VIDEO_ Diet Doctor Podcast with Robb Wolf (Episode 24)

Dr. Bret Scher: Welcome to the Diet Doctor podcast with Dr. Bret Scher. Today, it is my pleasure to welcome Robb Wolf as my guest. Now, Robb is one of these amazing people who has expertise in so many different areas and I think you're going to see that in our talk today. We cover politics, we cover the biology and chemistry of food science, we cover the emotions and the psychology of it.

And of course, we cover sort of how to view these things from a different perspective because one of Robb's messages that I think is so important is that we shouldn't get bogged down all the time in the specifics, whether it's genetics or whether it's number of carbs or whether it's paleo or keto, but sort of view it from a health perspective and make it an individualized approach, specifically when it comes to metabolic health and carb flexibility.

So, I really hope you take away some of Robb's perspectives and you're able to incorporate that into your life, to say okay, how does this fit in to my bigger picture of health. Now, Robb is a very prolific author with The Paleo Solution and Wired to Eat. He's working on two new books which we'll hear a little bit about at the end, and I can't wait for those to come out. And of course, he's got a number of videos on YouTube and of course his website robbwolf.com.

So, I really hope you enjoy this interview as much as I did about this just whirlwind of different topics and the perspective of Robb Wolf. And if you want to see more, you can see us at dietdoctor.com where you can see the full transcript and of course all our other interviews. So, thanks and enjoy this episode. Robb Wolf, welcome to the Diet Doctor podcast, it's a pleasure to have you here.

Robb Wolf: Thank you, a huge honor to be here.

Bret: Yeah, well, Robb Wolf takes on a lot of different meanings when people think of who Robb Wolf is, so I want to start with who really is Robb Wolf because sometimes when you listen to you speak, you can sound like you're an anthropological PhD or you can sound like you're a biochemistry PhD, or you can sound like you're a functional medical practitioner with years of experience or you're the CrossFit expert. You seem to branch across so many different disciplines and who's Robb Wolf? How did you get to the point of having so much expertise?

Robb: Oh, man... One - thank you. Some good luck and I guess some hard work. So, I stumbled on this kind of paleo diet concept in 1998 as part of a health crisis that I had and it was kind of

the last ditch, you know, roll of the dice, to try to deal with the ulcerative colitis that I was dealing with. But my mother had been diagnosed with celiac disease and a whole complex of interrelated autoimmune conditions, lupus, rheumatoid arthritis, Sjogren's, and now, when we kind of look back, that's super common.

We see that all the time where people have these complexes of autoimmune conditions but at the time, it was kind of this novel thing. But her rheumatologist had determined that she was reactive to grains, legumes and dairy. And when she told me this at the time I was a very sick vegan and again, the ulcerative colitis problem and whatnot. And I sat there thinking like, she can't eat grains, legumes and dairy. What on earth do you eat if you don't eat that, you know? I mean, the dairy wasn't an issue for me at the time because the vegan shtick, but I was like, grains, legumes and dairy, man that's like agricultural.

What did we eat before agriculture? And I was like, oh, caveman, Paleolithic, Paleolithic diet. So, this is 1998 and literally it was a stream of consciousness and I had heard this term "Paleolithic diet" and I went into the house, turned on the computer, waited for it to boot up and do its thing. And then there was a new search engine out called Google and into Google I put the term Paleolithic diet and I found a lot of material from this guy Arthur De Vany and less material from a guy Loren Cordain.

And I started interacting with both these guys, I ended up shaking Loren down for a research fellowship and spent some time at Fort Collins. And so, I was right at the beginning of that scene and then, I've always been interested in kind of the strength and conditioning world. And in 2001 when I was poking around online, I found this really weird workout called CrossFit and they were referencing the low-carb diets and paleolithic diet at a time when nobody, I mean, nobody talked about this stuff.

Bret: Yeah, this is back in 2001, right.

Robb: 2000, 2001. So, I ended up cofounding the first CrossFit affiliate gyms in the world and worked with CrossFit HQ for a number of years and so, I've been really lucky to be at kind of the ground floor level of a lot of these I guess, kind of movements that have really arguably changed the world that we live in in a lot of kind of ways. So, very fortunate in that regard.

And then, I don't know why but at a reasonably young age like in my early 20s, I kind of sat down and I thought, what are these like, big picture governing concepts that help you understand the world. And I, for myself, I kind of boiled it down to economics, evolution, and what I would call like thermodynamics, you know.

I mean, basically physics but really thermodynamics because of like the energy input and energy output. If someone says, hey ethanol is a great fuel source, you know for carbs, I would say, okay, well do you get more out of it than you put into it? And they say no and I'm like, okay, then it's not a good fuel. And so, if you're able to run things through some basic economics like

supply and demand, and you know efficient market theory and some stuff like that, it really, in things like moral hazard, like if you're going to set up a safety net for people, make sure that it doesn't turn into a noose that keeps them trapped there for multiple generations.

Like there are some basic economic stuff and then using this evolutionary template, it doesn't answer all the questions, but it helps you ask some really good questions about, you know, ranging from human health, psychology, to movement to our circadian biology. And like, it really gives you kind of an advantage and so, I'm not a particularly smart guy but I've got kind of an operating system that I think gives me a disproportionate advantage when I look out at the world and I try to figure out what's going on in that.

And so, it led me to some things like functional medicine, like CrossFit, like this paleo low-carb type approach and so, I've been really lucky in that some of my early mentors helped me form that kind of world view based in economics, evolution and thermodynamics and then also being in kind of the right place at the right time and then also kind of worked really hard with some of these concepts.

Robb: Yeah, that's a great way you describe it about the different modalities because you do pull from so many different areas and I think that really helps your perspective because no matter how much people like to put things in buckets and put people in buckets, you sort of defy that and say hang on, we're not all in buckets.

So, you're initially known as the paleo guy because of your Paleo Solution book. And then, you sort of became known as the keto guy because you started talking a bit more about keto. But really, it sounds like your message is you don't have to be paleo, you don't have to be keto, you have to apply the principles for a healthy lifestyle.

Bret: Right, right.

Robb: Yeah. And folks forget that in my paleo book, my recommendation for the first three months was between 30 and 50 g of carbs and then start tinkering with reintroduction and whatnot, and so you know, even then, the funny thing is my North star has really always been the low-carb side of this story. But using the paleo orientation to think about broader picture of things, like gut health, circadian biology, immunogenic foods, and so that's where the-- maybe the paleo-ancestral health template has been really valuable for me in trying to figure out some kind of logic trees for trying to help folks.

Bret: Right, and that makes a lot of sense. So, when you're talking about people trying to be healthier and the challenges they overcome, so I think that's what sort of leads to the Wired to Eat book thing. And that's another part of your message and it's so important, you know, that the types of foods you eat are important, right. Trying to find you macros, trying to stay away from the unhealthy foods, you know, go towards the healthier ancestor type foods. But the society we're in is sort of stacking the deck against us.

Robb: Absolutely.

Bret: It's making it much more challenging and that was sort of like the take-home behind Wired to Eat. So, what led you down that path to say, okay let's take a detour from the type of foods to what's going on emotionally, what's going on intellectually that's keeping us from achieving our health?

Robb: You know, in the first book, The Paleo Solution, I had maybe a paragraph related to the neuroregulation of appetite and I made mention to the notions like adiponectin and leptin and ghrelin, these things regulate our appetite and if we eat in a certain way then it can improve our satiety and it can make it easier for us to be successful. But it was really like in a side.

Bret: So those are the hormones, just for definition, that regulate say if your body is hungry, your body is full, how those are regulated by different factors.

Robb: Yes, yeah, including sleep and exercise and all kinds of stuff, your gut microbiome, you know, influences these things. But then over the course of time there's been this kind of macronutrient war, is it high carb, is it low carb? Well, we have the Kitavans, they lived really well and eat tons of carbs. I tried to eat that way and I felt terrible, and my blood lipids go sideways, and it doesn't matter if it's sweet potatoes or rice or what have you... so what's happening there?

And so, over the course of time I think putting some of this ideas around metabolic flexibility and individualized medicine and some folks at the Whitesman Institute did a really fascinating bit of research that I believe was published in 2016. They took 800 people, put continuous glucose monitors on them, did a full gut microbiome screening, genetic testing, full lipidology, then they started feeding these folks different meal and what they found was there was massive difference from person to person.

And even for a single individual, white rice might not be a big deal but a banana would be. And you know, sometimes producing nearly diabetic blood sugar levels after a banana versus a cookie. So, there was just this massive individual variation both in the amounts of mass of carbs that the people respond favorably to and then again using this kind of ancestral health template, whether non-westernized cultures eat a lot of carbs or don't, the little bit of data we have on them providing like oral glucose tolerance tests, they look amazing.

And these people tend to be small, which would skew the oral glucose tolerance test unfavorably for them because there's just less volume to dilute the glucose in. But for these non-westernized populations that have been tested, a high blood sugar number at hours one and two was 100 or 105, which don't-- we're not really concerned until we start getting north of like a 160.

Bret: Right, it shows how the society and the norm can change so much.

Robb: Yes, so, what it kind of directed me to, was a couple of different factors. One, almost nobody, even though you could maybe make an argument because of the amylase chain frequency and all of this different stuff that maybe humans should be able to eat a significant amount of carbs, and maybe carbs played a pretty significant role in ancestral human living.

But today, we just don't tolerate it that well, like in general; some people do but most people don't and then if you apply a standard that is consistent across the board with non-westernized populations of what constitutes healthy blood sugars, then you're forced to either eat very small amounts of carbs or very infrequently or post-exercise or you know. It starts ordering some stuff out and what we found is that if we tighten those parameters with an eye towards the neuroregulation of appetites so that people could, you know, spontaneously reduce or maintain caloric intake at healthy levels.

And that was driven in large part by finding the amounts and types of carbs that kept them within, you know, pretty tight blood sugar regulation because I think that that is the ancestral norm. These huge excursions in blood sugar were not normal and what we look at as benign I think is anything but and is actually much lower in magnitude and duration that is not injurious.

Once you start running everything through that, that was kind of the framework for Wired to Eat and then it, you know-- so it helped educate people on maybe that background information and I think pretty practically helped people to walk through, you know, getting to a spot that they could find a healthy place in that.

Bret: So, let's talk about that for a second because this metabolic flexibility is a big topic that comes up, you know. When you're treating diabetes, when you're treating insulin resistance, you really have to be pretty strict about avoiding carbohydrates. But people always ask, "Is this a forever thing?, is there some point where I can start to introduce carbs in a healthy manner?"

And that's where this carb challenge, this concept of metabolic flexibility comes in. So, what kind of advice can you give to people on ways to determine if you're at that point or how to monitor yourself to say okay, if it try some carbs, am I at a point where I can do this in a healthy manner?

Robb: Yeah, in general, if folks get to a reasonable level of leanness, that's probably a decent indicator that they may be more metabolically flexible. We can do some testing like LPIR score, lipoprotein, insulin resistance score, which is interesting. It does everything that like the craft pattern does but without being hooked up to a glucose clamp for like six-hour at a shot.

And so, if your LPIR score looked good, which good for me would be like 40 or less, then we could get in and start kind of kicking the tires on how folks do with carbs and they usually start with about a 50-gram amount.

And if people have been eating historically pretty low-carb, then I would recommend just titrating some carbs in so that if there's any physiological insulin resistance in the background that's been kind of sparing glucose for you know, must-have resources, then we can kind of shift things around and kind of test things and see how folks look, feel and perform, see how their blood glucose responds and there's just kind of a reality that some people will regain significant headroom with regards to metabolic flexibility and other people will not.

I've been eating approximately ketogenic, peri-ketogenic for 20 years now and I have tried everything under the sun and honestly, it's gotten better and ironically, like I started using some low dose loperamide, the-- you know, anti-diarrheal drug almost a year ago and that fixed like maybe the remaining 5% or 10% of kind of my IBS stuff that I've had and I can eat a little bit more carbs now, you know. I probably hopped it up 10, 15 g per meal where blood glucose looks good and it's-- I know it's crazy like people are like oh my God, you know, like hemolytic E. coli and all the stuff.

So, if I get food poisoning, I actually discontinue it then but it's-- I've done everything you can imagine. If I do a really hard jiu-jitsu session, if I lift weights pretty hard, if I do something like CrossFit, I can throw some carbs in the back side of that. It's unclear to what degree that really does anything favorable for me because I actually like kind of fatty and more protein foods at this point anyway and there's like stevia-sweetened sugar, sugar-free chocolate bars at this point and so I'm like okay, I just don't need that other stuff but--

Bret: So, what numbers do you shoot for, because you mentioned the Kitavans and the more ancestral type communities that their blood sugar is 100 even after they eat carbs. In our society we're talking about 140, 160, so what do you use as your guide, your benchmark?

Robb: I think like about 115, like you don't want to see an excursion above that. One hour, two hours, 30 minutes, like we'd like to see the whole curve under that 115, yeah, yeah. Which is really low but interestingly, my wife who is 40 pounds lighter than I am, she and I will eat the same amount of rice. Like we did a lot of testing on this and posted on social media.

We'll eat the same amount of rice and she will top off maybe 120. I mean, occasionally she will pop up to 120. Mine will be 195 and I have blurry vision, I feel horrible, my mouth is dry, which is like no difference and you know what's so interesting about that? She has no like keto flu, she doesn't hit a wall going low-carb, she was a 17th place CrossFit games competitor. What I noticed is that people who are legitimately what I think as metabolically flexible, there's no wall that they hit going into ketosis.

Whereas folks like me that have had some metabolic breakage at some point, if I get into a thing where I'm doing some experimenting and I'm doing a bit more carb fuel and then I go back into a ketogenic state, it's kind of a brick wall. Like, I've got to be totally on point with my electrolytes, I've got a 30-day period where my VO2 max is down, like my work output is down.

Whereas Niki, she'll go in, out, doesn't matter, and she doesn't even notice a cognitive boost being in ketosis whereas I really do.

So, I think historically, humans went in and out of ketosis all the time and because they're metabolically flexible, it didn't really matter because it wasn't like hitting a brick wall when they first did it. But I think when you have people that their metabolisms over their lifetime, potentially has been habituated to just carbohydrate intake, it's a really gnarly transition but sometimes it's the only therapeutic intervention we can do that gets blood sugars at reasonable levels that drops, like the total inflammasome load and you know, makes things generally look much better and the person feels better.

Bret: You guys are like the perfect couple, the highlight, the difference, the individual variation.

Robb: It's really cool. If we were both identical in that regard--

Bret: It would be pretty boring.

Robb: Yeah, but it was a really compelling story and even people like Joe Rogan, we're really following that and we're really kind of jaw-dropped that there was that big difference between us.

Bret: Yeah, so if people are interested, they go onto your YouTube page because you documented every single day of that seven-day challenge and more, so that was really interesting. So, you've brought up exercise a few times, so I think that's an important too, about carb use before and after exercise.

Because I remember you saying you've broken many a good man by trying to make them go low-carb, or man and woman, I presume, with jiu-jitsu training and you work a lot with mixed martial artists. So, you've broken many a person by having them go low-carb. Tell us what you mean about that?

Robb: So, I think some of these highly glycolytic sports like CrossFit, boxing, jiu-jitsu, don't really lend themselves well to a like purely ketogenic diet, by people sticking in that like 30 to 50 grams a day level. But this also reflects kind of my Dunning-Kruger, my time done in Dunning-Kruger land, you know, like Mount Stupid where you think you've got it all figured out and then you start to figure out how little you know.

And what I've learned over time is someone who is fat-adapted, may eat 150 to 200 grams of carbs a day and they're still at a therapeutic ketogenic level but they're also providing enough carbs. And this is a guess, so I'm really guessing here. Because when we look at muscle biopsies of people that are keto-adapted, the muscles replete glycogen pretty well, but the liver doesn't. And that's like, you know, kind of the reason why we end up in ketosis.

And I suspect that there's a central governor element piece in our brain that senses our energy needs and energy availability. And what I've noticed is just adding 10, 20 g of quick acting carbs like doing the glucose tablets for diabetics. If I do that, if I have athletes do that, immediately before a session, what's interesting is their total blood glucose spike from the session is lower and I think that's because they get less of an adrenocortical response to kind of dump glucose out of an already glycogen-depleted liver.

And so, I think part of where I broke folks, a big piece was I wasn't attending to their electrolytes appropriately, they needed far more electrolytes. That was a piece I didn't do but then also I was overly strict about what ketosis was. And the reality is if someone is vegan and eating a 90% carbohydrate diet but they're doing an Iron Man triathlon, they're producing ketones, you know. Then they swear up and down that they're not, but they absolutely are because the body is trying by hook or by crook to get energy substrate any way it can and one of the ways that it will do that is by producing ketones.

So, a piece that I didn't appreciate was electrolytes and another piece was that ketosis can mean a lot of different things depending on the context, and high work output can, you know, change the carb tolerance significantly. And then also appreciating that some peri-work out carbohydrate, particularly glucose, may actually alleviate a lot of that glucocorticoid pain that we get.

We see it really prominently in type 1 diabetics. You know, where they'll do a hard work out and their blood glucose may go into the 200s and so then you have to figure out a strategy of do we do some slow-acting insulin before and you know, this whole mitigating strategy there.

But over the course of time, I've just recognized that we can cycle carbs a little bit so on a harder training day, we'll do particularly more pre and post work out, we'll do peri-work out nutrition like the targeted ketogenic diet. And so, we just do a little bit of fiddling and I found you know, where normally, say 170-pound MMA athlete, they may be eating 6 or 800 grams of carbs a day and they're inflamed and they're having gut problems.

Bret: 6 or 800 grams?

Robb: That's the standard, I mean that's what these folks do. We might get them 2 or 300 grams of carbs and their inflammation is low and you know, when they wake up in the morning, they've got a decent level of ketosis occurring. We might throw some MCT oil in the mix to kind of goose all that stuff. But being a little bit more flexible on that and really just keeping oriented towards performance and inflammation and recovery. And, but, you know, they're at a fraction, the carbohydrate intake that they historically have been. And reap some benefits consequently.

Bret: So you're dealing with very high performance athletes doing very high performance type activity so the so-called average Joe out there who's going to hit the treadmill, hit the elliptical,

do some resistance training, do you think the same concept applies or is there sort of a minimal level of intensity that you need to worry about adding this extra glucose?

Robb: I think it varies a little bit from person to person, like I think some people probably don't need to add peri-workout carbs at all. I do jiu-jitsu four or five days a week and I find, in general, if I just do 10, 20 g-- so what I do, I show up at class and I see who's there. If there's a bunch of 22-year-old cops that are, you know, 200 pounds, and I'm like okay, just going to be one of those days, then it's like 20 g of carbs because I know that it's going to be a fight for my life if it's people my size and they're all white belts and I don't even add anything to it because it's going to be a good day for me.

I think you kind of map what the experience is and you can play with that. And I mean it's really a nominal amount, you know, that folks get a benefit from. The guys from KetoGains I've learned so much from them. They will do a little bit of peri-work out carbs, you know, 10, 20. 20 grams is very high, like they're more like 5 grams or a little bit of a dose right before the workout and it seems to-- and again, it's not a muscle glycogen thing. People get pretty spun out about that. I think it's a central governor issue where the brain just senses, oh there's a little glucose there, we're good, we can get after it a little bit.

Bret: What about if you're using food instead? Would you recommend like a handful of berries or you know, would you even go like a cereal or rice? Like what are the food equivalents for that glucose tab for those who want to have a little--?

Robb: I think a little fruit. Probably more like tropical fruit, like the higher glycemic index, faster acting fruit because you want it to be pretty quick acting. But again, folks can play with that, you know. Yeah, and again, because ketosis is so damn effective, like it's the most underutilized medical intervention in the world right now, like it is just such a powerful tool.

Bret: That's a great comment.

Robb: But it's so powerful that people have forgotten there's this whole world of low-carb that's like 50 to 150 g of carbs a day, which is incredibly healthy and incredibly beneficial and people will go in and out of ketosis all the time and I could encurage folks to just play with things and kind of see how they do. Because, again, like ketosis has been so valuable, like I was looking on PubMed. You can look at the number of citations that have been published over time...

And it starts in the 1900s like one or two, and around 2000 you start getting-- last year there were 380 like, it's gone exponential because it addresses so many different issues, it's so effective. And unlike paleo, like I kind of look at keto versus paleo. Paleo is kind of like the Old Testament and then keto is kind of like the New Testament and I don't worry about all that stuff, you know, just do this. Just get your blood glucose to these levels, and things are going to be good. And in general, that's pretty accurate but you know, it's just a much simpler intervention.

If somebody says what about gluten intolerance... okay, we'll check that... and you can tick the box on all the food intolerance stuff very easily but it's not this whole like crazy song and dance routine, so, it's so effective but I think that people have gotten a little overly wed or a little paranoid about the notion that like 100 g of carbs from whole food sources, fruits and vegetables is probably not a bad idea for a lot of people, particularly more active people, so I would play with peri-workout carbs.

I would also play with you know, how do you feel reintroducing a little bit of fruits before your workout like that, like do you still look, feel and perform as well or better, does your A1c look good, your inflammatory markers, how do those look, how is your digestion. And if all those things are on point, I tend to lead towards more latitude in the diet versus less.

Bret: For those who are more metabolically healthy and have reached a plateau stage and not in their active treating something like diabetes or insulin resistance?

Robb: Yeah, absolutely, yeah.

Bret: Okay. I think that was a good discussion there on exercise because so many people wonder how to handle glucose around exercise. Now, I want to transition a little bit more to Wired to Eat and sort of the societal pressures of it's not your fault necessarily. There's so much from a physician's standpoint, I can say that unfortunately it's been over a decade of subtly saying it's your fault and you just don't have enough willpower.

Not that I ever said that that sort of implied message that you can't stick to this diet, but you've pointed out the psychology behind orchestrating packaged foods and processed foods to make it more addictive. And you've talked about the differences in texture and the differences in salt, where you're stuffed, you can't eat anymore, oh, but here comes a change to our palette and all of a sudden, we can. I mean, was this eye-opening and kind of revelation, a revelation to learn all this or did you sort of suspect it from the beginning?

Robb: No, it was a big eye-opener because in my earlier career I was a total-- to people. And it was kind of like just do this, you know. Here's the information, just do it. And well, my kids don't want to eat this way. Make little Jimmy eat, you know, I was so not appreciative of the complexities of like navigating a social environment and all that type of stuff and really did a disservice for a lot of people.

Like, I helped a lot of people but it was a cross section of people that were ready to go whereas there was another big group of people that I had some empathy and a little bit of caring and I understand this is challenging, I understand that your co-workers are trying to undermine you. Here's how we're going to address that. And so, yeah, I mean, it was a revelation for me and it's an embarrassing, painful thing at this point, to realize you know, kind of the way that I conducted myself early on but again, it was this evolutionary biology framework that bludgeoned me into understanding that this is a really difficult thing.

If you go into a 7/11, you have more flavor and palette options available to you than any Pharaoh of Egypt, Tsar of Russia. I mean, other than right up till maybe like the 1980s or something, like the world leaders, people who could have pressed buttons and annihilated life on Earth, you could walk out your door, go into a convenience store and have more amazing flavor options. And people will get kind of hoity-toity and be like, oh, that's all junk and give me a break, a Twinkie isn't amazing, a Slim Jim isn't awesome, like corn nuts, you know? Like, these are phenomenal, right?

Bret: They hit all the dopamine receptors.

Robb: All the dopamine receptors and it's like well I've just had salty crunch, well I'm going to have sweet and sour. I mean, you can cycle through all of that stuff. And if you really appreciate a couple of things out of evolutionary biology, the optimum foraging strategy, and palette fatigue. Optimum foraging strategy is this notion that you try to obtain as much nutrition as possible doing as little as possible. And then the juxtaposition with that is palette fatigue.

We get bored with any given food that we eat because we want to diversify nutrient intake and also we want to decrease potential toxicant load. So, even if you find a lot of a particular type of food like blueberries or something, there are toxicants in that food. And so, your body just says, hey, I'm done, at some point but if you can mix and match flavors and palette combinations, you can just almost infinitely keep eating.

And there's a guy Andrew Zimmer, he did a show Man versus Food and it was ages ago I watched this show and it just stuck in my head. He did the kitchen sink ice-cream sundae challenge where they literally bring like an 8-pound ice cream sundae out in a kitchen sink and he starts eating it and he's motoring along and he's got to get it eaten in, you know, some amount of time and I don't know what the reward is, it's like diabetes of the year or something.

Bret: Like a t-shirt maybe.

Robb: Yeah, yeah. You got diabetes and a t-shirt; you know, good for you. But he eats maybe a third of the way through and he start bogging down, and I mean the guy turns visibly green and you can see him almost retching as he tries to take another bite.

Bret: That's awful.

Robb: And then he turns to the gal that runs this shop and he's like, "Hey, can I get some extra salty, extra crunchy French fries?" She's like, "Sure." So, he takes a little break, the French fries come out and he eats a French fry, takes a bite of ice cream, eats a French fry. And I mean, he was a massive pile of French fries. I sat there and I'm like, that's 2000 calories of French fries but the thing to take away, so in standard dietetics land, he-- adding more food should have made it harder for him and it didn't.

It made it, it was the only way possible for him to finish that sundae... it was by eating more food. But you've got this cold, sugary sweet experience, which, once his palette fatigue set in, it would create a vomiting response. But the salty, crunchy, umami element of these French fries overrode that and then he could just play them back and forth and back and forth and was able to finish the whole thing.

And if you really can step back and look at that and understand that, then it's like oh, this is why the hyperpalatable food environment is a bastard to deal with. And having an expectation that people have like a zillion different food options in their pantry or you know, they go to work or family functions, like that is a legitimately difficult real scenario to deal with. And what I've found, the feedback that I've had is that folks who have had eating disorders or challenges with weight for years they had never heard "couched" in those terms.

They took good engineering, good evolutionary biology to be this way until now. And now it's a liability and so some people have given me really pushback on the whole notion in that it's not your fault like, no, you need to take accountability. Once you are aware, then that's where the accountability comes in. And then that's where you ask yourself, do I want to do what's necessary, which means doing any - not your best - anything it takes to do it. If you're ready to do that, then let's jump in and do it and if not, okay, cool.

No foul, no harm, let's figure out other mitigating things - can we improve your sleep? Can we get you exercising? Can we just maybe, time restricted feeding is a really interesting way. We're not going to limit the types but by golly, you only eat between 9 and 4 that's it, get after it. If those strategies work, there are some other strategies out there and them maybe we get the person a little bit healthier and then they're like I'm ready to do some food quality shifts, you know.

So, you know where in the beginning I had a one tool and it was a blunt tool now I feel like I've got a bit of a Swiss army knife so we can do some more stuff. But it's that offloading the emotional responsibility and baggage around our evolutionary heritage. Once you can get to there, then it's kind of like okay, there's still hard work to be done, there's still challenging social interactions and whatnot. But it's ultimately just like I'm not broken, I'm not weird, everybody is like this.

Bret: That's such a great example. And I mean, I love that ice cream and French fry example.

Robb: It's so powerful.

Bret: It shows how people say, we're not a bomb calorimeter, we're not a toaster, we are an emotional, living, breathing being, and you have to factor that into the equation otherwise you're not going to get anywhere. And these things didn't happen by chance, I mean companies are doing this on purpose.

Bret: I mentioned that in my talk, you know. There's a Doritos roulette product. It says caution, some chips are extremely hot and what they've done is within one bag, you know, if we were to graph this out, there are a very few extremely hot chips, some medium chips and then some mild chips. And it's in a power law distribution and so, it's this kind of randomized distribution that maximizes addictiveness. And I actually wrote a letter to those folks like hey, by chance do the chips follow a power law distribution and I got a response and the first response was, "Hey, by the way, the scientists in the food lab are huge fans of your work."

Bret: That must have made you feel real good.

Robb: It was a mixed bag right. But the takeaway for folks to kind of understand is the processed food manufacturers are arguably more sophisticated in evolutionary biology, evolutionary psychology than we are.

Bret: Scary.

Robb: They get it. And it's not a controversial topic and there's not pissing matches over hey, is 50 g versus 30 g really a ketogenic diet, which is where we, like our community just spins on that. These guys are like, hey, we understand evolutionary biology and we understand how to create things to be addictive and we understand optimum foraging strategy and palette fatigue and here's how we're going to bypass all that stuff.

So, while we are in fighting on these little details and these nuances, these folks are creating foods that-- and you know, it's so frustrating that some of the evidence-based nutrition world they're like, "These things aren't addictive." And it's like what planet do you exist on and who could you help, you know. Like, only fitness competitors arguably have neuroses around their food because you know, they can't not be in like contest shape all year.

So, great! You succeed with people that would succeed if they lived on the moon. Awesome, that proves a lot. Like can you help someone who's 500 pounds get back to a metabolically weight? Like, show me that, you know? And you can't really do that successfully over the long haul without some understanding of this kind of evolutionary ancestral health orientation.

Bret: Great perspective. And you brought up the issue of addictiveness, can you prove it's really addictive and Robert Lustig has done some great work about pointing out the addictiveness to food. But I always like to say, definition or not, just try and take that bag of Doritos or that ice cream away from that 10-year-old and tell me if it's addictive or not, you're in for a fight.

Robb: Yeah, yeah and you know, while that's going on, we're 50 years out from a bankrupted economy in the US due to diabesity related issues. And that's just the diabetes side of this. Parkinson's and Alzheimer's, which are the next wave of metabolically driven issues. Diabetes is set to bankrupt us, but you can arguably manage to some degree a diabetic with different

medications and whatnot. We can kick the can down the road on that fire. Neurodegenerative diseases require 24/7 nursing care.

Like, if you want to see an absolute health care disaster like you just project 20 to 25 years down the road when the neurodegenerative issues that will emerge due to these sane metabolic underpinnings, and that's where these evidence-based nutrition people like I just want to throttle them because it's like hey there, we need to get out in front of this because you know, the big industries, the government, kind of collusion and all of that, all of it is setting us up for a disaster and we need a concerted front.

Whether you're high carb or low carb, I think we could agree that processed foods are really legitimately a challenge. And then, from there we can sort people. Okay, you're more carb-sensitive, cool. Sweet potatoes and occasionally some junk food. But even the occasional junk food, I mean we all know probably someone who's an alcoholic and they get to a spot where they're like I can have a drink, but I have one.

But the other people, they're like, I can't use like herbal tinctures that have alcohol, it's got to be glycerine. And we need to respect that, that's just kind of a reality. And unlike an alcoholic, someone who has food addiction, they still have to eat ultimately. So, how do you navigate that thing and man, the ways that family and co-workers in this society will try to undermine you, like there's an active process, trying to pull you back into disordered eating or unhealthy eating, yeah.

Bret: There's a great cartoon where there's like a CEO of a company or something saying we're going to talk about health in the workplace and institute a wellness program-- oh and by the way, there's cake in the break room to celebrate the birthdays this week.

Robb: Right.

Bret: And I'm like wait a second, cognitive dissidence right there, yeah.

Robb: Yeah.

Bret: It is all around us. Now, I want to go back to something you mentioned. You talked about time-restricted eating. So, if you can't make any dramatic changes in what you eat, make changes in when you eat. Yet at the same time I've heard you say some things against intermittent fasting, that maybe that's not the right way to go.

I think it's important to sort of define the differences between time-restricted eating and intermittent fasting and what you see as the good and the bad in each one because that is a very popular topic, it can help a lot of people. But when done correctly, and I think that's the key. We have to realize how does this fit into our healthy lifestyle? So, give us a little, a couple minutes on that.

Robb: Yeah, so, I wrote my first article on intermittent fasting in 2005. It went in a kind of sister publication to the CrossFit Journal called the Performance Menu. It was looking at some studies in mice and the mice ate one day and didn't eat one day and it looked like this beautiful middle ground of being kind of anabolic and healthy. But also, they got the same longevity expansion, health expansion, that crammed caloric restriction; adequate nutrition did.

I was super jazzed on this, released this into the CrossFit world and then I started seeing people just explode because you get people that if you, even if the ancestral baseline for activity was high, it's not CrossFit, it's not CrossFit 5 or 6 days a week. So, we have to take each one of these stressors in this kind of allostatic load as an individual thing and then start adding them together.

And if you're doing CrossFit on a consistent basis, man, you're doing everything that your body is going to adapt to. You don't need one more hermetic stressor, which is what that intermittent fasting is. What I've found is that the people who tend to gravitate towards intermittent fasting are already aype A, drinking a pot of coffee a day, doing 6 CrossFit workouts a week. They do hot yoga for a recovery day; they eat 5 grams of carbs a month. I mean, the people who do it are like this type A, over the top, they're just crazy.

It's not the type B personality like a computer programmer that's mellow and not super active. So, it's a very context-driven story. So, if you had somebody that is in need of improving their metabolic health and losing weight, I think something like intermittent fasting, time-restricted feeding, which-- I've actually kind of lean on some of Bill Lagakos' work, you know, putting more calories early in the day and kind of running with that earlier circadian biology.

So, kind of front loading the calories. So, if we had somebody that just refuses to modify the type of food that they'll eat, then I think if we just put some lane lines up there then say okay, eat whatever you want but only eat between this hour and this hour, what it does is it introduces some degree of caloric restriction. Like, there may be some other metabolic benefits from eating earlier but at the end of the day it's calorie restriction and that ends up being a net win and so that ends up being one of the wise things that we can use to move things down the road.

On the fasting topic, like people are so geeked out on the autophagy and mTOR and all this stuff and that's all great but working out stimulates autophagy, drinking coffee stimulates autophagy, sitting in a sauna stimulates autophagy. Now, lifting weights mainly stimulates autophagy and mTOR in the affected tissues, which is, that's good, that's all good there.

But if we just want global autophagy stimulation like, in the brain, we can do sauna and we can drink coffee, like it can be decaf coffee, you know. And so, for like an aging population and aging is anything above 30, where we have a tendency to start losing muscle mass. Unless we're triaging the person, priority is get them to lose as much weight as possible and improve insulin

sensitivity all that, then we might lean a little heavier on intermittent fasting, time-restricted feeding.

But once someone gets reasonably healthy, and this is a personal bias but-- I would lean more towards two or three meals a day, lift weights more days than not and rely on autophagy to come about from our exercise, drinking some coffee, doing some sauna.

And then by all means, once per month, once every two months, do a workout and then fast for you know, three or four days. Do a full body light strength training session because that bonds almost all of the lean muscle mass you lost. But as you get older, you know, losing two, five pounds of muscle, it is a really hard proposition to get it back.

And so, I see people doing things out of fear of mTOR and cancer and trying to goose autophagy that is almost guaranteeing sarcopenia and you know, dying due to hip fracture, and fall and frailty isn't fun and cancer isn't fun. But I think if we're not overeating and if we're sleeping enough and we're drinking some coffee and we're generally living well, it's not a guarantee you don't get cancer, but it's not a guarantee you don't getting cancer doing the fasting either, it's a guess.

Bret: Yeah.

Robb: But I see a potential danger there on like the sarcopenia muscle wasting. And those things again can be mitigated with strength training and, you know, refeed cycles and Walter Longo talked about that, that the refeed is as important as the fasting is and from my perspective, I've seen people go a little bit crazy on this and an overreliance on fasting as part of the weight loss strategy in my opinion it's challenging, because people don't learn good eating habits.

Okay, so you're fat, you've gone from 500 to 200, great. You didn't eat anything during that time. What are you going to do now and what habits did you create during that process? Are we just going to get into a system whereby you gain 50 pounds and then you fast it off and then you gain 25 and fast it off? We also know that that's not particularly healthy because each one of these big deltas in bodyweight it gets progressively more difficult to lose the weight, so we're causing some metabolic damage in that process.

So, you know, when we make a recommendation, I think there does need to be an eye towards like okay... what could be sustainable out of this? And let's look at some, you know, secondary and tertiary things that we can get out of this like muscle mass, like athleticism, like community, because we found a sport or an activity that we enjoy and that keeps us in these economic tractors moving towards something that's going to help solidify this healthy lifestyle versus like, I'm just a miserable person and I'm fasting and I can't handle being around people. So, yeah.

Bret: Yeah, there was a lot there in that answer. That's a good perspective. One, separating those who are striving for longevity versus those who are trying to sort of repair their health and weight loss. The issue of community is interesting because now there are fasting communities popping up as well. But also, the issue of what lessons did you learn and making sure that if you're fasting, it's already part of a healthy nutrition program, basically right, and that you're not trying to do that to make up for otherwise unhealthy eating.

And you brought up the terms of autophagy and mTOR, so autophagy is sort of the body's cellular recycling system, cleaning up the damaged cells, preferentially producing the healthy cells, stimulated by exercise, by coffee, and I think that's interesting because that's something that's not talked about a lot because it's really talked about from a fasting perspective. To decrease the nutrient centers.

And there's always this question of threshold, like what minimum threshold is required to target or to trigger adequate autophagy. I would venture to say that we don't know the answer to that question. There's some level of fasting when it's 18:6, eating for six hour a day, not eating for 18 hours a day, probably is starting to get some of it.

Resistance training, so not necessarily endurance or cardio training, resistance training with weights is starting to get some of the autophagy and I think that's going to be a fascinating field of research knowing where you get the biggest bank for your buck and how much do you need to do down the road.

Robb: And I may modify my position in the next five years and be much more bullish on the fasting but right now, just thinking about looking at folks that do age well, they lift some weights, they don't overeat but like this kind of yoga fasting community I've seen, just kind of looking at that, I'm like, I don't really like that vector a whole lot, you know. And so, all of that stuff that they throw out there, I try to inform it as well as I can with the research, but there's a huge amount of speculation and personal bias.

Like, these are the things I like, coffee, lifting weights, I like jiu-jitsu, so there's the personal bias piece that comes in with that. So, I do think that again, this is where an economics perspective comes in. Anything that we do has a risk-reward trade off scenario to it. So, when we're like autophagy, you know, okay, great but why and under what circumstances? What are we potentially giving up on the other side, you know? Just as a little bit of balancing that stuff and then that can help orient our goals.

Bret: Yeah, once again, a great perspective on how to see things and how it fits into a healthy lifestyle rather, you know, it's a tool for a healthy lifestyle, not an end in itself.

Robb: Right.

Bret: And speaking of that, speaking of the perspective of a tool, I wanted to talk briefly about genetics and genetic testing because that's another thing that's come up quite a bit recently. And people reacting to their genes, specifically in the low-carb community, reacting to their genes that say how their body processes saturated fats.

Whether it's the FTO gene or the PPAR alpha or the PPAR gamma or APoE, these are all genes that are in some way linked in how your body reacts to saturated fats and people can say, I've got this mutation, therefore I should not go low-carb, high-fat because this mutation says I won't react well. I've heard you have sort of a broader perspective on that, so tell me a little bit.

Robb: Yeah, and it's kind of cool. I have that like favorable FTO gene that I don't in theory do well with saturated fats and it will mainly manifest and seems to be particularly responsive to dairy. So, I've done this isocaloric stance where I'll weigh and measure the food, and do significant amounts of my fat from butter, cheese, cream. And then, my LDL cholesterol and my lipoproteins, I mainly follow the lipoproteins.

Like, at a baseline, my LDLP might be 1000, 1100, somewhere and will kind of float around that range. Two, three weeks, I can drive it up to 26, 2800 eating more saturated fat, especially from dairy products. And then I'll eat more almonds and olive oil and it plummets back down to that, you know, 1000, 1100. What's perplexing for me, and I think it's a completely reasonable statement, that an individual that has an LDL particle count of 2600 who's in ketosis, so super modulated inflammasome, all the inflammatory markers are just knocked way down.

That is a completely different person from type 2 diabetic with a 2600-- and I have no qualms about that. And it's possible, like Peter Attia has made the point, that LDL particles and LDL cholesterol are necessary but not sufficient for the atherogenic process. So, that's a piece but I see folks that are maybe a little bit brazen and cocksure like as long as your your insulin levels are low, great, you're never going to have a heart attack.

And I don't know if I'm totally comfortable with that. You know, like I would do a CIMT, a coronary calcium scan, I might even do like the 3D imaging, and then, if we come out the back side of that, like thee are people who just see super high lipoprotein count from any flavor of a ketogenic diet, even more of a monounsaturated iteration. There's a great paper that I just read on the biochemistry of the ketosis, and ketone bodies can feed back through HMG-CoA and be a substrate for both lipoproteins and cholesterol.

And some people, they get that feedback loop and it likely drives up cholesterol and lipoproteins. This may be why some people who are anorexic, we see exceptionally high lipoproteins and cholesterol in these people even though they're starving to death. It doesn't happen to everybody, but this is one of these outliers and so there is this genotype that has this elevated ketone levels that absolutely drive up lipoproteins.

It's still a question as to okay, given that everything else is good, inflammation is good, insulin is good, there's also some papers that suggest that the main driver of coronary events, of strokes, is actually blood glucose deltas, like your blood glucose goes high and then drops and then that inflammatory cascade that occurs is the precipitating agent. So, if that's the case, and we're not undergoing these atherogenic processes because of blood glucose deltas, is that still dangerous?

So, the genetic testing is cool but it's like each layer of the onion we peel, I feel like it just makes it that more complex and that many more, you know, kind of toggles that we're trying to vary versus kind of just looking at the clinical outcomes; do you look, feel and perform better? Do markers, disease and health look generally favorable?

There are a cross section of people, that they really just feel great under ketosis but have what you know, in that lipoprotein specific realm, doesn't-- it looks concerning, like maybe their triglycerides and blood glucose are good. So, that's kind of the main one that I've looked at is certain FTO polymorphisms maybe would do better doing more monounsaturated fats and you know, nuts and stuff like that but we don't really know.

Bret: Right, now, you're speaking my language about the evaluation of lipids and cholesterol and cardiovascular health. I think it's true, the question is unanswered, so it doesn't mean close your eyes and forget about it. But there's enough of a question to say that you don't have to necessarily react and change your life. We have to find out what's right for you and monitor you and follow all of your other parameters, like you mentioned the carotid intima media thickness test, the calcium score, all your other laboratory markers to make sure you're progressing.

The other interesting thing about genetics that I've heard you talk about is why did these mutations survive? Do these mutations have some survival benefit or at least did in the past? And there's a reason for them, it could be immune modulation, it could be the way they affect lipopolysaccharides, some of the toxins that come into our body. And if you think about it from that perspective, then all of a sudden you don't have to react so aggressively about trying to work around these mutations but rather figure out how they work for you.

Bret: Right, and I thought that was an interesting perspective you had.

Robb: Yeah, so not all of the conditions are, some of them are legitimately like point deletion, you know a random event. But, so like, celiac disease, when you look at the folks who are prone to celiac disease, they are less likely to have septic events, they are more likely to fight off a whole host of gut pathogens because they've got a whole comparatively elevated kind of gut immune response, particularly in eosinophils, which are usually associated with parasitic infections.

But the trade-off is that if gluten gets in and disrupts the you know, zonulin signalling in your gut, then that hyperactive gut environment is prime to autoimmune conditions. So, it looks like

celiac probably developed as we made the transition from hunter- gathering to just living in small town groups and just living in close proximity to animals where you get like a poor sign to human, duct to human like this cross reactivity with different pathogens and this was an attempt at you know, an attempt-- but it was an adaptation for the people with that condition.

It improved their survival rates, and it's interesting. There's a variety of celiac that developed in the Americas that was basically unknown, but it was an adaptation that improves gut immune response. But it was only discovered more recently because you know, of these Latin American tribes that have then been exposed to gluten, like it was a non-issue until they got an environmental exposure like that.

Bret: Interesting.

Robb: And they had a different but similar adaptation which similarly manifests in kind of, celiac disease, Huntington's disease, which is a DNA base pair repeat. The folks with that condition tend to have much higher fertility early in life, they have fewer interactions. They are super bulletproof and what's really interesting about those groups, this appears to be an old adaptation and also, we don't see what we characterize as Huntington's disease until relevantly recent in history.

Bret: So, a degenerative neurological condition that's devastating?

Robb: Yeah, we don't really see that as a feature of kind of clinical medicine even in like the Victorian era. It just wasn't something that we saw. Something has changed in our diet and our environment that now is taking this benefit in youth and turning it into a liability a bit later in life.

And I think that number of these conditions, like the APo-4Es, they're clearly of benefit in a variety of ways, but then we have environmental triggers that are now making them liabilities. The really, kind of gnarly and scary thing with the APo-4Es is that these people tend to be more athletic, maybe a little more aggressive, football players, MMA, boxing, you are disproportionately likely to be successful if you have that genotype.

Bret: Fascinating.

Robb: Because you're more athletic, you're more aggressive and you also happen to be more prone to problems due to traumatic brain injury. Which, even the traumatic brain injury though, like it's always probably been a thing but we have low vitamin D levels, we have a pro-fat inflammatory diet, we sleep 2 hours less on average per day so there's all these other things that then get packed into that.

And so, the numbers vary but it's about 20% of what we maybe experience is hard-coated genetic expression and the other 80% is largely epigenetics driven, you know. It's how you

sleep, what you eat, whether you exercise, if you have loving relationships and all that stuff. So, other than a few situations, I think that these things are shockingly malleable and really prone to, you know, us being able to modify them.

Bret: Yeah, I love that point because so many people think once you get our genetic test, then your die is cast and that's like your fate in life to live out these genetics. It's not the case yeah.

Robb: Yeah.

Bret: I know we've covered a lot of topics and we're running low on time, but I wanted to get to the work you've done with the Reno Police Department.

Robb: Oh, yeah.

Bret: And the native American communities where you've gone into these sections and like revitalized sort of their health and saved money. And I think it's so important from a policy standpoint to see the impact you can have. You know, you reduced the diabetes risk in the Reno Police Department, you saved them millions of dollars in health care costs, or at least projected health care costs.

And I'm curious, one, a little recap of the success you had, two, sort of the challenges you had and how this can apply to you know, the population in general of making these types of interventions to save the government money, save health care money, what it means for insurance companies and so we can propagate this further so it's not small subses of populations?

Robb: So, gosh. When I first moved to Reno eight or almost nine years ago, I was introduced to some folks that were super interested in Gary Taubes's work, they had his book and my book in their clinic. Which at that point in time, if you went into a medical clinic and they had any type of like paleo or low-carb - it didn't happen like they burned these types of books, you know. They told me that they had just wrapped up a two-year pilot study with the Reno Police and Reno Fire Department.

They found 40 people at risk for type 2 diabetes and cardiovascular disease. This was based off advanced testing like the LPLIR score and LDLP and whatnot and also an extensive health risk assessment. They found these very high risk folks, intervened with a low-carb, paleo type diet, tried to modify their sleep and exercise as best as they could and this was challenging to do in a police, military, fire and fireman.

But they had great success and based off the changes in the bloodwork and the health risk assessment numbers, it's estimated the city of Reno saved 22 million dollars with a 33 to 1 return on investment pro rata over a 10-year period, which, we're coming on the end of that, it actually was much better that what the initial projection was.

And so, this was just a pilot study and the city of Reno kind of at large applied this program to their police and fire and when I came on the scene, I thought man, 33 to 1 return on investment. I had been making this case for-- why don't we see More's Law in medicine? So, like these electronic gizmos that we were using, they get cheaper and better every single year. Your smartphone gets cheaper and better every single year.

Everywhere that you will allow markets to innovate, stuff tends to get cheaper and better. It becomes effectively a commodity, like there's a tendency. In theory, your iPhone should be effectively free at some point, you know, because of how efficient things are, there's reasons why that doesn't happen. The only way we see Moore's Law occur in medicine is the places that we see that do not have third party reimbursement.

So, plastic surgery, Lasik is a great example because of very quantifiable outcomes and Lasik just had an inverse exponential like it's gotten cheaper and better over time. But medicine at large has not. Like, you know, we pay more and more money and things are more and more expensive and it costs us more and more.

And I thought that we would be able to take this thing and take it out to the masses and be a billion-dollar company and get massive adoption and I wouldn't say it's gone nowhere but we've had very limited adoption. The folks that have adopted are self-insured captives, they're businesses that have put money in their own insurance pool to insure their employees or their workers or what have you.

And these people are facing the real costs of health care, which are exponentially increasing, so they're very ears forward in trying to find something that is going to be effective. Many folks, particularly within governmental organizations, they're in this third party shell game where, if you're the doctor on the patient and somebody else is paying for it, nobody really cares what, I don't care what it costs and the insurance company doesn't want to pay you and so you're like, well that guy doesn't want to pay me, so I've got to increase my cost to offset that because one third of these things they don't even look at and they just deny it outright.

So, you know, tomatoes would be $600 a pound if we paid for them in a third-party payer scenario. So, we've had some success there, I'm on the advisory board for the Chickasaw Nation's Unconquered Life program which is interesting.

What I had envisioned for the Reno Project was a network of gyms associated with doctors that would provide a hub of community support, talk about sleep, food, get exercise, you know, work with local CSAs and farmers markets and you know, do all this type of stuff. That's what these folks had put together.

So, we all love confirmation bias, so it's either confirmation bias and we're both idiots or it's convergent evolution where they saw exactly the same problem; they're a self-insured captive, they're facing exponentially increasing health care costs and when they sat down and thought

about what do we need to do address this, the governor Anoatubby and his sons have collectively-- each one of them has lost over 100 pounds on a ketogenic diet, so they're super bought in on like low-carb, keto, ancestral health, they like the CrossFit model because of the community element.

And they had put a bunch of the pieces together, but they reached out to us for some help, so we've been doing some consulting for them. They work with Virta Health also. So, it's really cool but the big challenges have been-- if you go to a large corporation, you deal with an HR department that's like this wall of you know, just stone and glass and they don't want to hear any of this stuff. Like they assume that we're trying to reduce benefits and so it's been interesting.

The success we've had is from people reaching out to us, they're proactive and they're looking for solutions. I will say this and it's probably going to get me in all kinds of trouble, but when the affordable care act came out, when they started trying to consolidate stuff, it made what we were trying to do ten times harder. It made it much more onerous and I know a lot of fans have kind of socialized over medicine. I would love for all of these medical entities; I would love for there to be ten American medical associations that all compete against each other.

I would like there to be so much more competition and like really like, okay, you guys treat cancer? Oh, yeah, we do too, let's compete and see who wins, you know. And you take 1,000 people and you do best practices because the current model is kind of a monopoly so there's not a real motivation for innovation on any level in particular on this kind of grass route fundamental health scene. And if you are a fan of ancestral health in general and yet you are also a fan of centralizing medical practices on like a federal government level, you are cutting your own throat.

Like, you should be advocating for health savings accounts and for more of your medical provisions to be provided at a local level and not at like a federal government level because that's where real innovation happens, where we've got lots of different reaction vessels going-- And I know I'm kind of getting off on a little of a political rant but Bill Clinton when he enacted a welfare reform, he kicked it back to the states.

He provided some parameters and he was like, you guys have five to eight years to figure out what you're going to do... go. And some of them were disasters, some of them were great, the things that went well got pulled up to a more federal level and disseminated at a broader level. So we had 50 different reaction vessels in that case versus when we enacted the affordable care act. It was one.

And there's things like the Singapore health care model where they use HSAs both for people who are wealthy or not wealthy, a health savings account is where you put money in it, it's your money. So, poor people in Singapore when they receive that financial disbursement, that is their

money. But when they go to their doctor, every procedure is listed what the price is, what the outcome is, what the ratings are, so then they can price-shop.

And if that person gets a better job, that HSA goes with them. So, they're not creating a scenario where they're "disincentivised" from improving their personal financial scenario. If you die, that HSA is inheritable to your family. And I'm not saying that is it or the thing that we should do-- but by God, we should have a couple of states kick off the tires on stuff like that.

And we should do some other things where we can decentralize this process and then it would also provide an opportunity if we had 50 different states or even if we went to a large municipality level, it's the possibility that you or me or someone we know in the keto ancestral health scene greater than we might have the ear of somebody that's in a critical position that we could get some movement in a city like Reno, or Chicago or something like that.

And these effects are so powerful and so economically impactful, if we get one or two wins, then it's going to really shift the tide, we're going to-- we're going to see some stuff change. So, again, I know it's like super controversial, these are things that people get in fistfights over... you know. When people are thinking about medicine and health care and stuff like that-- again give it a little bit of a thought, do we want it bigger or do we want it smaller, a more local or more under a localized control?

At least if somebody screws you over on the local level, you know who to go take a baseball bat to their knees to... but if it's like Capitol Hill is coming, they're like here you go, so yeah.

Bret: I didn't expect that type of a political response but that--

Robb: Metaphorical, of course but I mean there's just more accountability and transparency in something that folks often don't appreciate as even in the, you know, places like Sweden and Denmark and Switzerland, more of the governance happens on the more of a municipal level than like the centralized level so like, we've got it all backwards in that regard.

Bret: Well, the past five minutes of that answer just shows your breath of knowledge and expertise that you can pull in to give a different perspective for people to see things. So, we talked about the science, we talked about the psychological and emotional side of it, we talked about the politics of it and the implementation of it.

So, to sort of round out the fact of how balanced you are, you have your two books, The Paleo Solution and the Wired to Eat, and now it sounds like you've got two more in the works. So, bring us home here, give us a little foreshadowing of the books to come and how people can learn more about you and hear more about what you have to say.

Robb: Sure, yeah. So, I'm working on a keto-related book. We launched the keto masterclass a little over a year ago and it's gone great. Like, we've had tens of thousands of people in the

program. It's a very curated process and it's not a one-size-fits-all approach, it's actually a lot of kind of logic trees and triage. Who are you? What are your goals? What do you want to do?

Okay, based off that, here's where we go. If you run aground, here are the questions to ask to figure out how to go forward and so it's been really successful and we've taken what we've learned from the masterclass and putting it all into a book. And I'm working on a sustainability book with Diana Rogers. Sustainability topic is a big deal because I think we're in a scenario, we're kind of fighting an asymmetric warfare scene but we're on the losing side.

So, kind of the vegan, well, the vegans, they'll just say meat causes cancer, meat causes heart disease, meat destroys the environment. It's super compelling and it's an elevator pitch and it sounds compelling and it's part of an epistemology that is better thought out than most religions, lie it's just super contiguous and mean-worthy and sticky.

And for you to sit down and unpack "meat causes heart disease", it's a PhD dissertation. Like, it's such an asymmetric warfare. They throw that out there, it's scary and it's confusing, it—

Bret: Then it gets the headlines.

Robb: It gets the headlines and then for you to unpack that-- weeks out of your life, you got to write, you have to make-- We're trying to put together this book where we look at the the health, the environmental and the ethical considerations of meat. And it's not just a low-carb book but it's making the case that meat and animal products are an indispensable feature of our food system and you know, on the ethical consideration veganism is not a bloodless endeavor.

Grown crops are not a benign entity and Georgia Ede's talk was fascinating-- when you look at-- and some other people are trying to look like this-- planet of the vegans is Monsanto and Conagra on steroids, that's all there is left.

Bret: And soil destruction.

Robb: And soil destruction, you know and all that. And it's a crazy notion but it may be that grasslands do really well with ruminants that coevolved with them over millennia, you know. And so, I'm getting in and kind of looking at the carbon capture, this whole big term of non-equilibrium thermodynamics, it's the inputs and outputs of a whole system, and trying to give a pretty good accounting to that but also an accessible way to honor the science but also make it accessible for kind of a lay public consumption.

Bret: You and Diana are a dream team to work on that book and all I can say is do it well and hurry up because we need it, we need it.

Robb: I'm going to be intoxicated for probably a month after I get that book done, so I can't wait to get that wrapped up too, yeah.

Bret: Robb Wolf, thank you so much for joining me.

Robb: Huge honor, thanks.