is playing together.

Dr. Kent Holtorf (00:41:55):

I'm just thinking, that's what the studies show it's that if you can stop that peak, the average, okay. It matters, but not nearly as much as that peak.

James LaValle (00:42:05):

That's exactly right. Hence, when you start to look at other peptides, like, well they're out there, right? Liraglutide is a peptide, right? And it's a drug used by diabetics. So why is it working? It's working because it's blunting that peak and it's causing a better insulin signal so that you normalize that. But the point to it is that all these hormones are interconnected and it starts at the brain. And when you don't take into account those pieces of going upstream, you end up being a person with diabetes, because they've showed this, you can normalize their glucose with a med. You can give them a statin, you can give them an antihypertensive drug, and they still end up with renovascular disorders, elevated uric acid, problems -

Dr. Kent Holtorf (00:43:06):

Picking out the markers, not the underlying problem.

James LaValle (00:43:10):

Exactly.

Dr. Kent Holtorf (00:43:11):

Yeah. Or it's like you look at the people with sleep apnea they just never get - I remember it was like just a few weeks ago, I had a PowerPoint due. And of course you always think it's going to take an hour. And I stayed awake basically two days. And Oh my God, I was so hungry and I gained eight pounds in two days. It's crazy. And just all of a sudden I get energy at midnight.

James LaValle (00:43:46):

Yeah, you totally flipped your cortisol curve, right?

Dr. Kent Holtorf (00:43:49):

Yeah. So I'm do as I say, not as I do. Sleep is huge, but I try to ignore it and take peptides to try to counteract it, but I don't recommend that to anyone. It's interesting. And it's like clockwork, you look at people that have sleep apnea and then they gain weight. They get insulin resistance, immediately, hypertension, I mean just wrecking their blood vessels. And then now they gain more weight. They can't sleep. And then just it's a death sentence, you know?

James LaValle (00:44:29):

Yeah. And I think a lot of people, once again, when you think .Oh, I'm having trouble sleeping, I'll take a sleeping pill. Well, really insomnia is a disorder of hyper arousal, meaning that your brain took on too much stress during the day. And it can't unload it at night. Now, why is that so important? Well, when you take out all that sympathetic tone, what happens to your thymus? You don't make T killer cells. They don't mature, you get adolescent T killer cells. So what that means for people listening is you don't have enough active T killer cells. And T killer cells are what go out there and patrol and attach to things that don't belong in your body and knock them out. When I work on people for their sleep and you think of things like DSIP Delta sleep inducing peptide, that's one that it was popular on the peptide front for helping to get people back into signaling their sleep, as well as just using once again, I talked about the, like the growth hormone supportive ones like ipamorelin or EPA sermorelin, or any of the other agents,

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

You know where Delta sleep inducing peptide is the highest? In the gut. It's interesting. You're talking about it's always the gut. Great anti-inflammatory, it lowers the inflammation of the hypothalamus, and is actually secreted by the mother, which makes sense, right? And [inaudible] ingested. So it's actually orally active, which it's not a small peptide, but it's the composition, it's orally active. It's very interesting. It's very anti-inflammatory. and it's not a sleep med. You think Delta sleep, you take it, you sleep. It doesn't work like that. It resets or lowers the inflammation and we'll see people, their diabetes gets better, whether it's from the sleep, but I think it's also

from that reduction in hypothalamic inflammation. Then you add, we love it with KPV, which is melanocortin, which people use like melanotan, the Barbie doll peptide. So you get tan, you lose weight, you increase libido. The little fragment of it is actually more anti-inflammatory, but doesn't stimulate the melanocytes. And they seem to work on that.

James LaValle (00:47:03):

But it's so important, right? Because when people get biotoxin illness or they get Lyme or Lyme related illnesses, any of that family of vectors, they lose their melanocytes simulating hormone. It just tanks. And once you do that, you just have to remember, in a chronically inflamed state, when you're sympathetic dominant and you're not sleeping, you lose all that signaling and your parasympathetic tone - So sympathetic fight or flight parasympathetic, No, it's not. And when you're not nourishing the body with phospholipids, and you're not building acetylcholine in your brain, you can't get that balance back as easily. And that's kind of what's interesting on the advent of a lot of the peptides that relate to cognitive function, they're every bit as important in terms of repair of this lipid membrane.

James LaValle (00:48:02):

And then also allowing to get rid of the inflammation, because when your brain is inflamed, when you're making a lot of cortisol and you're making a lot of something called NMDA, which is a compound in your brain, if you're making too much of it, you're excitatory. When you make a lot of that, you block your STEM cells that make your neurons, so you don't get dendretic rebutting. And that means that, yeah, you're not regenerating your neurons in your brain.

Dr. Kent Holtorf (00:48:34):

Yeah, and you're getting dumber.

James LaValle (00:48:35):

Yeah, and when you're like me, when you're the grandchild of a brick layer, you can't afford to lose that. You gotta keep working it.

Dr. Kent Holtorf (00:48:44):

I think you're fine. And the the meds out there that block that NMDA receptor, there's the NMDA, and ketamine and the cough medicine, dextromethorphan, I mean, they're very different acting, so it shows we always try to put one thing on one receptor, right? And it matters where in the brain, I mean, if you activate this part of the brain, it does different than this part of the brain.

James LaValle (00:49:27):

Yeah. That's why when I did all the work on the intra-nasal ginsenoside R3, which I did all the discovery work on that and we created that intra-nasal application of ginsenoside R3, that was like 15 years ago when I did that, because I had this notion when we were working -

Dr. Kent Holtorf (00:49:48):

Talk about ahead of your time.

James LaValle (00:49:48):

Yeah. I think I'm a little bit maybe cursed by that in a lot of ways. It's not commercially smart, but I don't care. I like thinking forward.

Dr. Kent Holtorf (00:50:03):

It's like with the energy beer, no one ever heard of it, why do I want energy beer? And then five years later it was like, Oh, Red Bull and dah dah dah - we're criticized for being stupid.

James LaValle (00:50:15):

Exactly. So, I mean, the big thing for us was looking at that whole thing of the brain and going well, what's really going on? Well, the immune cells of the brain are getting fired up, the microglial cells are getting fired up, and it's causing the release of inflammatory oxidative damage. So all these pro-oxidants the thromboxanes, the prostaglandins, the superoxide and hydrogen peroxide and ions get upregulated. You kill the neuron. The neurons are all getting destroyed, then when they die they release a bunch of proteins that then trigger more microglial cells. And it's this vicious cycle. Why I think it's so important that this other area of hope with peptides in the brain is that it really gives us a way to think about how we neutralize that process that most people are in, which is a chronic neuroinflammatory stance.

Dr. Kent Holtorf (00:51:12):

And at least get them to a baseline where they can even think. There are some people who are just stressed out. They're not thinking clearly. They can't handle stress. I remember when I had Lyme, it would just be anything - the phone would ring, I'm like how dare these people call at two in the afternoon. It's like fight or flight, anything. The brain's just on fire and just ready to go. And you can't live like that.

James LaValle (00:51:47):

No you can't. When I think of metainflammation, what I always try to go back to is that thought process of it's from the brain down and from the gut u. You can have a perfectly beautiful brain

and if you get gut permeability changes, cause maybe you had a head trauma, right? Because if you hit your head, within 10 minutes, you've got a leaky gut.

Dr. Kent Holtorf (00:52:13):

In the gut? Isn't that amazing. Just like that. It's a bi-directional, the brain affects the gut and tells it what to do. So I remember everyone was on a SIBO conference and said, well I think it's a symptom more than a cause, it was like, Oh, you're kicked off the conference. And it's true. Well, so many things are like that. They're both a symptom and a cause because it's a vicious cycle.

James LaValle (00:52:45):

That's exactly right. You've got to interrupt the cycle. I always liken it to a circuit board. If you have a light out, you go over to the light switch and go, I'm going to turn the light on, and you turn the light on and nothing happens. And you go, Oh, well, I wonder if I kicked the plug, I'm going to go plug it in. And you look, the plug's in, the light bulb's not burnt out, but I can't see that it's turning on. Oh, I'm going to go look at the circuit breaker box and lo and behold, the circuit breaker box got flipped. And until you turn that circuit breaker box, click that switch back on, the juice doesn't flow back to the light bulb and light things up. That's what's going on with your signaling in your body everywhere, right?

James LaValle (00:53:27):

Right. They're bio circuits. And you're either sending information through those bio circuits that's keeping everything moving, absorbing, metabolizing, detoxifying, generating energy, or they're short circuits. And you have to create countermeasures and corrections. When I think of BPC157, what a amazing compound. I remember when my son got injured and had a lisfranc injury. So if you're not familiar with a lisfranc injury out there, it's a ligament between your toes, that because of a torquing injury on the field, the bone basically goes up like a razor blade and cuts the ligament. And now you can't pivot on your foot. You can't land on your foot. It's excruciatingly painful. It's a very common injury in the NFL. My son had that and it's supposed to take 18 months to repair from that.

James LaValle (00:54:31):

Well, what we did at the time was used BPC157 and used TB4. First of all, he had no swelling, which is unheard of. They couldn't find the tear, it took them five sets of imaging to find where the tear even was. And then within five months after the injury, he was putting full force spinning on that foot at the California state championships to win the Discus, and it repaired it in a third of the time. I think it's incredible what the potential is for peptide research in therapy, because I've seen so many interesting outcomes and personally experienced those and watching him.

Dr. Kent Holtorf (00:55:22):

I think people have to see it personally. Now with your son playing football, I mean nowadays these kids are so fricking big and fast and just the inertia cracking. Do you give them anything for prevention of traumatic brain injury, or your thoughts on it?

James LaValle (00:55:47):

Well, yeah, I give him everything I'm allowed to give him. Peptides are not allowed in collegiate or professional sports.

Dr. Kent Holtorf (00:55:56):

Which ones? BPC?

James LaValle (00:56:00):

BPC is okay. But any of the thymus ones they aren't there and obviously the growth hormone ones aren't there. Yeah.

James LaValle (00:56:11):

But the point is for him, yeah, I use the high resolvin fish oils on him to kind of have that high resolvin load in his brain at all times. He uses the synapsin nasal spray.

Dr. Kent Holtorf (00:56:24):

Oh yeah, flavonoids, even progesterone

James LaValle (00:56:27):

We've got him going on the bioflavonoids, he's doing magnesium, really protective. And I also think it's interesting that -

Dr. Kent Holtorf (00:56:34):

Let me ask you real quick, magnesium. does it matter what type?

James LaValle (00:56:39):

Yeah, it does matter, in fact. I like magnesium glycinate. If you're going for getting rid of muscle aches, I like the magnesium malate, so it's more for muscle. If you're trying to help arrhythmias or with cardiac function, you think of magnesium tarate. So those are the three magnesiums I

usually use. You can use mag threonate if you're more concerned about neurologic issues or crossing the blood-brain barrier, but you won't get as much tissue level of magnesium because it's only 5% magnesium. You have to take a ton of it to get that mag -

Dr. Kent Holtorf (00:57:15):

That's the thing, they're so big, but I think the reason I brought that up was that it's not just taking magnesium. Or people look at the bottle, oh this has more metal mag. Yeah, you're just gonna poop your pants.

James LaValle (00:57:40):

I think it's interesting because I think we're discovering now that there's these hero genes that athletes have that may make them more protective. So when I talk to a lot of Hall of Famers, everybody goes, Oh, so you're working on your brain, huh? And I go, you know what? Most of the Hall of Famers I met that even played in the sixties and seventies that didn't have that much padding on their head. These guys are really with it and sharp. And they played a lot of games and maybe it was those hero genes that actually protected them and allowed them to play the game at a very high level for a long time and get them into the hall of fame.

Dr. Kent Holtorf (00:58:17):

Or maybe the middle linebacker weighed 150 pounds.

James LaValle (00:58:24):

I'll tell you what, man, they were pretty big still. I'll tell you what I mean, they weren't little. But I think it's interesting that we see that there may be these, in various sports, these maybe genetic predisposed advantages that limit maybe risk of injury, maybe risk of head trauma. I know guys that have three or four concussions, five concussions. I had one guy I worked with that had 14 concussions. And my son has played ball at a very high level since he was eight years old, he hasn't had a single concussion and no signs of ever having it. So it may be that he's just a chip off the old block and he's got the rock head, rock there that's saving him, but it's just interesting to me that we have to always watch. Because there's all this - I worked some with some special forces guys too, here and there, and they're getting exposed to stuff and they're getting hit and even for them, as awesome as they are, there's always that risk of vulnerability depending on the amount of allostatic load that takes place. And I think across the board, you've seen executives that push themselves so hard that one day they woke up and they broke.

Dr. Kent Holtorf (00:59:45):

Yeah. Like over training and I was thinking of the special forces, they're in freezing cold. I have a temperature tolerance of like two degrees, it's like okay I'm freezing, give me the heat pads. But we've had just a bunch more executives, overtraining syndrome, just overstressed, and they just, boom, it just sets everything off. Their immune system is shot whether or not they have underlying Lyme. But I really think when they say Lyme disease, I think most people that get Lyme, I think it's so prevalent, are fine. It's if you get all this other stuff.

James LaValle (01:00:37):

I could not agree with you more. Once again, I'll go back to what we talked about at the very beginning, when you're metabolically inflamed, maybe your diet was bad, maybe you had a lot of drug therapy when you were a kid, maybe you didn't sleep well, maybe you were under nourished, you're in this predisposition where you get the bug and you decompensate and somebody else gets the bug and they're fine. Like I said, I think one of the big takeaways for me is regulating people's sleep patterns, really working at getting their brain to shut off at night and manage the sympathetic dominance of today.

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

If you have a trick for that, I need that.

James LaValle (01:01:24):

And then if you can get that going, manage their cortisol and - the big thing like people go, well, how do you know I have high cortisol? Well, yeah, we can measure it, but are you craving carbs at night? Are you coming home from a day of work and hugging your potato chip bag? If you are, you're probably under excessive stress.

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

Yeah, I push my wife out of the way, and then I grab the potato chips. No, it's nuts. And I think about, how I kind of got into this, I had basically chronic fatigue syndrome before it was chronic fatigue syndrome, one pupil was was bigger than the other growing up and one arm had stopped working. So I treated myself with thyroid and I'm like, Oh my gosh, I'm good. We opened the Fibro and Fatigue Center, 22 centers. And then all of a sudden I went through a stressful, stressful divorce and boom, bed bound, sweats like crazy. It was just crazy. At that time we were in the mode of massive antibiotics , I was doing seven antibiotics at time at four times the dose I'd ever give a patient for three and a half years.

Dr. Kent Holtorf (01:02:45):

It never worked. I went into heart failure. and the cardiologist goes, well, maybe you'll get 10% better in 10 years. I'm like, what? I mean, I could not stand up straight and it would take me an hour to walk up the stairs. I'm like, just shoot me, I can't live like this. And then a year later after I went in Europe, found peptides, lifesaver, I mean, I would say that was the biggest thing

James LaValle (01:03:17):

What were the best peptides for you? What were the big ones that you feel are your game-changers that you remember, you go Wow, that was the inflection point for me.

Dr. Kent Holtorf (01:03:28):

Yeah. So it was thymosin beta 4, BPC, I was doing a little of the growth hormone releasing hormone. My sense is that wasn't the major thing, but now you look at the studies and it shows that those -

James LaValle (01:03:44):

[inaudible] for the heart. I mean that there's all kinds of big, interesting data on that.

Dr. Kent Holtorf (01:03:50):

Stem cells, exosomes, certainly helped. Ozone love it, love it. I mean, there's so many things that work, but it was funny and I walk into the cardiologist office and he's like, you look pretty good. I'm like, Yeah. And he goes okay, didn't ask, so what have you been doing?

James LaValle (01:04:13):

It's a miracle. It's an idiopathic, spontaneous

Dr. Kent Holtorf (01:04:19):

Yeah, he goes well, I guess I was wrong.

James LaValle (01:04:23):

It's something else. It's an amazing journey that you take learning this work and just helping people and helping yourself. I had the same issues that really needed to repair. And unfortunately we're still not getting enough information out there about what steps can you take in order to begin to really grab that person who's on a rapid train to accelerated aging. We're still not talking about that. We're still looking for that magic bullet that's going to be like the ageless pill. And in the end, we're not giving enough credit to the fact that you have all these body systems communicating with each other, working at trying to create either health or slowly eroding you.

You're going down the drain just a little bit at a time, or fast, right? And we just haven't done enough education that an individual out there can go, wow, I have a chance, I can do something. And I think that's where we need to move. That's why I'm grateful you're doing this peptide summit because people are going to learn tremendous things from everything that you've got to offer them and all the guests that you've got. Let's get people thinking.

Dr. Kent Holtorf (01:05:42):

Yeah. And it is interesting though that people have the mindset, I don't want to pay for my healthcare. But I remember being sick. It's like, God, I'm kind of an atheist, but God I know there's a female God, cause she hates me. I said take everything.

James LaValle (01:06:04):

She got a good divorce settlement

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

Is that you nothing matters when you're that sick. And so basically I said take everything. Well, God did give that, I got divorced and got everything taken. But, I cherish - not always, I shouldn't complain, but I do complain - but it's like I realize how bad it can be. It doesn't matter what you have, oh, I want this new TV, I want this new car, when you're sick, it doesn't mean squat. You don't care. You're trying to stand up, you can't sleep, you can't function. I remember just taking a shower and a bath a hundred times because of the pain, the restless legs, the neuropathy and [inaudible] where you touch my skin. I'm like I'm going to end it, you know?

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

Wait a minute, I can't do that because I'm treating this shit, you know? But I knew I was a bad case because I had it from birth. But you're also talking about how people are different. And we lost our tech, but we had a microscope with immunofluorescent antibodies and we could see Borrelia, Bobesia. Their whole family that would come down, the sweetest family. They were dairy farmers, all just sick with Lyme and Babesia, except the dad was great. He was like working out. And we look at all the blood, he has more Babesia than anyone and he's fine. He's just like, Oh yeah, can you give me some of that growth hormone booster, because I'm only benching this, and that..It was amazing.

James LaValle (01:08:08):

Well I think it comes back to that story of the terrain is everything, right? It's the terrain that everything is brewing in that matters. The terrain will control the bugs.

Dr. Kent Holtorf (01:08:21):

I think it's true. And that's where, because of my own experience, I'm very ADD and I want to like get it now. So let's just do higher dose antibiotics that I found to get from point A to B. Antibiotics have their place. But if my natural killer cell function was between zero and two, so you can never kill the bug enough for it to take over. So unless you get that up, it's worthless to do all those things. I remember I went and had parotid gland inflammation. You couldn't see it, but it would just be spasms and just kill me. So I went to an ENT and he's like, yeah, you got inflammation, fighting infection, take antibiotics. I'm like, I'm on seven IV. Would you like me to take more? And I remember being in the ICU and the nurses outside the little curtain saying this is the AIDS patient that won't admit it, he keeps testing negative. I've got horror stories from hospitals, but, yeah, health is everything.

James LaValle (01:09:35):

Yeah. I mean, I think in the end, I always tell people your health is work, but it's worth it. Because it's like you said, it doesn't matter what you're riding around in and it doesn't matter how cool your refrigerator is. It doesn't matter how big your TV is in the end. If you can manage and learn to develop a lifestyle. And I'm big on teaching people you gotta do this day in and day out.

Dr. Kent Holtorf (01:10:02):

I'm kind of all or none and my personality. I live in this office like for days and days and I don't get out, I don't do the exercise. So I don't preach to patients about exercise or - but then you go, and you say I'm gonna do this every day, and then a month later, I'm like, I got to get back there, you know?

James LaValle (01:10:29):

Yeah. I think it's that piece of the more consistent I can get people to do. I want them to go have fun, man, go to the party, enjoy your celebrations, go do all that. But on your day in and day out basis, what are you going to do? You've got to take control of understanding that insulin piece, where your glucose is going up. And if you're not getting that spike under control, you're damaging your tissues. You're damaging your brain. You're damaging your arteries. You're damaging your kidneys. I mean, just think of how many people you see now in their fifties that have low kidney filtration, their GFR is low they're already under excessive oxidative stress in their kidneys.

Dr. Kent Holtorf (01:11:17):

But it's normal and they won't treat it until you're in failure.

James LaValle (01:11:22):

Well, I've really been a student of this whole, the problems of all things, glucose for quite awhile. And it's funny because people will say, well yeah, you should - I actually listened to tele-health little recording for this friend of mine's son. And it was like, well, yeah, your glucose is 96. That's fine. Your triglycerides are elevated, but they're not too elevated. And Oh yeah, your hemoglobin 16.7, it's within range. You're fine. And he said, you know, but in the end, what you really ought to do is you ought to try to eat less fried food and get some exercise. Thanks, bye. So it was like a one and a half minute express.

Dr. Kent Holtorf (01:12:07):

God, I feel so motivated.

James LaValle (01:12:10):

Yeah. Right. Exactly. And I think that that's where it's got to come from. You've got to begin to get that piece of - people love it when they come to me because I do give them a shot in the arm. But what I preach to them is you gotta be your own motivator because in the end, I tell people this all the time, you're at work and you're working a hundred hours a week. I got it. If you passed away, you'd probably have a little party for you. And they'd talk about how wonderful -

Dr. Kent Holtorf (01:12:40):

What's that guy's name we had there. Yeah.

James LaValle (01:12:43):

Who was that? I can't even remember, who was that guy? So it's that understanding that you're not doing anybody a disservice except yourself when you don't take care of yourself and you don't understand that. And, it's important because that motivation does have to come from them. It can't come from an external source. And to your point, sometimes you can't get them motivated unless you repair them a little bit and get their brain at least pumping out a little bit of serotonin, a little bit of dopamine. And so you have to work with not pushing too hard and making sure that you're working on the biochemical balance, that gets them into that state.

Dr. Kent Holtorf (01:13:28):

Yeah, because they think, Oh, it's psychological, but psychological is brain firing. I have a brother and we call him anti Tony Robbins. You tell him to do something, he'll give you a thousand reasons why he can't. He's just wired that way and it's tough. You think I don't have time to do

that. You don't have time not to. You make it up, you sleep better, you wake up better. You're more efficient. And I'm being hypocritical here. But, I know what I need to do.

James LaValle (01:14:05):

Now I'm going to be on you now, man, it's all trouble for you now. I start people out saying, Hey, can you walk 10 minutes a day for me? Can you at least walk to your mailbox and come back?

Dr. Kent Holtorf (01:14:18):

No, sorry Dr. LaValle, I can't.

James LaValle (01:14:18):

Can you wheel around in your chair, around your room for me?

Dr. Kent Holtorf (01:14:21):

I can make it to the refrigerator in 12 steps and back.

James LaValle (01:14:26):

Have you seen these? I've got a new one of these, these are weighted and they vibrate. So you actually can get exercise with your mouse while you're using it.

Dr. Kent Holtorf (01:14:41):

What? I don't know. I've thought of weird stuff to do with it.

James LaValle (01:14:46):

Yeah, exactly. No, I mean, that's just it, It's like, Hey, look, you got to get up, you got to move. You've got to try to get that -

Dr. Kent Holtorf (01:14:51):

And when I don't sleep and stay up to finish a project, I feel like I've aged years.

James LaValle (01:14:58):

It's hard. I mean, it literally is. And I think the older you get, the harder it gets, like when you get to my age, you'll understand. It's funny, I've had to change and adapt the way I do things with each decade because now that I'm 60, I'm changing the way I work out. I'm changing how much I eat,

I'm making sure I get my sleep. I'm just really just even more dedicated to saying I kinda like my life. I want to live as long as I can. I want to feel as good as I can while I'm alive. So I'm going to have to put in the work because I don't know anybody that said Hey, Oh yeah. I want to build a house, but I'm going to sit here and look at the bricks and I'm sure it's going to get built.

Dr. Kent Holtorf (01:15:45):

Hey, I like that because it is, it ain't going to build itself. Yeah,

Dr. Kent Holtorf (01:15:51):

That's right, man. So when are you starting your exercise program? Tomorrow? Next month?

Dr. Kent Holtorf (01:15:55):

It'll be a week from Friday, next year. But they're closed. See, I have an excuse, I can learn my brother, they're closed.

James LaValle (01:16:12):

The sidewalks.

Dr. Kent Holtorf (01:16:12):

I don't have sidewalks on the streets here. There's two.

James LaValle (01:16:18):

No room for a treadmill.

Dr. Kent Holtorf (01:16:21):

No, the kids are sleeping on it. It's a coat hanger. Where am I gonna hang my coats? You're awesome. This was great. Just learned a ton. You're just awesome to talk to, entertaining, and I'm going to come out and visit you. I'm a little scared now you're going to put me on the straightened path or something.

James LaValle (01:16:50):

We have ways of convincing you.

Dr. Kent Holtorf (01:16:55):

Electric shock. Do you want to mention more about the metabolic code real quick?

James LaValle (01:17:00):

Sure, I'd invite people to look at the metabolic code platform, you can go to metaboliccode.com. And what the metabolic code does is it takes lab values, takes questions, takes biometrics, takes things like wearable data, and pushes it all together and says where are you metabolically broken? But it does it in an easy way. Because once again, when people, they get confused when they go to a doc who's doing all this stuff for like, I don't even know what they said. I mean, but I'm taking these pills and they told me to drink this green juice.

Dr. Kent Holtorf (01:17:29):

They don't even know why they're taking the pill. If that's the case I'm like, don't.

James LaValle (01:17:31):

Yeah, and so how we developed it was to say there's five networks or circuits that we concern ourselves with. One is the adrenal thyroid pancreas circuit, right? Cortisol, glucose, and insulin and thyroid hormone. That's a circuit. Cortisol goes up, thyroid goes down, insulin goes up, cortisol goes up. It's understanding that relationship. That's the relationship of energy, right? If I've got my cortisol glucose and thyroid dialed in, I've got energy, I'm not gaining weight. And when they're not dialed in I'm gaining weight and I feel fatigued, right? That's easy to communicate to people what's off in that circle, that triad of relationship. And then the second one is gut immune brain, which everybody's reading about gut immune brain, and the fact of the matter is that if you get under enough stress triad one could stack on triad two. Okay. And that could be the gut immune brain is Gee, I'm under a lot of stress. My gut gets leaky. If I've got a lot of bugs in my gut that don't belong there due to using PPIs and everything else, my brain starts to get inflamed. And my immune system is the signaling in between it, right?

James LaValle (01:18:52):

That immune system is what's causing all the information to go back and forth and say inflamed or not. And these are all color-coded. So it's like Garanimals meets systems biology medicine, right? So that's your resiliency. And the third is cardiopulmonary neurovascular. So if I'm under a lot of stress and I lose my vagal tone and my blood vessels get stiff, my blood pressure goes up. And if my inflammation is high, because of my immunity, my lipids are off. And then when I start to have that real loss of heart rate variability, and I start to lose vagal tone, well, now I'm not breathing as deep. And when I don't breathe as deep, I don't oxygenate. So that's the triad of stamina and endurance. There's two more. One is liver lymph, kidney, which is the triad or the relationship of detox, right? And then the fifth is your hormones and that's the triad of potency. So these five different buckets, all the information and labs flow into them and create a point score

and says, this is where you should start. Start to fix this network first. Because what happens a lot of times is people go to some functional medicine docs and they're trying to fix everything at once. Instead of understanding that I need to order my repair so I can get to the next level of energetics within the person's body.

Dr. Kent Holtorf (01:20:29):

Is there a bigger panel that you do?

James LaValle (01:20:31):

It's pretty big. Yeah. It's pretty significant. Obviously it has all the advanced lipids in it. It's cortisol, salivary, urinary hormones, or serum hormones, all of the markers related to MMP9. Melanocyte stimulating hormone, leptin if you want. It's a pretty comprehensive panel. Looks at your white blood cells, looks at your differential, things like mean platelet volume. Nobody even looks at mean platelet volume and mean platelet volume, when it's high, is a primary signal that you're metabolically inflamed. It's like a super important, simple - it's cheap.

Dr. Kent Holtorf (01:21:12):

I gave them B vitamins, it didn't do anything.

James LaValle (01:21:13):

Exactly. So it's a pretty robust blood panel, about 170 questions. You put in blood pressure. You put in heart rate, you put in pH of saliva, cause pH matters. Then it runs it. And then it tethers all the information together. A good example would be, I got a blood sugar of 95. So what, you're 60% risk. I got a blood sugar of 95, an insulin of 18 my blood pressure is elevated, my kidney function is going down and I'm making bad lipids. And my homocysteine is high. That person with a 95 is way farther along their trajectory of breaking their tissues down and being damaged.

Dr. Kent Holtorf (01:22:02):

It's not the one value. Yeah.

James LaValle (01:22:05):

It tethers all of it together and accelerates the data.

Dr. Kent Holtorf (01:22:09):

I'm really interested in that. I think it's brilliant because I love getting tons of tests. And I've learned over the years, there's no one test you can always say there's an error in the test or whatever, it's

an overall picture, but you have taken that and then broken it down. So doctors don't need five years to understand it.

James LaValle (01:22:39):

Yup. They can do it like that. Honestly, a little bit of training and they got it. They're swimming with the big dogs. They can really start to look at metabolic dysfunction and start to say where, what circuitry, what systems network are the most stressed. And at first when I did it, everybody's like, Oh you can't do it. You can't do it. You're not smart enough. I mean, honestly, it's like, Hey, you're not from Harvard. No, I'm not. But what now is we've got George Washington School of Health Sciences and Medicine, their department of medical informatics is actually wanting to deep dive into our algorithms because when we showed them what we were doing, they were like, nobody's approached it this way before.

James LaValle (01:23:32):

You're really getting a comprehensive picture of what happens when we give people nutrients, they're on drugs. they eat a certain way, you track their sleep, you track their exercise and you get a total picture of what did it take to move them from that state of metabolic inflammation, which we actually score, you have a score and now it's reduced. What was that plan? Because nobody just gives vitamin D and everybody goes, well, where's the evidence. Well, that's what we're trying to find because I can name any five drugs and there's no evidence to use them all together.

Dr. Kent Holtorf (01:24:07):

Oh, exactly. I'm not going to get into vaccines, about 120 vaccines show me the study. But yeah. And so when we had the Fibro and Fatigue centers, huge blood panels, it would take two years to get that doctor up to speed, to understand all these, instead of this test means this, this test means that. Well, okay, that's that, but that's not up so don't worry so much about it. So you've done that.

James LaValle (01:24:35):

Yep.

Dr. Kent Holtorf (01:24:38):

Damn you. (laughs) No, it's needed because we couldn't do it. It's just so labor intensive.

James LaValle (01:24:51):

Took four years.

Dr. Kent Holtorf (01:24:51):

It's pretty amazing because [inaudible] on my slide deck, the algorithm, which is like now one fifth of it, it takes up the whole wall trying to show them the thought process. Right. But your algorithm would be so huge.

James LaValle (01:25:12):

It's only 40,000 decisions.

Dr. Kent Holtorf (01:25:15):

It's only what?

James LaValle (01:25:16):

40,000 decisions.

Dr. Kent Holtorf (01:25:18):

Yeah. So, I mean what computer can do that? So hats off to you. I think that's amazing. I'm going to come out. I'm going to check that thing out because I've been through it trying to do it without that tool.

James LaValle (01:25:39):

Right. Exactly. Well, I can't wait til you come down and see it. And always, it's fun to just hang out with you, man. We get a good laugh and tell war stories about all of our different cases that we've been through. So I'm looking forward to it.

Dr. Kent Holtorf (01:25:56):

It is. And by the way, I had to do the intro like three times because he kept making me laugh.

James LaValle (01:26:04):

See how serious I got? See that? I got serious for you, man.

Dr. Kent Holtorf (01:26:09):

Hey, thank you. You're the man. I appreciate you taking the time. Always love the information and I am going to burden you with coming down and checking everything out. So I really appreciate it.

James LaValle (01:26:26):

Thanks for having me. It was a blast. I hope people get some value out of our discussion.

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

Oh, I really think they will.