Paleo Solution - 366

[0:00:00]

Robb: Hey, folks. Robb Wolf here. Six listeners can't be wrong. It's another edition of The Paleo Solution Podcast. Today's guest, we're going to talk about some very different stuff than what we usually do. Ryan Frisinger is a biohacker, techno-shaman and visionary. He was introduced to me by Keith Norris, the big, big dude who helps run Paleo f(x) and he's been a huge inspiration in my life and a major connection of super cool people. Ryan, how are you doing, man?

Ryan: I'm doing very good. Thanks for having me on the show, Robb.

Robb: So, that was a super paltry introduction as far as biographical background. Can you flesh all that stuff out for us a little bit?

Ryan: Yeah, certainly. So, I mean, I think first and foremost, I would identify what the biohacker and those three words to describe myself. The techno-shaman and visionary kind of refers to PhD research that I was doing on sound and environmental restoration and we can get into that at some point. But these days, I'm mostly doing biohacking around genetics and around chronic illness and kind of informally got into it because I myself, I was a victim of bad genetics and circumstance and was exposed to toxic mold in 2010 and kind of had my life turned upside down.

So, I took my skills as a researcher and kind of figured out the biochemical problems in my own system and sort of became a self-made expert in genetics and nutrigenomics, among other things, and a lot of functional medicine interventions. And the biohacker label, hopefully something we can talk about a little bit today. I've heard that you may not have a fondness for that particular term.

Robb: It causes some puckering in me occasionally, yeah.

Ryan: And I'll talk about -- I think that would be a fruitful place to go because the way I think about biohacking is perhaps way different than just making Bulletproof coffee and taking some nootropics and things of that nature. I actually think about it more in terms of political orientation and a necessary stance especially when you have certain kind of health conditions that don't respond to modern medical interventions.

And so that's something that maybe we're talking about and then maybe looking at how biohacking and kind of using an expanded tool kit helps to make genetic information more valuable than perhaps most people are looking at it too

straightforward these days. That's kind of the snap chat.

Robb: That sounds amazing. Could we maybe start with just a deeper dive into your own personal health crisis and then what you learned in that? Because I suspect that we're going to learn a ton about kind of your methodology and your thinking by kind of unpacking that story. I know that a lot of people have experienced problems with toxic mold. My wife's mother died from rheumatoid arthritis 15 years ago now.

When they reconstructed everything that happened, they had super cold spell where they were living and they had like a headboard of the bed pushed up against the wall and then she started getting sick, she started having all these weird problems. It wasn't too long after this, they were just doing some basic house cleaning, pulled the headboard away from the wall and it was just covered in mold. And so they had been sleeping effectively under like a mold blanket and they can't really think of a precipitator beyond that.

She ended up dying at the age of 50 due to RA complications and so that's a really, really big deal and there's lots of different environmental triggers that can head people down the road like that. So, yeah, I would love to hear more about your experience.

Ryan: Certainly. In 2010, I lived in the Amazon rainforest in Peru and I was at that time a PhD student in comparative literature at the University of Southern California and I was doing my dissertation research on essentially shamanic consciousness and plants and looking at ways that you could apply that thinking to designing cities and doing landscape architecture. And so I was living in the jungle, about six hours by boat away from Iquitos and the little hut that I was sleeping in had essentially that black mold growing on the walls on the sort of the screen of the hut.

And I didn't know what it was. I'm a Texas native so I was very familiar with mold and allergens and I'd been allergy sufferer my whole life but didn't know the implication and there was a bit of rumors flying around camp that other people had gotten sick from it. And I didn't pay too much attention to it because I didn't have symptoms. And so I came back to Los Angeles and essentially a year to the date of the exposure I woke up in the middle of the night with essentially severe pressure in both ears, vertigo, and partial deafness which then spiraled into not sleeping for nine days straight, development of tinnitus, my gut went offline.

And essentially how toxic mold works, it just systematically takes one system down after another. And I have the HLA57 variant which means that I can't clear those micro toxins effectively out of the central nervous system. And so, for me, that started -- Well, I had to leave school and I was all but dissertation, two years in bed.

[0:05:05]

I was kind of a starving grad student so I saw a lot of doctors and probably threw my small fortune at my health, about $20,000 worth, and didn't get any results, saw all the best functional MDs and the best naturopaths throughout California and elsewhere. I had treatments and was on glutathione and cholestyramine and all the typical kinds of things that you do with mold but I just didn't tolerate any of the interventions.

And so I happened to have a friend who was chiropractor who also practiced what's called Biontology which we use the photons to treat various illnesses. And she kind of introduced me to 23andMe. This was in 2012, mid 2012, and I ran my own genetics and I basically studied biochemistry and methylation and the mitochondria and all these things at the genetic level and then looked at them genomically, how they relate to one another, and figured out, "Wow, my genetics weren't very good."

Part of the reason why I was not responding to the mold treatments is I have, something I'll talk about a little bit today, I have the CBS mutations. It's a very controversial in the genetic community but they basically made it impossible for me to take glutathione and to do a lot of that phase due to toxification of mold. So, essentially, I spent five years, 10% to 15% of my previous function, lost most of my friendships, lost my academic career but kind of gained a totally different research project and insight how to deal with these kinds of things.

Now, my client base is mostly people like myself and a handful of athletes. But it was a very nasty thing and there's a lot of people, Ritchie Shoemaker and others, who have developed mold protocols but it's certainly not a straightforward thing. And I'll tell you, the mold exposure, in my case, if mold and Lyme's disease happen to kind of be bedmates, it's rare to find someone who responds in a negative way to toxic mold. He also doesn't have some of the Lyme's coinfections. I see those all the time.

And I'll tell you also, a lot of the reasons why genetics break down and especially those that break down in the presence of mold exposures, you have to go back and look at kind of the grandparents and the mother and especially the mother's nutrition and the mother's state of being during pregnancy because a lot of that's what breaks down those methylation pathways and sort of makes those epigenetic areas of methylation break down so that you become a collector of toxins from which the mold becomes kind of the final domino that tips your body down into the hole and you can't get out of it.

So, it's a very kind of complex thing and I would agree with you that if you look when things usually start to go majorly wrong for people it tends to come from

that mold exposure, the dishwasher that leaked. Unfortunately, mold is not always visible and it's not always like growing on the wall. A lot of it is invisible to the naked eye, has no scent, and so it's a pretty, pretty dangerous thing and very difficult to treat and also difficult to diagnose because the way the symptom cascades kind of work when people present with mold, they tend to get labeled as hypochondriacs right away because their symptoms are changing all the time.

I'll tell you, I was diagnosed in that way too and was threatened with institutionalization and things like that when I first broke down. But I certainly was not mental. I was just on fire. Inflammatory cascade was just on fire in my body.

Robb: Right. Possibly an interesting aside, but in my second book, Wired to Eat, I kind of look at the word hypochondria. The Latin root, hypo, below, chondria is joint or cartilage but it also means ribs. And so literally the kind of Webster's definition of hypochondria is the area below the ribs which is the gut. And so it's interesting. I'm still asking this question. Did somebody way back when in medical land, did they know that all these weird recalcitrant, non-specific issues, were they gut related and so they call that hypochondria or was it just a weird fortunate/unfortunate thing that they're saying that the malingering patient is a hypochondriac when, in fact, most of the stuff ends up being gut related? But just kind of an interesting aside.

Ryan: I think it's actually a great segue because one of the things, and you mentioned Paleo f(x) in the beginning of the talk and Keith is going to give a talk on what I call medical hermeneutics, and I'll get into that a little bit later. But I've been studying a lot about the formation of clinical knowledge and diagnosis especially in France in the 18th and 19th century through Michelle Foucault, the critical theorist, in the story and that term hypochondria actually was purposely used by physicians to discredit a lot of the folk healers and a lot of the people that were practicing medicine outside of institutional worlds in the 18th to 19th century.

[0:10:04]

And one of the interesting things about it, and it's something you actually see happening today, is that those people who are labeled charlatan and kind of snake oil people were actually getting results on fairly intractable cases even in those days. And so a lot of those terms were semantically twisted and distorted back in the 18th -- And this is in France, of course. We can't extrapolate this out to the entire medical world.

But it was interesting to look at how language and diagnosis and who could diagnose and the gays and all the ways in which medical knowledge became codified in kind of diagnostic manuals, how that all operate and all the language that was used to sort of create symptoms. And ironically, it went from sort of a

close system in the body to one in which the doctor's gaze was all that mattered. And then we use cadavers to actually prove the sort of fantastical reaches that a lot of doctors were making in diagnosis,

Once they open the corpses up, they could see the tissue dysfunctions and so you see a lot with language. And then also the kind of political institutionalization of it that allowed certain sorts of diagnostics to be okay. And the word hypochondria, it's mostly used with complex cases. Every single one of my clients has probably been labeled that at one time or another. It's simply code for 'I don't know what's wrong with you and I don't have the time to fix it.'

And that's not necessarily judging doctors. I totally understand the constraints that they face with these illnesses. And we're just now learning about the layers upon layers that existing chronic diseases. It's really hard to make a diagnostic reading on a lot of these things because they don't really give themselves up to us easily. And so that's where the idea of hermeneutics comes in which is essentially the art of interpretation. But I've been looking a lot of that because I think that a lot of the ways that we linguistically program ourselves to think about medicine sort of predispose us to seeing certain types of pathologies and missing the obvious things that are right in front of our eyes.

And I think your reading of the actual meaning and the itemology of hypochondria is very true. I mean, you've got the liver and you've got the gut. If that area of the body is compromised even minorly and you get exposed to very powerful foras it's hard to come back from that. I think that's a really interesting aside that you make and a smart one that really, I think, a lot of people miss.

Robb: Thank you. Thanks. Yeah. And thank you for that. I've been trying to figure out if there was actually some deep wisdom in that or unknowingly doctors were like just stumbling right around the actual nexus of what was going on with these people. I know with my mother it took -- She had been sick for a long, long time but it took an incredibly long time for her to be diagnosed with celiac disease and then lupus, rheumatoid arthritis and this kind of interconnected mess.

Eventually, we figured out that there was a toxic mold issue in the house that we lived in for years. And we had been in there for 20 years, 30 years, all of us in that stuff. I'd just thrown a bunch of kind of shotgun stuff out there in thinking about my early life experience. Almost certainly my mother was gestationally diabetic. She smoked while I was in utero, I mean, not a horrible, horrible diet by standard American practices but not particularly good.

Smoker's house, so definitely some toxic load, some dairy issues that led me into constant sequence of antibiotics, first for like strep throat type stuff and then later the acne that I had from diary got me on the tetracycline from the age of like 13 to 21, and then you start looking at that and these things are

mitochondrial disruptors and so the whole energy production system is kind of haywire, almost certainly some gut microbiome issues, a really ripe environment for fungal overgrowth that could be occurring, biofilms and blah, blah, blah.

It's been a really long process for me to unpack all of this. I'm still fiddling with it. I have to admit. I did my 23andMe way back around 2012. The unfortunate thing is I submitted it or I received the kit probably six months before the FDA like jumped on them and shoot down their larger reporting. And then I didn't turn it until they had kind of their ears pinned back. But I have put some of this information through promethease and some things like but really haven't done a super deep dive.

But how did you go deeper on that? Did you use something like promethease? I mean, there's so much information there. How did you make a decision about where to look next?

Ryan: Well, when I was looking at things, promethease didn't exist and I actually on my website kind of talk about promethease and a lot of these algorithms. Interpreters of raw data from 23andMe is being a big problem because they don't tell you anything. They just tell you what's in the data and they don't make any meaningful conclusions about it because they're unable to because they're bots essentially.

[0:15:23]

Really it was -- I prefer to LiveWello if I'm going to use any of those kind of pay for translation technologies and I will use and LiveWello and translate and I have my own custom LiveWello that I've created that look at the gene sets that I care about. So, I kind of just started with the obvious things. For me, a person who's controversial yet I still hold her as being the best person that understands nutrigenomics and genetics as it pertains to chronic illness, and that's Amy Yasko.

She definitely gets a lot of ***[0:15:58] [Indiscernible]*** because she sells a lot of supplements but she's very smart and understands, I think, how genetics play into the unfolding of chronic conditions. And so what I would look at it is I reconstructed kind of a timeline and I think listening to your story, I think, that's really important to start to look at those bigger health crisis as kind of the snowball that's formed that began maybe 30 years ago for most people.

I can honestly say that my health conditions weren't caused by the mold. In 2010 the mold was what revealed them. And so, I would say, in my case, I nearly died at two days old because they didn't the antibiotic fluid out of my lungs and then I was hit by a drunk driver at four and so my nervous system was really screwed up. And when that happens, your gut kind of fall apart. My mom also smoked, all

of that. So, I was looking at a lot of, okay, here's events and flags that I can look at in my personal health history.

And then you start to normalize kind of dysfunctional health where it just comes in the background. You don't realize that you're not really performing because the symptoms are already making it in your conscious radar. But when I started to look at that I started to look at what areas of methylation, for instance, were weakened in my systems especially with the CBS up regulation, which for listeners that my not know, it's essentially connected to one of the primary cycles, the methionine cycle of methylation, and it should help to construct glutathione down at the end of the chemical pathway.

But then people that have up regulated CBS activity, it essentially burns up all your methyl donors and doesn't allow any to make it to any other parts of the methylation cycle. So, your neurotransmitters are never stable and you don't really have energy to kick into the Krebs cycle. And so you basically have a weekend batter and poor cognitive function, to start, but you also end up manufacturing more ammonia and you'd accumulate excess taurine, which essentially shuts down transsulfuration.

And so, for me, I started looking and that was a problem for sure. And having known that I was exposed to mold, I knew that I have a lot of kind of micro toxin related things and ammonia being a major byproduct and contributor to kind of breaking down mitochondrial health and the mitochondrial membrane and cell membranes, so I used a lot of the technologies of Lyme's, dealing with Lyme's coinfections naturally in relation to the genetic data to kind of help to pull myself out of the hole.

So, I first dealt with transsulfuration. The MTHFR mutations which everybody has heard of these days, methyl tetrahydrofolate reductase, I had both of those and I had single copies of both of them. But I don't consider those mutations to be that important and they're way over emphasized and I think I did need to supplement with folic acid and B vitamins and methylated nutrients to bypass that blockade. But it was really the transsulfuration problems and then I really learned what gene sets were available that told us about the mitochondria.

And in my case, I found out that four of the five respiratory chains in my mitochondria showed up as being genetically damaged. And so not only were my mitochondria leaky but they were also unable to transfer folic acid into them. And that's not to say that the genes showing up with mutations are snips in those guaranteed dysfunction but in my case, I could assume that because I've seen it my entire life.

So, those are really the big ones for me. I just really started to study all of that stuff. And I think what gave me a leg up is that I was essentially a literary scholar

but I've been in interdisciplinary research my whole life and I have done work in every discipline and I had also had and studied Chinese medicine and acupuncture and herbalism and all that on the side growing up because I saw those sorts of doctors growing up and I came from a medically oriented family.

[0:20:00]

So, I had already sort of the language for understanding it but it was really taking a different set of eyes to that research and looking deeper but really looking to construct the story of myself around my genes that would allow me to see which ones are priorities to study. And then you can kind of sift out and realize like if you look at a gene as being a metaphor for the activity of the entire cycle and you can start to see not only within methylation but say you go over into the allergy pathways or the thyroid or you look at clotting factors and things like that which you'll start to see as that there are genes mutated that have similar functions in multiple biochemical regions of the body. And that's when I could start to say, "Okay, here's what the problems are."

So, basically, because I was really poor at that time, it was really about going Paleo, figuring out some rudimentary ways to support the mitochondria and really looking into things like lipid replacement therapy. For some, that work. And then figuring out how to bind up those ammonia byproducts and things like that. And those were the initial things that I did that took me from like 10% function back up into the 50s where I could start to sleep and kind of put a day back together.

And then from there, I kind of continued to research and really start to figure out how to drop certain nutrients that were missing or not converting well into those cycles in much lower doses than prescribed by a lot of the people that were looking at these things biochemically and then trying to see if the body would self select if I could give it the ingredients that it needed. And I really don't think that it's real different from your work in Wired to Eat.

I think, one of the most humbling things about life especially when your health goes wrong is realizing that we are constrained genomically on how we should eat, what kind of light we should be exposed to. And it was sort of accepting that and not trying to outsmart the body and just trying to sort of live in the past while in the future kind of thing that allowed my body to kind of come back together. But it was really about using methylation and using certain kind of nutritional pathways to skim the layers of toxicity out of the system.

Robb: Amazing.

Ryan: And that's kind of what I did. And I've seen a lot of -- I've worked with everything from autism to Parkinson's disease and a lot of mysterious illnesses and I've

started to see sort of patterns of mutation and genetics that show up. Like I can say there's 50 ***[0:22:26] [Audio Glitch]*** that are patterns with the RA or the lupus or the fibro people or people that have more of the cognitive presentations. And then I've even worked with alcohol addiction and some drug treatment centers on fixing brain chemistry and while they go through detox.

And there's even genes in there and a lot of those folks actually don't even carry sort of the alcoholic recidivism genes. They actually carry a lot of problems in their inflammatory pathways with inflammatory mediators like cytokines. And so there's interesting ways in which the genome breaks down and then the symptom or the diagnosis flows out of that but it's like there's different body types that break down in response to different triggers.

And there's a lot of similar as well like life experiences, car accidents being prevalent in one kind of disease versus bad breakups or other sorts of trauma. So, trauma definitely factors into all of this as well. And so, just kind of really trying to map all that and trying to look for patterns is kind of been what my work has been the last five years or so. And while really deepening a kind of a clinical application of genetic information so that it's not just, "Oh, you've got two MTHFRs. Let me give you some methylcobalamin and some 5-MTFH." That's not how I like to work at all because I don't think that respects -- The way the system is expressing its own genetics.

Robb: Right, right. Man, it's incredible. Just as an aside, I have like 75 tabs now open because I've been taking notes on different things that you're throwing out there. So, my weekend is going to be ruined at this point, basically going down the rabbit hole of all this stuff. This is totally amazing. Ryan, so, I mean, you're operating at a remarkably high level with all this stuff. I feel literally like a caveman when I'm talking about personalized nutrition and I'm saying, "Hey, let's be aware of potential immunogenic responses to foods that may make you foggy headed and let's keep an eye on your blood sugar level."

That's basically the whole level of sophistication that I'm working at right now. But what are you doing? So, you mentioned that you did some tinkering with the Paleo type of diet. I mean, are you recommending -- I guess, I'm trying to figure out kind of a bracket of what's happening nutritionally, lifestyle-wise. Are ketogenic diets making their way into this in a systematic fashion? Are you getting people to install light boxes so that they get more AM circadian rhythm entrainment? What is kind of the overall process? But it sounds like it's really granular and really specific depending on the situation you're dealing with.

[0:25:12]

Ryan: Yes. That's kind of one of the challenges. So, to kind of speak to your first point, I actually think that the search for a simpler protocol is really what I'm after at the

end of the day and, I think, Adam Farrah, think of his book, kind of what's missing in your Paleo diet and realizing there's all these incredibly restrictive versions of the Paleo template that end up being prescribed for people. They not always really work for those people because there's not compliance.

So, one of the things I will say, all of my people have to go on some version of Paleo diet and if we could kind of move away from the idea that Paleo thing, it's just a diet that is free of grains, dairy and sugar. I mean, it's hard to invoke a healing response in people that are that compromised without doing that because the gut tends to be the center of attention. But some of the things that I think are part of the diet like low histamine and low thiol diets tend to be really important to what I do.

And so if you want to think about folks that have studied that, Andy Cutler would be a good person with kind of the mercury toxicity in a lot of his binding protocols because thiol, high thiol groups promote the, essentially promote the secretion of mercury in the system and they increase their position elsewhere in the body and especially if you're not detoxifying properly. But high thiol diets also, if you have CBS mutations and other transsulfuration issues like SUOX and some of the other enzymes in that pathway, they tend to invoke a fight or flight response in the body.

And I've actually worked with people that had been on Wahls protocols and had really negative results from that diet because one third of that diet is high sulfur, high thiol foods. And so with certain types of issues like mold and Lyme's and pain syndromes and even some of the neurological or neuroimmune disorders, low thiol diets, will also be mindful of histamine levels in the diet are kind of a must because you have to sort of stop that offense to the body because it creates a lot of inflammatory and oxidative damage to the system and you have to kind of stop that.

So, that's kind of one. Keto diets definitely have a place in my protocol especially for the cognitive folks. It's a trickier one to apply because I haven't seen that keto diets work evenly between genders and I would say 70% of my client base is female, at least at this current moment. And so the hormonal cascade in women may be a little bit more complex and you have to kind of tweak keto diets to that end especially around cycle presentation and all that.

But I think that the keto diet is really important for me more in a diagnostic level than on a therapeutic level, at least in the beginning, because it will tell us a lot about how much, is there infectious material on the brain, kind of what's signaling pathways have been crisscrossed especially if there's hormonal issues, which there always is with mold. You kind of have to untangle and reestablish a lot of that brain signaling and keto diets are fantastic for that.

But I really also have had to have a bit of humble pie in the last couple of years because my programs for certain people are complex and they're hard and so I'm always searching for that minimum effective dose. Can that person kind of get away with more of like a primal diet or they're pulling kind of Mark Sisson's very basic Paleo or did they need to go on something really restrictive like a low thiol? And I've played around certain people can get away with that but others have to be almost 100% compliant to that low histamine low histamine low thiol issue.

But I'll also use genetics to determine that. So, if I see, for instance, people have issues with telomere maintenance and there's some genes I look at for that, and then I'll look at whether or not they have issues that predispose them for like mass cell activation which is something I think we're going to continue to hear more and more about as we move forward then those people absolutely are going to have to go on a low histamine low thiol Paleo, which looks very similar to an autoimmune protocol minus some certain foods.

Other people where their illnesses aren't that severe and there's kind of mild bacterial issues and things like that, they can get away with doing like a simpler whole 30 or something like that. But Paleo templates are absolutely where we have to start and I've never been able to get results without people pulling out those foods. I mean, I could get them results but the body never heals fully. The other thing that I would say is that fasting is at really crucial for a lot of my people and figuring out how they should fast whether it's kind of a leangains, 18-6 or an alternate day fast or a 24-hour fast or whatever.

[0:30:08]

Just trying to find a fasting protocol that works really helps a lot when you start to clean up the diet and you start to work on the genetics and methylation reboots and you see the body start to clear things out, having that autophagy activated and kind of fore grounded on what you're doing with them really helps them to heal faster and avoid a lot of the potential like Herxheimer responses that you see when people start cleaning their system out and they'd been sick for a long time.

So, fasting usually tends to come online. Sometimes that's tricky if there's mitochondrial weakness that have affected adrenal function and things like that. You kind of have to figure out where to start them in that regard. But fasting, I think, is really important to kind of connect back into your work a little bit. I've really seen that kind of a fasting protocol that is with carbohydrate intake, as Jack Kruse would say, yoke to sunlight with periodic fasting is really incredibly healing intervention on its own right.

And so I tried to really model that and it's weird like people that eat perfectly on

my protocol say they're 100% fine and low histamine, they get better results any time they do the fasting on top of that. And so I find that really interesting which tells me that the body requires that to heal. And it requires that to thrive because that's what we're wired to do. So, that's kind of the snapshot.

I know that probably sounds complex and all over the place but it really is super individual to that person and sometimes it would take us two or three months to kind of sift through what's happening and figure out, hey, what is going to be the impactful diet that you can stick to that has the biggest bang for the buck and we may have to work together to figure that out over a month or two. And so sometimes I start on one kind of template. I do tend to start people cold turkey. I've tried the kind of removing one food group at a time but it doesn't seem to work all that well, at least my client base.

Robb: I've had exactly the same experience and I really try to warm up to this idea of, okay, we're just going to delete real soda and add diet soda and then at some point down the road we'll peel out the diet soda. But what I noticed or my interpretation of that whole process was that we were limiting some of the things that they liked just enough to piss them off but we didn't limit the things that was negatively impacting them enough to actually move them in a favorable direction.

And so I've kind of noticed that jumping with both feet definitely seems to be a better deal there. I'm curious on this fasting and the kind of circadian entrainment. Are you leaning more towards more calories, more carbohydrates earlier in the day? Like decent size breakfast, maybe a super robust lunch and then perhaps no dinner. Because I know from a lifestyle standpoint, it's usually easier to delete that breakfast and perhaps have a brunch and then a dinner.

Bill Lagakos who's a pretty solid guy on the circadian biology story, he's been painting a picture that we would be better off eating those carbs earlier in the day, more calories earlier in the day, and then little if any dinner. Where is that stuff playing out for you?

Ryan: I think that's a fantastic question because, I think, the assumption from all the sort of popular whether it's a bulletproof diet or Martin Berkhan's leangains or even some of the kind of Dominic D'Agostino stuff with the ketogenic work, it always sort of suppose that breakfast was what we should skip and then you do like a 2:00 to 8:00 p.m. window of eating and kind of go from there. I think the science and, I think, clinical research is starting to show us that, yes, it's better to do your breakfast and actually begin the fasting window after the day is gone by and do it more in the evening hours.

What's tricky about it is I haven't seen enough data to be able to answer you with a high degree of certainty and whether frontloading carbohydrates and

starting the fast in the evening is better. But I've seen that for certain people it works better. And so, for me, if there's compliance and the fasting window has to be moved to the back half of that 24-hour cycle then that makes sense to me. I would think from an evolutionary perspective that the food that we would need, the carbohydrates and the things that we would need to allow us to do work and kind of be active would make sense to be doing that during the day time.

So, I think it's really a matter of experimentation. I know that there's a lot of people, Tim Noakes and some folks that have studied low carbohydrate diets and the Banting diets from back in the day, that I think would be in agreement with frontloading carbohydrates if they're even allowing much of the carbohydrate, because they tend to be more privileging of ketogenic diets. But it's sort of -- It's a kind of prismatic reality around fasting and the ways in which or what the macro should look like in a fasting protocol.

[0:35:09]

I've seen that people do better cycling in some carbohydrates. I think that the Perfect Health Diet from the Jaminets, for sort of a constant but tiny trickle of glucose has been very helpful for a lot of my people where food is a major part of their issue to allow them to kind of get through. And then after they start to regulate more, then they can kind of pull that glucose on a daily basis way down.

But I would think that, my intuitive leap on that is that it's better to frontload carbohydrates and that it's better to do that. And if you've seen that 5-2 diet that is a variation of the alternate day fast that has shown a lot of neuroprotective abilities, essentially that protocol you're eating your normal -- They don't even care about food quality, the research that's been done on it.

Say you're eating Paleo and you're eating your normal amount of calories per day, 2200 calories a day, on the fasting days you would eat a meal of 500 calories if you're a woman and 600 calories if you're a man and you do that twice a week. And they've shown that that has all the calorie restriction effects of really severely restricted diets in terms of calories and has most of the same effects of daily intermittent fasting.

And so I've actually been playing around with that particular protocol with clients because it's super easy to comply. And even on those fasting days they get to eat. They're eating just a tiny amount of carbs. And I have them basically protein fast. So, they're eating 600 calories but they're eating less than 15 grams of carbohydrates and they're eating it in the morning in one single meal. And so I've seen some fantastic results from that, qualitative and in labs.

And so that's been kind of encouraging because I think the discovery of

something that people can follow in a modern context without feeling completely deprived which is an elephant in the room any time you have a client because you know that the diet is going to be the hardest part. And I take coffee and all kinds of stuff away from people. And so I've got to try to figure out a way to negotiate and have some carrots back to him.

So, I've seen that a 5-2 protocol that builds in calorie restriction and has a fasting element at least twice a week. And it ends up being nearly a 20-hour fast twice a week. So, it has pretty effective backend health transformation potential. And then I've worked mostly with regular sort of 16-8 protocols in my athletes and they tend to do well on that. And those usually are breakfast skipping people. I think it's a great question and that's something that I'd like to see more sort of shared data from practitioners about, you're almost running around studies because you can't get those things funded just putting groups of your clients if it makes sense for them on those sorts of protocols and then gathering some kind of data that way to see what it looks like clinically.

Robb: Absolutely. Yeah. Just empirically my own experience, when I shifted more calories earlier, more carbs earlier, particularly like kind of taking advantage of that post workout period doing some Brazilian jujitsu around 11:00 a.m., that wraps up at noon or 1 o'clock, and then doing a really good size meal there. And because I have two young daughters, I still kind of need to do dinner but it's been more just like some veggies, maybe a little veggies, some protein. But I've dramatically shifted the caloric load earlier in the day and I definitely seem to feel better.

Even that fasting in the morning, I would notice that I would, after eating, I would still be kind of lethargic and tired, maybe feeling a little bit blown out. Whereas if I stick to food earlier in the day I don't seem to get that effect. And I don't get that effect in the evening when I'm in that more extended fast period.

Ryan: I think, just hearing you talk about it and kind of listening and just figuring out some way to hypothesize, I mean, again, it would make sense if -- I mean, I haven't studied the history of human hunting and human food gathering. I have studied a lot of sort of anthropological ideas around eating and types of food but I would think that you would recover at night and you would wake up really hungry and your first thing would be to go and try to kill or find something to eat. And so it would make sense.

And if you think about the types of UV radiation that come through the atmosphere, what times of day and all the interactions that those spectrums have with the cellular biology of the system, it would make sense to do it that way. I think what would be interesting is to figure out certain variables, the lab variables that we want to maybe look for a transformation interchange and kind of work looking at that. Some of the stuff that I've played around with fasting as

well is, and having studied a lot of the same thing, there's same things that Jack Kruse has, a lot of the kind of easy water and a lot of the cellular machinery and light and all that.

[0:40:09]

I've seen a lot of interesting effects with using salt water and certain types of hydration and then conscious sun exposure in the morning, certain bio hacks to kind of catalytically activate nutrition. And so, I think, that doing that, combining it with intentional sun exposure on certain regions of the body at a particular time especially in those early morning hours when the sunlight isn't intense enough to do damage, I think that all that would sort of play into how effective that kind of frontloaded carbohydrate intake with backend fasting would be.

Because then you're sort of adding all the sort of the reactionary stuff and the chemistry level of the body into that. But that's just my guess. I've noticed that I felt better doing frontloaded fasting personally as well while getting out and getting in the sun and kind of getting moving and just getting that early exposure. That tend to feel better to me on a very anecdotal level I've noticed things like that.

And I've also done a lot of work combining fasting with really high dose fish oil interventions to the chagrin of a lot of people but kind of playing around with Charles Poliquin and Mauro Di Pasquale's work with those really high levels of EPA and DHA as part of fasting and light exposure. And I've seen some really interesting results with that too.

Robb: Could you unpack a little bit of that? I've followed both Mauro and Poliquin's work for a long time but, I mean, it's definitely different particularly there was a, ten years ago there was an emphasis on taking more EPA and DHA and then that is kind of shifted and fallen out of favor. But there's some interesting arguments and then particularly again when you start talking about circadian entrainment and kind of this biophysics interface on this, it gets another layer of interesting.

Ryan: Yeah. So, I mean, I had heard of the Poliquin, the high dose, 30 and 30 to 45 grams a day of omega three with DHA and EPA mostly from fish oil sources years ago and I never really played around with that at that time. I was an ethical vegan and kind of played around but I always thought it was interesting. And the argument that those two gentlemen made, or actually Mauro made it, is that when our brains took the quantum leap we were getting about 350 to 400 grams of omega three a week from animal sources. And they argue that that was sort of responsible for the quantum leap in consciousness. And that's one of many competing theories.

I've looked in the anthropological literature for evidence of that. I have seen

some evidence but not those specific numbers. And so that's where they came up with the idea of 30 to 45 grams a day. So, when I'm just playing around with that, I had also read some work on just EPA and DHA from just kind of a popular health book and the names are escaping me a little bit right now but it was from the early researchers that studied the Inuits and a lot of the tribal communities that were basically eating almost nearly 100% fat diet in terms of macro.

And looking at the effects, the electron effects and kind of just the fatty acid breakdowns in those tissues, and so I kind of started to think about it. And I just wanted to play around with it. So, I did a bio hack sort of combining that with -- I did 30 grams of omega three and I don't remember what the.... It was a lot of combined EPA and DHA, probably about 8,000 per day. And the first thing I noticed is that my hunger was non-existent, my vision and just the quality of vision improved, my eyesight improved. It was a very like kind of a nootropic effect.

It was almost like, felt almost psychedelic in nature and really amazing hyper focusing where I just felt dialed in. And I'm a meditator. I practice transcendental meditation regularly and, I mean, I felt -- It was almost like that 40 years of zen work. It was an amazing cognitive experience. The only drawback that I ever saw was that my skin felt very dry and dehydrated. But as far as kind of scientifically verify that stuff, I couldn't but I'll tell you, and Keith, if you ever want to ask him about this, he did it along with us and some other friends did and we kind of did a small group.

At that time I was also studying Jonathan Lee, or sorry, Joe Leverman's work on syntonics, which is using different -- he's an optometrist -- to use essentially different lights, frequencies and he used to kind of deal with muscular degeneration and a lot of eye and sight issues. And so I was really studying how to put the high electron value of fish oil and that kind of EPA DHA is being a rocket fuel for the brain and the brain chemistry and then combining the light and the hydration aspects with it.

[0:45:08]

And I definitely felt that by doing that, something was happening that was profound. I only did it for 30 days and I've kind of got busy but I have some ideas to sort of do some different little hacks and experiments on myself with that. But I've recommended it. And Keith ran an omega three-omega six fatty acid test that was significant. I believe his omega six to three ratio was extremely out of balance even beyond Paleo. It was like 12-14 to one. And the 30 days of the high dose fish oil nearly corrected it and probably made him a little bit overboard on the omega three but it nearly reversed all of that omega six-three imbalance that he had going into it.

And for something to do that in 30 days, one of the other things that I noticed is my blood pressure, I've kind of had issues with my blood pressure off and on. It's one of the sort of family issues that I have. My blood pressure usually was around 120 over 90. After that 30 days in fish oil, I was about, I don't know, 108 over 69 and it never came back. And this has been four months since I completed it. It's never returned to those higher levels. It stayed at that level.

And even when it was, the times that I had it taken, I was at the dentist's office where I usually do not like being and it still stayed really low. So, that was really interesting. So, clearly, it works. As far as like the initial reasons, body comp, transformation and kind of the inflammatory reduction, potential of that, I noticed some of that but more of it was more on kind of performance and brain performance more so than the reasons that Charles and Mauro initially prescribed or offered those ideas. So, that was kind of interesting too, that my experience wasn't so much like that. It was more brain-oriented and performance-oriented.

Robb: Interesting. Do you mind mentioning the brand that you used on that?

Ryan: I've tried every fish oil but I like the Pharmax Finest Pure Fish Oil. Unfortunately, it's anchovies and sardines. But I've just had really good results with the Pharmax not only with the fish oils but also their probiotics and really like their companies and they're part of sort of Seroyal company from the UK. But that's the one that we use because it was pharmaceutical grade and I was able to get it at a discount from one of my practitioner sources and so I really liked it.

I'm not necessarily a plugger. I've tried Krill Oil on multiple different types and then just marine algaes and things like that. But for me personally and for a lot of my clients I've seen better results with Pharmax but that's what we use, was the Pharmax Finest Pure. And it was also easy to take. I mean, it doesn't have -- It has a little bit of an orange oil flavor and was easy to take. I was doing three tablespoons a day of this stuff.

Robb: Right, right.

Ryan: So, I had to find something that I could get down and I didn't want to swallow up a bunch of capsules.

Robb: Absolutely. Ryan, this is fascinating stuff. I want to be respectful of your time. Just for my own selfish reasons, I could go on for like six hours here because I have a zillion questions to ask you but can we maybe circle back a month, two months down the road and get you back on the show, would you be willing to do that?

Ryan: Most definitely. I'd be happy to give an extended talk. This is fun for me.

Robb: Awesome, man.

Ryan: I'd be happy to have this, continue this conversation at that point.

Robb: That would be great. Let folks know where they can track you down on the interwebs? You do do consulting around this work, right?

Ryan: I do. So, mostly people refer to me as a genetic consultant. I do genetic stuff but I also do very normal functional medicine things. I just happen to bring genetics in because it fine tunes what we do. But I do. I mean, I work with people every day on this particular stuff and so if people want to find me, the website is called kosmicanimal with a K. And they can look me up there and my contact information is available if you want to send me an email and have questions, it's info@kosmicanimal.com.

People just want to read a little bit about genetics. I try to go into the difference between kind of real genetic analysis and the algorithm programs that are out there for $20 that spit out your raw data. I talk about the differences between genetics, genomics, epigenetics, epigenomics and really just try to give people a much more expanded view of why this stuff is important and then sort of how it can impact them. I work with all types of people.

My initial client base are mostly people like myself that had seen 30 plus doctors. But I've been expanding and working with athletes and just regular people that are wanting to get better. But that's where they can find me. And if anybody has any questions, just send me an email. You can also give me a call as well. The phone number is up there. And I'll be at Paleo f(x) as well talking on medical hermeneutics. And I'll be on a few panels there, genetics and also on botanical medicine and things like that. Feel free to come out and see that as well.

Robb: Awesome. Well, Ryan, I'll see you at Paleo f(x). Thank you again for taking the time to do this. It's just been a mind blowing podcast. Awesome stuff.

Ryan: Thank you so much, Robb. It's awesome being on the show.

Robb: Okay. We'll talk to you soon.

Ryan: Thank you.

[0:50:34] End of Audio