

# Paleo Solution - 226

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Robb: Howdy folks. Robb Wolf here. This is another edition of the Paleo Solution podcast. It is my great honor to welcome today's guest Christopher Kelly. Christopher is a computer scientist, a professional cyclist, a functional diagnostic nutritional practitioner and just generally a super cool dude because you have an awesome British accent. How are you doing man?

Christopher: I'm doing great. Thank you very much for having me on Robb. It's a pleasure.

Robb: Great to have you. I believe Squatchy tracked you down because I kind of sent him out looking for folks who had interesting stories and when he came back with your story I said that is going to be phenomenal. Can you tell folks a little bit about your background and why they're going to find you incredibly fascinating just like I did today?

Christopher: I think part of my story is going to be very similar to a lot of people listening. I had really poor digestion my whole life and I've been cycling my whole life like riding bikes and I guess it was about 2008 and I just bumped into a friend who said hey dude, you're really fast. You should race your bike. And I thought that sounds like fun and I did and he was right. I was pretty fastest so I thought wow, I wonder how much faster I could get if I go train.

So my idea of training was how fast can I ride my bike to work every day for a year? And of course the stress of that I just completely fell apart in no time whatsoever. And so I got myself a coach and that helped and the first thing he did was slow me down and I started doing lots of long slow distance and obviously there's some people that won't like that but it did reduce the stress and I felt much better.

Robb: Just that little big base building deal...

Christopher: Yeah. Just building that very big base. But by that time, my digestion was so bad it was just awful like horrible bloating and gas and I couldn't really

ride my bike for how far am I going to be from the next toilet that sort of thing. And then obviously hormonally I was falling apart. Terrible fatigue especially in the afternoons and then...

Robb: And this was at the right old age of...

Christopher: Early 30's...

Robb: Okay which was later than me. I was falling apart in my mid-20's...

Christopher: Oh really?

Robb: Yeah.

Christopher: That's terrible. So I just started looking around and I've already been listening to a lot of podcasts, listening to the BBC world service to try and preserve my accent now that I was living in the US and I was poking around the iTunes directory I find your podcast and a couple of others and start listening to those and I think wow this sounds interesting. So I buy the paleo diet for athletes actually was the first book I read and then that really resonated with me and I just immersed myself in as many books as I could possibly find and had some really good results.

My digestion improved considerably and it made the whole thing possible whereas before it was obvious I had to stop but I still had like a lot of symptoms. Not everything was right. I was doing blood work stereoactive protein was still coming back really high and I still had occult fecal blood which is obviously not good. And my wife who's a food scientist, she discovered the auto immune caveat so I think if I read your book first I would've found that right away wouldn't I? I just tapped on a different book just the luck of the drawer I guess.

Yes, I started eating the auto immune protocol and then had about as much benefit from that again so it really was that much difference. It was really good. And then you start wondering if that's possible, what else is possible? I mean I've been to so many doctors by this time. I've been to the gastroenterologist and the endocrinologist and the gastroenterologist was worst than useless. All they wanted to do was a colonoscopy to sort of prove what I already told them. I already told them I had IBS and all she wanted to do was just confirm that I wasn't lying I guess. I know she wasn't interested in food at all.

So I just had so much out with AIP thing and yeah, just listening to another podcast I found this guy Dan Kalish and again what he was saying just really resonated with me using lab test to uncover root causes. This difference between just like confirming symptoms like you're anemic. What can you really do about that? And then rather than just like really uncovering root causes so he ran a bunch of lab tests and then he found super low cortisol, low DHEA, low testosterone. He ran some GI tests. He did some stool tests and he found two different parasites. He ran this test called the Genova Diagnostics Comprehensive Profile and found really high level of oxidative stress and my liver wasn't working very well and had very neurotransmitter turnover.

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And one thing that was actually huge for me in becoming fat adapted, so at this time I'm using tons and tons of these sugary sports gel and I'm basically pre-diabetic. I start messing my blood glucose and realize I'm pre-diabetic. So one of the things I started using was this product called UCAN super starch that you must've heard of.

Robb: Yeah.

Christopher: It didn't work for me at all. The only way I could make it work was to use it with a gram for gram replacement for the sugary sports gels. And then I ran this test with Kalish and he found that I had a carnitine deficiency. So yeah, carnitine is this micro nutrient that shuttles fatty acids into the mitochondria and once you know you got deficiency, it's pretty easy to supplement with that. And it was just like somebody flipped on a switch and all of a sudden the amount of UCAN super starch I was using just went down and down and now...

Robb: Let me ask you about that. Now this is overlaid with eating a general like auto immune paleo diet so like not low protein. You would assume that you're getting lots of carnitine in the diet but clearly inadequate for what was going to make you run optimally and that really enhanced your ability for fat mobilization and using that as a primarily fuel.

Christopher: Yeah. Absolutely. I think what's going on here is just poor digestive health. It's not just you could be eating – and I was eating the best quality grass fed meat but...

Robb: Just not absorbing it.

Christopher: Yeah. If you're not digesting and assimilating it and we saw that too on the organics profile. There's a marker called Indocin which is a metabolite from the bacterial breakdown of protein. So I've got obviously overgrowth of yeast and bacteria and I had this kind of super lean but really weird poofy belly that just refuse to go away. It's just like an overgrowth of bacteria. So I'm eating good quality protein but I think it's ending up as food for the bacteria which is not good.

Robb: Right and so you know, I'm sorry, I hated derailing you on that because you were totally on a whole with all that but I really wanted to check in. So what type of macro ratio were you at? Originally it sounds like kind of standard pretty high carb using goo and gel and stuff like that and then where are you now as far as the macro breakdown because this is something – I asked you if you followed the podcast. So this is something I've been playing with a lot myself.

I do more grappling which tends to be more brief, intense, I mean when you're a black belt it's 10 minute rounds that you're doing and you may need to do multiples of those but it seems like a very different engine in say like cycling or triathlon or something. So I've been gravitating more towards kind of a carb fueled approach on that. I had been much higher fat in the past like with what were your macros previously and where they at now and then how has that driven your performance?

Christopher: Yeah. Originally it was just ridiculous. I called myself a vegetarian but really I was a carbitarian. It was breakfast cereal and then sandwich for lunch. Pasta for dinner. I wasn't even tracking it then but it would've been over 70% carbohydrate.

Robb: Gotcha.

Christopher: And then what I was finding on the bike it's the gels were working just fine as long as I took them every 40 minutes on the nose and I would never miss one because I'd start to feel so horrible but if I did, the full on dizzy, shaky, cold...

Robb: Hypoglycemia.

Christopher: Yeah. Really horrible. So it's really been a two year transition to where I am now in full ketosis and I think there's a lot of middle grounds like I think probably most of the benefit just came from just being fat adapted. I don't think you really need to go to the full blown ketosis to get the benefits. So now I think I have quite a lot of metabolic damage I supposed you'd call it you know from just eating so many carbs and I found that I had to really moderate my protein in order to get to ketosis. So it can be quite insidious.

What I find is I'd eat too much protein for dinner. You get an amazing grass fed steak and it's so easy to over eat protein and then I'd wake up in the morning and my blood glucose would be you know in the low 100's and I found that was kind of – I'd always be out of ketosis you know if I did that so now for me I'm like how much do I weigh? I weigh about 63 kilos so like maybe 140 pounds and I'm finding that 90 grams of protein per day is really adequate for me and I'm riding my bike pretty much every day so...

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Robb: Gotcha. And probably total workload like 3500 to 4500 calories depending on the training load and all that stuff?

Christopher: It should be. This is something you've really got to watch if you're messing with ketosis. Your appetite just disappears completely.

Robb: Right.

Christopher: I've got a power meter on my mountain bike and I'm regularly logging 2,000 - 3,000 calorie rides all the time and then I'm not even sure it's accurate with the mountain bike because it's more a whole body you have these explosives short movements and you're very mobile on the bike so I'm not even sure of the energy goes into the cranks if you know what I mean.

Robb: Right. It's more of an epileptic seizure than it is the bicycle cranks. Yeah.

Christopher: Yeah. So I'm regularly using 2,000 – 3,000 calories there and on anyone of those days I could be really quite happy just eating 2,000 calories when the lipids are up to 80% of my diet like calories so you've really got to watch that. You've got to pay attention to how much you're eating. I

think you've got to use like a food diary log or something to make sure you're eating enough.

Robb: Right. And Chris have you played around much with any type of resistant starch or anything? I know you're working with Dr. Kalish. I just had Dr. Rucio on yesterday which that will come up in like a week or two weeks or something but there seems to be some issues with going very low carb to particularly ketogenic and then potentially pruning back beneficial gut flora. And this can go both ways if we had some small intestinal bacterial overgrowth which I would be willing to bet both you and I had that at some point and that was probably a lot of the gut poop issues.

So there's a good argument for going low carb to kind of prune that stuff back but then you know, maybe there needs to be some reintroduction of some inulin or some resistant starch or something. Have you played with that and have you tracked any of that with your testing?

Christopher: Yeah. I have. I've not done – I mean we're doing these organic profiles and stool analysis and I've not gone that far. I've not tracked it to that extent but I did play with it. You're right. I was like you. I had a huge overgrowth of all this stuff and so I started at like a self cleanse, like oregano oil and some broad spectrum antibacterial things and just that completely cleaned me out. And for the first time in my life I experienced like a normal level of bloating.

And looking back at that, I didn't even know what that was. I thought that was normal and so now I feel very sensitive to that. If I eat anything and it makes me bloated, I'm so on it. And obviously the resistance starch thing is a very compelling story and for someone like me I just had to try it and I couldn't do it. I mean the potato starch I was too scared of because I've got history of auto immune disease so I skipped that and I waited for the plantane flower. I forget where I ordered it from but I had to wait quit a long time for it to arrive and it really didn't work.

I titrate it so, so slowly like tiny, tiny amounts but whenever I got anywhere close to a table spoon it just made me really bloated and I just couldn't tolerate that. I think I'm okay. It's like I should run some more tests just to be sure because I've been in ketosis for six months now but I don't see this as any problem. I'm taking prescriptorsis as a kind of insurance policy and there's lots of food like sauerkraut. I definitely

couldn't tolerate that before. And I'm fine with it now so I think it's good. I just eat so many vegetables. It's not like a low vegetable diet at all.

Robb:

Right. It's just so interesting and you know, this is the thing that I am just neurotic about because I feel like a very first video game pong if you – I'm just like bouncing back and forth between these stuff because I was so sick originally, a sick like ketogenic diet is really the main thing that I did and it was just magic for me, absolute magic you know. I was never hungry. Really the most annoying feature of it was actually the carb up. I didn't feel as good after that as when I was just generally eating the ketogenic portion but I got in and started doing cross-fit.

And I think that is just such a glycolytically based activity that there was just no way that I was going to fat adapt my way through that you know. When I was doing some power lifting and some gymnastics and some capoeira it was very interval based. And so I was able to use fats as a means to replenish ATP, creatine phosphate and that was kind of the main push that I had and that worked. And then when I started really playing with cross-fit, I kind of feel like I broke some metabolic machinery being too consistently low carb not sticking enough carbs in back in on that and maybe just for my physiology that type of activity isn't the best fit like that's entirely impossible to.

**[0:15:00]**

I tend to be kind of like high strung and should do more like yoga and meditation and instead listen to death metal and you know [Cross-talk] before back squat which ties into a lot of the Kalish stuff of like the dopamine, serotonin neurotransmitter kind of story which maybe you could talk about that. But have you worked with anybody kind of like me. More and more I become Dan John wWhere I just fish for things to help myself so have you worked with anybody like me where they're doing like Brazilian jujitsu or mixed martial arts or something...

Christopher:

No. It's just coming out of the woodwork now. We've got some people signed up. It's early days but we've had an Olympic swimmer contact us and he's actually a world record holder and has three medals and his story is the same as yours actually. He's a good friend of Tim Noakes so he did some experimentation with him and tried the low carb thing and it didn't work. It's just like he's the 50 meter world record so like the

glycotic thing, there's no getting away from that but because I'm a cyclist and most of the people I know are cyclists, those are the guys I've been working with.

Robb: Gotcha.

Christopher: And for cycling there's no question. It's an aerobic activity. I mean even the sprint ride is like kind of you have to be there to contest it. So for mountain biking for sure it's just like a steady state time trial so there's no question that fat adaptation and even ketosis is definitely the way to go especially when you throw in the weight. You know, you get rid of all that water weight and you lean out...

Robb: Yeah.

Christopher: Yeah and so I definitely got a lot lighter. I was already quite light and then I definitely lightened down and then when you're just going up and down and up and down on the hills all the time there's no question that's an advantage.

Robb: Right. It's so interesting. Man I probably just keep picking the wrong sports for my physiology...

Christopher: So what happens when you take a super starch because that definitely doesn't knock me out of ketosis.

Robb: I've only played with super starch a little bit and it wouldn't be something for me to revisit now to see if I could shift to the rest of the dietary carbs down a little bit and then mainly rely on the super starch. I've played with this a bunch and it's – I definitely take the bulk of my carbs post workout. That's when I get some more refined stuff or concentrated stuff like potatoes or white rice or something along that line and I do pretty well with that.

But I do have to say that I am more tied into eating on a schedule versus when I was more fat adapted. Like if I needed to go 10 or 12 hours without eating, it was no big deal. I was just bullet proof from that. I was just impervious to blood sugar swings and that's – you know it's interesting. I did a three month period of ketosis really kept my protein low. I was blowing ketone bodies like you couldn't believe so my ketone

level was anywhere from like 1.5 to 2.5 all the time it was really good about that.

But when I was doing jujitsu, I can roll and roll and roll but if I needed a really fast scramble like hip out, scramble on all fours, try to do an arm drag or something like that it just didn't have that pop like I could keep going but that low gear that really explosive scramble I just didn't have it and it wasn't even like I was fatigue per se. It just didn't happen. It was kind of – it's like you...

Christopher: You're asking for it.

Robb: Yeah. You know what, it's like you've denervated all of your big motor neurons and you weren't just going to fire under that circumstance and so I played with it clearly three months isn't the long time on the fat adaption story but wiggling around with this stuff and this is a question for you too. So you're still monitoring your hormones and what not. I'm still curious about like thyroid cortisol regulation from you know, high volume or potentially high intensity activity and ketosis because if we do end up with a blood sugar drop, we're going to get a cortisol response with that.

Have you monitored that? Have you noticed any issues? Because clearly, before you had some cortisol DHEA sulfate deficiency fed into some probably pregnenolone steal and some testosterone deficiency like how was all that stuff doing on this current protocol?

**[0:20:00]**

Christopher: It's doing great. Really the key to is for me and for everyone else I've worked with is stress reduction. So if you're going to be – so when I did the Kalish method like literally I was in a desk door. I was pretty competitive where I am now and then just a month later I went into the seven day stage race across Canada and I started doing Vancouver and then we crossed on to Vancouver island and so everyday I'm on the bike for four hours.

So in theory this should've destroyed me and it didn't. I survived it and supporting adrenal function by reducing stress it's something that really important that every athlete needs to understand and everyone needs to understand is that there's only one physiological response to stress and

instead produce cortisol and all the rest of it so you need to be doing something to counter that whether it's yoga or mindfulness meditation or something to say that's kind of like the main tool that I use and I really saw...

I did a six month retest and I saw like a 400 increase in my DHEA and I think it was like 700 in my testosterone so in a way I really did get to have my cake and eat it in that respect. But I mean it's really a moving target because I've seen my thyroid function improve definitely my basal morning temperatures come up quite nicely even whilst in ketosis but you know, obviously it's a complicated picture and my overall health has improve quite remarkably since then.

So obviously gut health is tied into the thyroid and then the liver support, my liver was really struggling to keep up with the demand that was being placed on it so taking some of the demand off and some choice supplements really improve that too so that's probably tied into it as well.

Robb: Wow. It's so interesting. So many moving parts.

Christopher: Exactly.

Robb: You know if the gut's irritated and inflamed then we produce interleukin and cytokines that directly compete with the thyroid production, ends up being very stressful, cortisol is up for a while and then it ends up crashing over the long haul so man, it just – you just keep circling around and it just becomes a story more and more. I write about this all the time but it's still always surprising to me that we just so need to respect that individuality that the person has you know.

I think we're at a point that's pretty exciting and that we have enough understanding of physiology and gut health and kind of just like paleo orientation, functional medicine orientation that if one pathway isn't working for a person, we have a couple of other options. We may not get there straight out of the gate, maybe more of a Kitavan type paleo approach may not work for the person doing lots of yams and sweet potatoes and tubers and bananas and stuff.

But if that doesn't work then it's like okay, then let's shift gears and try something that is like you said you know, just a basic kind of fat adaptive

kind of story where we're probably like 100-150 grams of carbs from non – low glycemic load carbohydrates versus – and if that doesn't work then we've got another step down that pathway which is trying a full on ketogenic approach really curtail protein intake, clearly curtail carb intake.

Make sure the fats are high and make sure we're getting lots of MCT's in that mix. Probably some cream, some butter, some coconut oil and then see how we do with hopefully somewhere along that spectrum we have some sort of upward trend in the health you know?

Christopher: Right.

Robb: Yeah.

Christopher: That's what we do. My wife's a food scientist and she analyzes a lot of food diaries established that we found to be really effective. Now all these diets, there's so many choices and people get confused about what's part of the diet and what's not especially with autoimmune protocols and ketogenic diets. And so she's being analyzing those and giving people feedback. It's a really cool way to do it. It's really dead simple. It's either myfitnesspal or a shared Google doc spreadsheet works just as well almost and she can see what you're eating and then comment you know it's like kind of cool.

But there's lots of things that work and we don't try and unless you've got some sort of auto immune disease then it makes total sense to do the AIP protocol. But there's lots of things that work and when I did the stage race in Canada, I was still eating tons of starchy tubers. It's funny. Julie said this the other day because I'd really love for you to go back and do that rice again and not have meat. She was amazing. she did all of my food prep and everything in this little vault so I can van with it like a gas stove top and she's there in this metal box cooking up sweet potatoes everyday it's like tons of pounds of them. She's like I'd love to go back and do that and I can enjoy the scenery of Canada and not have to prepare all these sweet potatoes. Now we're doing this ketogenic thing.

**[0:25:00]**

Robb: Yeah. Then you just need like a 50 gallon drum of [Cross-talk] and just stick a tap in it like a bar deal and be set.

Christopher: Yeah. It's great.

Robb: Chris, talk a little bit about – let's even go back further before we started recording you, I think your story of navigating the conventional medical maze and then what you needed to do on your own to kind of figure out your health situation. I try to keep my political stuff out of this a little bit but then kind of weaves into this – weave it and sometimes the people who are – the most – I would say the least likely to actually track down what they have going on are the folks that have outstanding insurance interestingly and because they're able to just go whole hog into the mainstream medical scene.

But then frequently the test that they need fall outside the scope of that mainstream and often times they end up just log jammed with where they can go because they're somewhat trapped because they want the insurance to cover it and all that stuff. And I've completely told half the story now I guess but could you tell some of that story and kind of where your process was of yeah. Just launch in on that. I'm going to shut up. I had a one piece and nicotine gum this morning and I've been off caffeine but the gum is more than enough for me at this point.

Christopher: Yes. So I knew something was wrong. I think men are terrible at this. They really only go to the doctor if like their dick's not working or they're having pain in their chest. Right so you know, in my case it was the former with the hormonal thing. So I thought well, you know, I worked of this hedge fund in Monarch Creek they had the Rolls Royce of insurance PPO and I'm like well I just need to go to the doctor and get this sorted out.

The doctor, they're just not setup. All like modern healthcare is just not setup to address these problems. So I'm not completely down on all modern healthcare that would be ridiculous. I broke my wrist four weeks ago and I basically didn't take any time off the bike. I got hooked up with an orthopedic surgeon that put a metal plate in there and he put some screws in there and I literally didn't take any time off the bike. It was amazing.

But for this kind of – anything that's been going on more than a week you know that's just completely – I went to the doctor and said you know, my libido's in the toilet. I got allergies. I can't sleep. He said well here's a

prescription. Here take some Ambien for the sleep and here's a prescription for Viagra, go see this gastro – they're not asking why. The next time you go to talk into the doctor's office ask why. Why are my cholesterols like this? Why is my thyroid low? You know? It's like really important to – and this comes a little bit from my background working for a hedge fund. We just don't leave any stone unturned. Right?

This problem that bit you today, it might come back and bite you 10X in a week's time so you better find out why it happened so the health issue was absolutely useless. I found Dr. Kalish he said well you can try and claim for these tests and so I did and of course it didn't work. None of it was covered but I realized in the end I saved money. I didn't spend that much on tests.

It was about \$2,000 but compared to how much I'd already spent in deductibles, you know you go to the doctor and they say okay we'll run this lab work and then you get a statement back from your insurance company that says we'll pay for this and you pay for that. And you never know what that's going to be and it usually ends up being more than the total cost of going and doing the function lab work with the practitioner.

Robb: Actually knows what they're doing and they ask that why question right out of the gate.

Christopher: Yeah. Exactly. Always ask why. So you know, once I've been through this and I just had to know why you know. I'm kind of an analytical guy, computer scientist. I like to lift the hood on things, find out how they work. So I got back in touch with Dr. Kalish and said look, you've got this institute. Can you train us? And I say it's because my wife is a food scientist so that kind of worked. She was really interested in the moving parts too. She has that kind of background. She's a dairy scientist so she spent a lot of time in the lab looking at the gut microbiome and he agreed to let us on. So we did the training course...

Robb: Which is outstanding by the way.

Christopher: Yeah. It's amazing training course. It's kind of like every moment of it. It's like this epiphany like oh my god of course. That's how it works. It's like up until that point it's like a magician. And then suddenly you see how the trick works and it's just the coolest thing. I highly recommend that course. But then we got lucky enough. One of my friends is another pro

mountain biker and she's like a really good pro mountain biker so really she's focused on that now, trying to be the best professional athlete that she can.

Robb: But she just happens to be a primary care doctor.

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Christopher: She just happens to be a primary care physician which was perfect. She was also really frustrated with her work because her day is divided up into 20 minute time slots and at the end of that 20 minute time slots she's supposed to write your prescription and that's supposed to solve all your problems. And you and I both know clearly that's not possible and so she's looking for alternatives and when she found out about all these Kalish stuff she's really hooked on it.

And she's got a bit of a problem in the moment and that she needs the money to do the course but she also needs the money to pay for her medical degree so but yeah, we're partnered now and she's an amazing asset and we started this new functional medicine practice and we've been having the same great results for everyone else as I had and it's really fun. It's so uplifting to hear the same story as mine just from someone else.

Robb: That's awesome. Are you guys doing in person consults? Are you doing remote? How is that working?

Christopher: Yeah it's great. So that's another thing that's fantastic about this system is that most of the tests that we do don't require a blood draw. So it's either saliva for the adrenal stress profile if you're feeling fatigue in the afternoons and you're not recovering from workouts as well as you should. And that's just a simple saliva test and the kits also work. They just get mail to you and then you do the collection at home and then you put them into a prepaid FedEx mail and send it to the lab and then the results come back to us electronically and then we do the whole thing by Skype or phone or whatever you've got. You don't have a need to see me.

Robb: Fantastic. So what's next? What are you guys looking at doing just growing this thing, getting information out to folks that you have this program going?

Christopher: Yeah. Absolutely. So we've been doing free consultations and that's getting out of hand. I'm not sure how long we're going to keep doing that. It's like you need to be careful that you don't go back. You need to be mindful of what it was that you did that lead you to this place that wasn't very nice and be sure that you don't go back there and it's been so popular that I need to be careful of that like spending, get to the point where the phone scheduler would be you hung up one call and then you start the next. You hang up one call and – that's very draining. I'm sure you've probably done it.

So yeah. We're working with some kind of exciting people that I'm really looking forward to seeing how they respond to this system, this protocol and seeing how we're building like an enormous corpus of data apart from anything else, collecting all these lab results, we're seeing what works, we're seeing what does all this. It's kind of an exciting place to be.

Robb: That's fantastic. What else do you want folks to know about what you guys have going on or your training or consulting or what did we miss that you feel is important?

Christopher: I think that anyone like athletes who got this super cool test that I mentioned once already it's the organics – the Genova Diagnostics Organics Profile. So it's a urine test that's got 46 different markers on it and it really gives you this amazing 30,000 foot overview of everything that's going on in your body. So rather than just not being single blood draw you just look at one marker, this is a test that just gives you a really broad overview.

And one thing I've been seeing a lot of that I wonder whether you had some input on was oxidative stress. So my uncle is a retired professor of pharmacology at a university in the UK and I've been talking to him a lot about oxidative stress and he's been pulling out papers from the database that uses the same methodology that shows oxidative stress in cyclists and then they show like double blinded crossover protocol where they reduce to eating lycopene from tomato paste and he was like – it's difficult obviously to explain exactly why but he's like do it. Just do it. You care more about tomorrow than you do about winning the race. Just do this.

Robb: Right.

Christopher: And we've been seeing the same thing in every athlete that we test. I was wondering what you thought about that like do you think – I mean clearly some amount of oxidative stress is needed for the training benefit but do you agree that could be too much for this maker?

Robb: Oh man you know, Hamilton staple myself, guy Nathan who's just wrapping up his third year going into fourth year medical student, we've been kind of working on a paper trying to define the whole performance health longevity inflection like how much exercise starts wearing away at the longevity axis for example.

**[0:35:00]**

And something that was surprising to me is there definitely seems to be a pretty good argument that so long as you don't orthopedically damage yourself in a way that limits your mobility because physical activity can do that like one of the downside is physical activity you can wear out knees and wear out hips and stuff like that. But again there's a big question about that like is that oxidative stress? Is that even a really that normal of a process?

But the thing that was surprising to me is across the board it seems like the more active people are, the longer they live. That just seems to be a consistent thing and kind of the more the better up to a certain point although now that we have cross-fit type stuff and people are able to you know instead of just train but actually test themselves every single day and never have an off season, never periodize or training I'm kind of nervous about some elements of that but it seems like people do well with the whole lot of activity. That just seems to be good.

And what's interesting was something like lycopene, I guess this is kind of true. They've done studies where they look at like high dose vitamin C or high dose vitamin E and oxidative stress and recovery and they just don't find a lot of stuff. But what's interesting to me with some of these plant or whole food approach is that these molecules work both as an antioxidant and a pro oxidant. There's some thinking and Chris Kresser and I talked about this recently that this hormetic stress response from eating a plant material in particular that low grade stress that is people usually say I'm eating plants I'm getting antioxidants that's true but those things may actually be functioning as a low grade pro oxidant which is

then immunizing you against the stressors from say really hard physical training.

So is it simply a matter of that lycopene is a fat soluble antioxidant so it's helping to quench some of the free radical spillover that's happening in the mitochondria particularly in the phospholipids bio layers and stuff maybe and it may be doing that and it may be doing some of these hormetic stress response elements as well. It definitely seems like once people have done a volume of training that has depleted, their glutathione then we start seeing some real problems and that's where you start getting like 4, 5, 6, hour long endeavors.

I think this is a lot of the benefit that we see from putting some weigh protein isolate or some brain chain amino acids or something like providing those sub traits for glutathione production. I think that helps keeps things going. Insect model but they increased both glutathione and superoxide dismutase activity in flies and it tripled the life span of these critters and SOD and glutathione work primarily as antioxidants but it's interesting that it tends to quench oxidative stress after it's occurred so you are still getting some of that potentially that hormetic activity whereas like really high dose vitamin C, high dose vitamin E, we might be shutting down the oxidative stress as it occurs.

So we're not getting the benefit and that lack of benefit may actually be opening that – that lack of hormetic stress may be opening us up to a further problem down the road so it's really interesting and that was a whole lot of jabbering without really all that concrete of an answer but I think those are green tea, coffee, lots of things we take in curcumin, curries, all this stuff.

They have antioxidant constituents in them but these antioxidants can work in a variety of different ways and you know exactly what the one way is I'm not sure but it is interesting though like where I would've probably been more conservative in my assumption about how much activity would start becoming deleterious to healthy and longevity. I actually think I have that bar set too low interestingly.

Christopher: Okay.

Robb: Assuming that there's good nutrition in play and stuff like that to support it. I think if you take somebody who's training a ton and their diet is

horrible then we've got a recipe for really accelerated aging and lots of problems from that but you know, doing something like paleo diet for athletes type deal and you know this is another interesting feature though of the ketogenic approach where it is a low grade stressor and so I think that it regulates a lot of the hormetic stress response and also it's much more thrifty with regards to oxidative spillover interestingly though.

**[0:40:00]**

So the route that the ketone bodies and the fatty acids take through the mitochondria is different than what carbohydrates take through the mitochondria and so we end up to say nothing of glycolysis and lactate formation. And with carbohydrate, you do get more oxidative stress from that. So that's another piece to this that's just really interesting and I don't know what the total story or where the inflection point is okay it's good until this spot and then it becomes deleterious. I just don't know.

Christopher: I studied upstate with my training now the ketogenic thing. I get back from a ride and it just doesn't affect me. I don't have the fallout from training in the same way and the recovery is so much faster and you keep asking yourself was that three hour recovery right? This doesn't feel like I've really done anything but...

Robb: Interesting.

Christopher: You know, you look at the training log and you're like no that was actually quite hard ride and that's for me is one of the most important benefits because I've got a seven month old daughter and it's kind of fun to play with her rather than just being couch the second [Cross-talk] I think everybody's like that really. A hands full of people in the world are taking a salary for doing what they love in sport but really most people are like me where okay, they're racing at the highest level or racing at all and nobody's collecting a salary for this. So what you really care about is the rest of the day, not just the race.

Robb: And you know, when I do Brazilian jujitsu if I've had a really hard training day like I am knackered after that. So two years old and we're starting to teach her a little bit of stuff with the soccer ball and everything and I'm just kind of cruising around outside and I'm like fuck I may need to take

up golf because I don't know if I can do this and when she gets older, how am I going to navigate those things? So that's really interesting.

When you were first playing around with the Kalish method stuff did you guys look at neurotransmitter status and like dopamine serotonin because I know that ketosis can enhance dopamine production which this – it totally gets out in the weeds but there's a pharmaceutical called selegiline which is actually an anti Parkinson's type of medication which I tried a little stint with this as a recovery aid.

And it actually worked really well when I was just blistering hard training session I would do a very small dose of the selegiline and I seem to bounce back much more quickly than I did from just a – I would do some post workout carbs and all that stuff which was helpful but actually doing a little bit of selegiline was incredibly helpful. Have you played around with the neurotransmitter status before and then after tracked any of that?

Christopher: No. I haven't tracked any of it but definitely when I first started doing it, when I first did an organics profile that's one of the things that shows is neurotransmitter turnover.

Robb: Okay.

Christopher: And then I started doing thyroxine and 5HGP so a 10:1 ratio and really what did for me was sleep. I wasn't really sleeping especially imagine with the blood sugar deregulation. I wasn't really sleeping. I'd almost wakeup at 2 o'clock in the morning pretty much starving hungry ready for breakfast but that, just stabilizing those and I bring up those neurotransmitters really help me sleep whilst I figure out my blood sugar situation.

But yeah, I mean now I really notice it in my concentration and it's changed my personality completely. I'm less argumentative, less kind of shy. I never would've been the sort of person that could start this type of business and spend all day on the phone talking to people. I just – I was the back office programmer that avoided eye contact.

Robb: Right.

Christopher: So there's no doubt but again I think it's another one of those really complicated puzzles that's like got health going on here and all sorts of stuff and hormones and..

Robb: Yeah. It's cool where folks like Dr. Kalish or Kresser, Michael Rucio even Doc Parsley is phenomenal with this stuff. Just being able to take a really objective outcome based measure of what's going on and we may not know exactly what the full mechanisms are but there's enough things that can be tweaked like playing with the thyroxine 5HDP that we again you keep notes on how do you look, how do you feel, how do you perform, we do some biomarkers whether it's saliva based or blood based.

And then we've at least got some sort of baseline so like okay we tried that. Scratch that one off the list and just keep working away through. When are you taking the thyroxine 5HDP? Is that multiple doses throughout the day? First thing in the morning?

**[0:45:10]**

Christopher: Yeah so thyroxine I'm not sure, I think it all levels out in the end. It's not especially important. Like if you're messing with cortisol then that's definitely important. Sometimes we'll use like a licorice supplement to slow down the breakdown of cortisol in the morning with someone with very low morning cortisol but with the thyroxine and 5HDP I think the timing is less important. But I did take it in the morning like half the dose of the thyroxine and then half at lunch time and then I'll take the 5HDP like 30 minutes before going to bed so that's the...

Robb: Okay so you are splitting those up.

Christopher: Yeah.

Robb: Which that's a – I started talking to Eva Twardokens who's a graduate of the Kalish certificate also and she was kind of goosing me to play around with some of these stuff and I was trying to take both at the same time which is I guess one of the protocols. This doesn't really get much mileage out of that and then they started separating out the thyroxine doing what you described doing thyroxine earlier in the day. And then the 5HDP I throw in with some magnesium water in the evening and it's just a step up above the valium for me like it puts me down pretty well.

Christopher: We found that as well. I've got people that've really been like a lifelong dependency on sleeping pills like Ambien and they do the 5HDP and the thyroxin like wow this work just as well and it's just an amino acid. What's going on there? This is crazy.

Robb: Right. And then they actually get into legit level 4 sleep instead of just being conscious from the Ambien. I only tried Ambien once doing these east coast west coast flights I would get a redeye every once in a while and I tried one on one red eye and the next day was just one of the most horrible days I've ever had because I literally I think had I just simply stayed awake it would've impacted me less negatively than the Ambien did on that one trip.

That bottle went down the sink after that. That was a horrible idea. And so now when I do these cross country flights I'll step it up and go beyond even 5HDP and do some melatonin with that and that works you know well. It still impacts me the time zone change impacts me but my sleep quality seems much better.

With this risk assessment program here I Reno we've been doing work with a really, really large law firm like a 15 locations around the world. I want to say like 30,000 lawyers in their whole network but this one group that we went and presented to when we started looking at these health risk assessments that we have, 70% of these people were on something like Ambien, Lunesta etcetera and this was like okay this is a disaster. Absolute train wreck.

Christopher: Yeah I mean I tried those two things and they didn't work at all. Naturally no effect. I could've stayed up all night having done Ambien and Lunesta. Just didn't work. Really quite strange. Everyone's different.

Robb: Right. You know at the best, they tend to put you into a level 1 level 2 sleep and that's if you really get the kind of best response off of it. Dr. Parsley just makes the analogy that makes you unconscious like getting hit in the head with a brick or taking Lunesta are essentially the same type of process and about the same level of benefit for you which is interesting.

Christopher: Sometimes it's melatonin too. We see that on the adrenal stress profile that we're running that's got melatonin on it and there's a definite correlation in that between people with poor gut health and low

melatonin. We're seeing a lot of that and you know, for those people, the sleep is everything. That's a key part of what we're doing here and selling sleep should be like selling sex. It should be really, really easy.

Robb: It shouldn't be that hard for the love of god yeah.

Christopher: So if you've got low melatonin then it can be really tricky getting to sleep so in those cases, sleep trumps all and taking melatonin supplement makes a lot of sense I think.

Robb: Right. And I tend to forget this but I think the bulk of serotonin production in particular occurs in the gut and I forget what the significance is whether that goes systemic and interacts with the brain directly but you know, it's important to remember that the brain communicates with the gut and the gut communicates with the brain and both can be stimulatory to the others.

So even if you're not getting circulating levels of these neuro transmitters you can get electrical signaling between the two and so if the gut's inflamed and having problems and not producing the right levels of neuro transmitters then that certainly could have affects in the brain as well.

**[0:50:10]**

Christopher: Yeah. I mean it's really the essence of what we're doing is gut health.

Robb: Right.

Christopher: We start with food so if you're not already on a paleo – the sort of typical person that comes to us is already eating a paleo diet and they saw most of the gains from doing that change but they notice that they still need that extra something, something in the afternoon like nuts or something sugary or the paleo treats or they still got sugar cravings and the foundation of what we're doing is gut health. It really is. The food diary is a phenomenal tool for that because you just make progress so much faster and then all these things are almost ignoring your symptoms.

It sounds kind of crazy but you can phone me up and give me this long laundry list of symptoms but really we're just kind of ignoring them and going after the root courses and letting the symptoms just shake out afterwards.

Robb: Which is smart because again when you start chasing the symptom, taking a big macro view, sleep, food, exercise, socialization, thinking about systemic inflammation like if you cover those bases and the person doesn't get better then they're from mars or something. There's just some sort of different physiology occurring here.

Christopher: Yeah.

Robb: Chris have you played much with heart rate variability monitoring? HRV?

Christopher: I have. Initially I found it extremely useful. I talked to my coach about it and he says well you're an experience athlete and I think those things are only for meat heads that can't listen to their body and you're not one of those people and you don't need it. And I kind of ignored that advice and did annually and initially I found it quite useful.

But then I found there are some things for me that can like completely destroy my HRV. So say I've like had a really busy day, a bunch of phone calls and then I want to go out and ride my bike and I'll check my HRV and sometimes I've seen it lower than my heart rate so my heart rate will be 65 and my HRV will be 50. I'm thinking wow that's not a god time to go train.

And I'll eat something like half an avocado and then take a nap and then I'll do it again and then it's up to like 89 and my heart rate's at 45 and I'm good to go so it's like I don't know I think you have to be a little bit careful what it that you don't – it doesn't mislead you. You know what I mean?

Robb: Interesting. Yeah. I think the folks that I've worked with using that. It's been super helpful for people who are meat heads, just complete love nuts and working with this – if somebody was a wrestler at some point, trying to get this person to not over train is just – you practically need like a taser and some sort of tranquilizer you would use on water buffalo or something because they have an amazing work ethic which is great but I've noticed that most of my role coaching people in like mixed martial arts and combatants and stuff and particularly if they come from a wrestling background my soul job is to prevent them from destroying themselves because they would train themselves down to a nub.

So for those people when they get this like red green amber red kind of feedback on just a very simple level then I can say okay, you're amber today but we've already have planned in three days off you know or lower intensity so we'll go hard today and then we're really going to take some time off on these other days. And they kind of buy in on that but I can see that whereas somebody is legitimately listening to their body that it probably has a lot less utility but I was just curious.

Christopher: Yeah but I think it's the same on the endurance side like who – if you're honest, who is really listening to their body like that? Who could honestly say that they've never been out and trained hard on a day they knew they should've taken it easy day and it's no one. But having said that, the other HRV tool I really like is the heartmath emwave has been really great for me and it's more kind of less tracking am I ready to train today? More kind of lowering cortisol you know.

It's like all these things in our lives, the work stress and the emotional stress and the emotional stress and the commuter, I mean all these. I mean you've heard a million times it's like oh just cortisol and anything you can do to reduce that if you're that type of person is really great. And so the emwave is another heart rate variability tool is a really good trick to do for that. And also there's an app called head space...

Robb: I've seen it.

Christopher: Yeah. I love that. That's my favorite thing and I want everyone to do that at the moment. It's got – you can go to their website, [getsomeheadspace.com](https://getsomeheadspace.com) and they've got a 10 minute challenge, it's like 10 minutes every day for 10 days and it's free. You go to see if you can do it. It's like so much fun. It's really good.

Robb: Very cool. Well Chris it's been great having you on here. I'm very excited for you guys. Where can folks track you down?

Christopher: So Nourish Balance Thrive is the name of the website. And if you just Google that or go to [nourishbalancethrive.com](https://nourishbalancethrive.com) you'll find this right away. At the moment we're doing free consult so you can call me up and we'll spend 20 minutes on the phone and then we'll give you a lot of love. It's like something you can't get from some of the top people, the top experts. What we're doing really is we're just letting that knowledge just trickle down. I'm still working with Dan Kalish so I spent some time with

him and then a lot of time with you which is what you really need to get better.

Robb: Fantastic. Well you know, it's a great model. Drug dealers do that.

Christopher: Yeah.

Robb: The first one is free and then they're basically hooked. So that sounds fantastic. Chris it was great chatting with you. I'm going to be in the bay area pretty soon so we should get together and I'll feed you a lot of fat and you can feed me a lot of starchy tubers and we'll have a good time.

Christopher: That's great. Thanks so much for having me on. It's a real honor and privilege. I've learned so much from this podcast and your work, the blog and everything. To be on this show is really something special. I wanna thank you very much.

Robb: I'm stoked to have you on. You just have to promise to have me on your show here at some time soon.

Christopher: Yeah we do. We're doing a Paleo baby podcast that we started now. We just recorded the third episode so that would be awesome.

Robb: I'm on.

Christopher: We just had a biochemist on actually. She talked about her experience with Hashimoto's but my wife is in ketosis as well and she's breastfeeding so that's like a whole another conversation. I'd like to have you on and talk about...

Robb: I would love to talk about that. Yeah. Fantastic. Well Chris, take care and we'll talk to you soon.

Christopher: Okay. Thanks Robb.

Robb: Bye.

Christopher: Bye.

**[0:56:57] End of Audio**