

Paleo Solution - 173

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Robb: Hey folks, Robb Wolf here, Greg Everett in the house. This is episode 173 of the Paleo Solution podcast. And Greg belated happy birthday brother.

Greg: Thank you sir.

Robb: How was it? Are you older, wiser, stronger, better looking or have you max all that stuff out already?

Greg: Definitely max out my good looks many years ago. I definitely know I'm getting older now because after a couple days out of the gym it's probably the first time I can remember I didn't really want to come back. I wasn't really itching to get back into my office so.

Robb: Shocker.

Greg: Aside from that it's pretty much all the same.

Robb: Yeah, the first vacation that we took in five years when we went to Little Corn Island in Nicaragua and we were waiting for the ponga to go take us back, I actually cried on the dock. It's like no I don't want to go back but I made it back and everything is okay. So cool. Anything else new? Anything exciting?

Greg: Nothing more exciting than doing this podcast right now.

Robb: Indeed. Indeed. There is no doubt about that. There's no doubt about that. Let's see here show sponsors. We've got FrontDeskHQ.com. Front Desk HQ is your mobile solution for service based businesses, CrossFit gyms, Pilates, yoga, Brazilian jujitsu MMA, dog walking, stroller striding. You name it Front Desk HQ can take payments, point of sale. It's just kind of the beez neez so...

Greg: Maybe we should clarify too that it's not only mobile.

Robb: It's not only mobile but that's kind of the gee whiz factor to it is using your mobile device of choice you can run your whole operation with like an iPhone, an iPad. I believe that they will be android and those other dubious systems will be up and running it in the very near future as well. But that's kind of the cool gig where normally you would have like a sign in kiosk for a like a CrossFit gym or something like that. At least for the love of God I hope you've at least got that much going on. But whether you do or don't, you can do all that stuff.

Track everybody's comings and goings, take photos of people to populate your class list. This is how you can pay your trainer. It's pretty slick.

Greg: Pretty awesome. We're looking forward to getting onboard with that whole thing.

Robb: We just got NorCal onboard this weekend, so we test run our gym so that if it nuke everybody's data, we were the only ones who probably get killed in that. But yeah we imported all the data from the other service we were using previously and everything seems to be moving along pretty well so far. So we haven't like triple billed people or anything like that so that's cool. Who else do we have? Evolve Foods. Go to evolvefoods.com, buy some food. We have an affiliate program back so we'll be able to get you guys some super snazzy discounts so if you want to wait until I got that going then you can do that. Who else do we have? Performance Menu.

Greg: Yes.

Robb: How the hell did I almost forget the Performance Menu, Greg?

Greg: You know what, I almost forgot it myself.

Robb: That's okay. That's okay. Performancemenu.com, the Journal Nutrition and Athletic Excellence. You get 12 free back issues when you sign up, food, training, humor, life stories. It's all in there. If you take your training and coaching at all seriously, you got to sign up for the Performance Menu. It makes a great gift as well. Don't forget that.

Greg: Indeed. Everybody loves a good gift.

Robb: Yeah.

Greg: Okay. Let's give the gift of podcast.

Robb: Let's give the gift of done.

Greg: Okay. Olive oil adulteration. This was one of the alternative episodes of Popeye.

Robb: That's an interesting direction too. That's an interesting direction too. But I was just imagining some kind of hair thinning cheesy-looking guy driving with a somewhat outdated muscle car and cruising around with olive oil and like trying to get a hookup with people by winning them over with his price winning olive oil.

Greg: That's so much more complicated than mine. You are just thinking on a whole another level.

Robb: Well if you call it thinking then I'm good with that so.

Greg: Okay. Jeff says Robb and Greg really what good things are there left to say about you two in your work that haven't already been said. Rather than pile on with effusive praise I'll keep it simple.

[0:05:00] You two are great at what you do. Thanks. My questions are equally simple. Is the adulteration of olive oil a legit health concern or just more tinfoil hat scaremongering? If I can't get to know a local olive farmer, how can I best assure myself that the olive oil I'm eating is the real deal? Are USDA certified olive oils less likely to be adulterated than non-certified oils?

Robb: Oh man, you know the whole situation kind of sucks. Like I'm not a huge food labeling advocate in some ways because I think that that just opens up a whole other layer of regulation and kind of goofy stuff. But that said if the label says olive oil, fuck, you should be able to assume that it's olive oil and not canola and peanut and this and that and the other. It's really, god, it's just annoying. So is it dangerous? It's dangerous to the degree that normally olive oil being very predominantly a monounsaturated fat is typically pretty shelf stable.

It's usually loaded with phenolic and other antioxidant and so that helps its shelf stability also. If it's an opaque jar or at least a darken jar or maybe like a full on Italian style where it's in like your unabomber jug kind of you know can then that's better because you don't get the light in there and you get the chain propagative lipids peroxide and all that stuff from UV exposure going in there. The stuff should be reasonably shelf stable and the stuff that is commonly being sold when we get this other high polyunsaturated fat containing items like canola oil, they aren't shelf stable. They don't impart any appreciable antioxidants to the scene. Maybe they add a little bit of vitamin E to it to try to help with that. But you know is it going to kill you dead. No.

Is somebody who's already inflamed and hyperinsulinemic and everything and then they throw some shitty quality olive oil on their salad is that doing them the favor that they thought it was. No. And so it would be nice to figure out a couple of sources of some stuff that's really good. I've had some stuff. Nikki is friends with some, her childhood family friend owned a place outside of Red Bluff and I am blanking on the name.

Greg: Outside of Red Bluff?

Robb: Yeah. It's not Farm Star cause that's the pizza joint in Chico. God, I'm completely blanking on the name but this stuff...

Greg: I know exactly what you're talking about and now it's driving me crazy.

Robb: Yeah. The olive oil itself you can't see through it. It looks like the stuff from Re-Animator that they inject into people. It literally is almost florescent. It's beautiful and I've had this stuff right out of the spigot after the...

Greg: Lodestar Farms.

Robb: Lodestar Farms. Good on you.

Greg: Some kind of star.

Robb: Lodestar Farms. So google that. Check it out. I can guarantee that those guys are 100% legit. It's pricey. But at the same time you know unless you're doing a masking kind of deal, you don't necessarily need to be like shot gunning this stuff by the glass full. But like I was saying I had this stuff straight out of spigot. And then I had some that had been in the bottle for like a year that opaque bottle and all that stuff. And the difference was noticeable but it wasn't huge. And then I tried some kind of high-ish quality stuff that you would get a Trader Joe's or a Whole Foods or what have you and it tasted like swill by comparison.

You know I'm not, I guess I am. I was going to say I'm not an olive oil snob but I guess I am. We try to buy more stuff along like that Lodestar Farms kind of quality, the stuff is opaque. It hasn't been filtered. And you know just calling the people and asking them hey is this stuff legit. And you're going to pay more money for it. You might have to have it shipped in but that's one way to really be assured that the stuff is solid. But at the end of the day, if you go in and buy some Trader Joe's olive oil, you know their Greek olive oil or whatever and maybe it's adulterated, maybe it's not. I have no idea. Don't sue me Trader Joe's. I have no freaking idea. Why don't you tell us if it is or not. But if it is I don't think it's going to be the end of the world but it's just annoying. I'm kind of like a food credibility like transparency kind of gig that it's even a question.

Greg: That's a little irritating.

Robb: Yeah. I mean not irritating like you know surfing and getting a bunch of sand in your fanny crack or something. I mean that's really irritating.

[0:10:05]

Greg: It depends on what you're doing with the olive oil I suppose.

Robb: The olive oil could help them for sure.

Greg: Okay. Diet coke and bone density. Kate says hi Robb and Greg. Is diet coke Paleo? Just kidding that's not my question but it is about diet soda. Growing up my mom was always dieting meaning eating less food mainly crackers and cheerios and that result only had diet sodas in the house. In middle school, I got into the habit of drinking diet sodas daily. Since they didn't have any calories my mom and I didn't mind. So it started a 12-yearish complete addition to diet coke. I've been eating about 80:20 Paleo for around a year to great success and I've just recently manage to get rid of diet coke. I know many others who are in my boat. They got the food down but not the diet drinks. I've heard that diet soda causes bone demineralization so here is my question. I'm no 24 and bone development is supposed to peak at 25 and start going downhill I think. Are my bones compromised from all the years of drinking diet soda?

What should I prioritize now to makes sure I don't deflate when my bones spontaneously dissolve in a few years. I wish I had no bones. Should I convince the doctor to check my current bone density? Is there something I should eat more of or an exercise I should do more of? I hope an answer to this question will help other ladies and gents who have similar past with diet soda. Thanks so much for what all you guys do. I've listened to every podcast though I can't claim to understand all of it. Thanks. Neither can I.

Robb: Yeah. We can make no claim to that either. So you know digging around the literature on this, its kind of funny in the kind of alkaline diet nut jobber kind of scenes they will mention soda being bad because it has phosphoric acid or phosphorus in it and that can create phosphoric acid in the body. And that will leech calcium from the bones and that's the same reason why we shouldn't eat meat and we should juice and all the stuff.

The science behind the stuff is just terrible. This is one of the things that originally we were kind of touting the benefit of the Paleo diet because you ate all those fruits and vegetables and we're having the alkalinizing effect. Clearly, there are benefits to getting minerals and there're benefits to getting antioxidants and all that sort of stuff. But the acid base dynamics of the body are really really complex. And typically they're only looking at the renal element of this. They're not looking at the fact that we can just place pounds of acid base load via dissolved or displaced carbon dioxide in the body and the whole

bicarbonate system. And that was always something in the back of my head when I look at this stuff. I'm like so are we hooking people up to some sort of respiratory gig and checking out how much carbon dioxide they blow off and clearly we're not. So there's a long round about way of saying I'm just really dubious as to all of the acid base stuff and the alkaline stuff.

It's just really hard to get a foothold on any of that with any degree of credibility. I do think that to the degree that we get some sort of acidotic or metabolic acidosis it's a consequence of insulin resistance and shifting into a large glycolytic state where we're just taking glucose and converting it down to pyruvate or lactate. And I think that that could produce some chronic net acid load on the system instead of using the kind of full mitochondrial complex to pump things through the TCA cycle or Krebs cycle whatever. But all of that, so with that background which sounds completely nutcase at this point in digging around on PubMed and elsewhere about the best that I've been able to design out of that is when people drink soda in general and diet soda falls in that is that they are typically displacing things like milk and orange juice and things like that.

And so particularly with the milk, you get the calcium out of it. And so if you're not getting that calcium then it may create some problems elsewhere. In Paleo land we then to get a lot of calcium out of nuts and seeds and fruit. And then also people kind of forget bone broth and eating the cartilage off of chicken wings and eating the sardine bones and all that sort of jive. If you are totally adverse to all that stuff then maybe you should have some Greek yogurt or something here and there to prop up the calcium a little bit. Definitely making sure that your vitamin D levels are adequate and if you've been listening to all the podcast and you know I'm having a waffling waffler moment on should we get vitamin D from supplements or should you even go in and get like some tanning booth time in lieu of kind of oral supplementation gigs. So lift weights. Do some sprints. Stay mobile. Keep your vitamin D level good. Keep your protein intake good. Get mineral balance from lots of fruits and veggies, some nuts and seeds and you should be great on that.

[0:15:05] And certainly getting a baseline of your bone mineral density doesn't seem like a bad idea at all. Like if you are really behind the eighth ball on that. Let's say that you are actually osteoporotic, osteopenic then you would really want to get motivated about eating very very well really aggressive tackling some weight bearing exercise and making sure your vitamin D is good and mineral status is good both calcium and magnesium because we have examples of people in advance stage reversing osteoporosis with weight bearing exercise and a noninflammatory diet. So some of that stuff is commonly touted I

think is kind of bogus but you don't really know until you track something.

Greg: Okay. Breakfast, fasting, and circadian rhythm. That sounds like some kind of new age album title.

Robb: I was going to say it sounds kind of musicy.

Greg: Elaine says do you know any research on or do you have some thoughts about the role of breakfast in normalizing one's circadian rhythms. Maybe I'm not searching the right terms but consensus seems split between skipping breakfast intermittent fasting style and reading breakfast immediately Leptin reset style when it comes to getting your sleep-wake habits back on track. Do each of these approaches normalize a different sleep problem or is food less important to circadian rhythms than light therapy? One mouse study is quoted a lot by popular media supporting the idea that fasting for 12-16 hours before breakfast in a new time zone may help you overcome jetlag faster. As always thanks for being awesome.

Robb: Hmm, it's a good slew of many many questions in here. You know if you have somebody who's metabolically broken, there's maybe two ways that we could tackle this. And that is like meat and nut breakfast. You know the Leptin reset deal where you do 30g-50g of protein right out of the gate within 30 minutes of waking. It seems really effective for a lot of people just because they're definitely hungry later. It seems to set the day at a good clip from there. Other people clearly benefit from doing a little bit of fasting whether they do a little bit of training in a fasted state whether they just seem to fire mentally a little bit better when they're in a fasted state. I think that they're an example of both. If you have somebody that's very very stressed out and high cortisol, I think that fasting is a bad idea just across the board. Like we maybe even start doing something like four meals a day and a snack like we're keeping blood sugar levels way more consistent because the peaks and troughs tend to really irritate that whole adrenalin fatigue adrenal burnout kind of story.

Then as they get healthy we dial them down to like three meals. You know humans are not cows. We shouldn't be grazing throughout the day unless you're Steve Mann and that's what you do. You know there's just different ways to skinning the cat I guess. And depending on what you have going on, there might be some benefit. This is where it just get so damn specific like really needing to look at what's lifestyle of the person. How are they kind of wired up like are they really kind of type A kind of wound type kind of person or are they more relax? One thing out of all of this it does seem like partitioning the carbs towards bedtime towards the dinner time meal seems to be

beneficial both with regards to sleep and with regards to body composition.

So it seems kind of safe regardless of what else you're doing that partitioning more of the carbs later in the evening seems to have some benefit for the body comp and suppressing cortisol and kind of getting the body into wound down parasympathetic healing restoration kind of mode. So that seems solid but the rest of the stuff like whether you should fast in the AM versus doing like a meat and nuts protein and fat kind of breakfast I think that a lot of that is just very individual you know your makeup, your schedule, your current needs and then we could probably make an educated decision on that.

Greg: Okay. Robb go ahead go ahead go get something to drink and eat and I'll finish this question in about 20 minutes.

Robb: Sweet.

Greg: Look, feel, perform versus long term health. David says hello Paleolithians. I'm a powerlifting and strong man competitor who has ripped the benefits of the Paleo diet over the last eight months. I had no major health issues prior to starting the diet though I did have depression/anxiety episodes.

[0:20:04] My motivation for starting the diet was to perform better but it has had the diet of the added bonus for improving my depression and anxiety symptoms too. I did a few months of strict Paleo before I started tinkering. My observations thus far are: 1). I have no noticeable reaction to dairy other than the very occasional bit of acne though I'm not a 100% sure the dairy causes this. 2). Sugar is fine in moderation. If I go overboard, I get some acne and it messes with my sleep. 3). Rice has no noticeable effects whatsoever. 4). Trace amount of gluten have no noticeable effects. By the time I ate a whole pizza, it messed my shit up literally.

Robb: Shocking.

Greg: Yes. Using these observations I'm quite happily making informed food decisions well aware of what the consequences they may have on me. That was odd. Generally, I'll have some dairy usually cheese 3x to 4x per week, some chocolate, sweets, ice creams once per week and rice 3x to 4x per week when I'm trying to gain weight. I learned the lesson with the pizza so I stay well clear of any major gluten sources but I'm not worried about foods that may contain a small amount of gluten. The above diet has me looking, feeling, and performing fantastic. I couldn't wish for more.

My question relates to my long term health. If I look, feel, and perform well and I'm not quite Paleo diet, am I more at risk to food induced diseases than if I were on a strict Paleo diet. I guess your answer is going to be yes to a degree. I seemed to remember on a previous podcast you or Cordain estimated that the Paleo diet may add 10 to 15 years to the life of someone who would otherwise be on a standard American diet. If someone is looking, feeling and performing topnotch how close does that person come to getting that 10 to 15 extra years. Is my eating ice cream once a week for the 50 years going to cost me 2 years. By my math that means each time I eat ice cream I will sacrifice 6 hours 44 minutes and 18 seconds of my life. Hmm, it sounds worth it to me especially if you're eating that ice cream 4 to 6 hours 44 minutes.

Robb: Seriously yeah.

Greg: Okay. Scrap the above question. How about you guys just do a general ramble about how many seconds, minutes, hours, days, weeks, months, years of your life you'd sacrifice each time you ate your favorite non-Paleo food if they didn't have any health impacts on you. Go. Sorry for the rambling question. I'll add more. Oh man.

Robb: So what do we do with this one?

Greg: I don't remember this at all.

Robb: Yeah, I remember talking to Loren Cordain. I think we were doing the Paleo brand seminar back in San Diego ages ago now. And we were just kind of talking and he made the observation that when you look at the known and suspected health consequences of eating gluten that in general like take the United States if we could get everybody gluten-free you would probably add 8 to 10 years of life to these people right out the gate. Just you know gut inflammation, cardiovascular inflammation, neurological inflammation, allergies on and on and on.

Like all the inflammatory characteristics of wheat and gluten containing items are impactful enough on health that you could make a pretty good argument that if we mitigated that stuff, we would take our average life span from like 75 years up to 85 let's just say 85 years. And then we could make a further argument that if we tighten things up along this Paleo or ancestral health template where we get vitamin D from the sun. We get lots of fruit and vegetables. We have lean meat that has tons of nutrients in it and ideally its grass fed so we got like conjugated linoleic acid and we get iodine from seafood and on and on and on that we might stick another 5 or 10 years onto the top end. And so we go from like 75 years to like 95 years as the

average. And when you look at some places in Okinawa and Sardinia they don't need the Paleo diet specifically but there are some elements that are pretty similar there even though the Sardinians eat higher fat. It's mainly monounsaturated fat and all that sort of jive.

And so you know then I guess the real question here is each time you do the hookers and cocaine binge what's that causing you. And it's really hard to tell. We have a question coming up here later on the whole hormetic stressor kind of story. And I could make an argument like every once in a while like some ice cream and nachos binge could be a beneficial hormetic stressor. And to some degree I think there's kind of conflicting information on alcohol consumption. Alcohol is a known carcinogen. It's not great for insulin sensitivity. It's got all kinds of other problem but it also decreases stress. And it decreases stress both because it's kind of sedative but also we do it in a social fashion.

[0:25:02] So there is behavioral stuff associated with alcohol consumption. If everyone once in a while you go out with a bunch of friends and you guys totally kick your heels up and try to destroy like an all you can eat dessert buffet or something like that, there may actually be some benefit there. Just because you have a good time and you bust each other's balls doing the gig you know. I mean there are so many other layers to this stuff just beyond like protein, carbs, fat and hormesis and all that sort of stuff. There's all the socialization and the rest of our life that we live. So I think it's hard to...

Greg: So wait. Sitting on the couch, crying, and eating ice cream and drinking whisky doesn't count.

Robb: Doing that would probably, each dose probably takes like a year off your life. So I mean again like I don't know like there used to be something going around like each cigarette somebody smoke it took 6 minutes off their life or something like that.

Greg: That sounds like one of those weird made up things with the tobacco propaganda fucking thing.

Robb: I know. So clearly I need to snoop that one and see what the real deal is so. So at the end of the day, my main deal as always is I think that out of any of this stuff I think the most gnarly thing that we face is gluten. And so last week we had somebody come and watch Zoey and Nikki and I went out for dinner for the first time in like 8 months. And I had a gluten-free pizza at this place called PJ's and it was amazing. I didn't decommission a bathroom afterwards. I thoroughly enjoyed it. I had a sider with it. I had a little bit of bloat just because it was a pretty good size carb bolus for me. But I got up the next day, I felt fine. I had a good roll at jits. Everything was cool.

If I ate like that everyday I would have horrible body composition. I would fee like crap. But just for that once a month, you know once every month, once every 2 months for me if I'm going to do something like a pizza then I'm just going to do gluten-free pizza because they're pretty damn good now. Out of any of this stuff I still consistently if there's any one thing that really seems to impact health in gnarly and large number of ways its gluten. So if you can find alternatives to it then that seems great. And one other things to keep in mind too is that people will go from kind of subacute gluten intolerance and then as they get older they get under more stress or their training volume increases then they get more gluten sensitive. They react to it more. So it's a bit of a moving target just because the level of reactivity you have today is certain say like a 2 out of 10. It's not to say that it can be an 8 out of 10 or a 10 out of 10 down the road if circumstances change.

Greg: Yeah. Indeed. Okay. Paleo and cancer. Dawn says I've just finished chemo and have done 5 out of 33 radiation treatments. My husband I started Paleo 4 weeks ago and we are loving it. He's lost 9 lbs. and me 4. I was diagnosed when 25 weeks pregnant so I'm also holding on to some baby fat. Although, the weight loss is awesome my intention of doing this "diet" it will be a way of life for me is for the health reasons. What cause my breast cancer? I'm inclined to think what man has done to our environment and our food. With knowing that, I hope I can articulate my question correctly. I believe in a little cheat every once in a while. I love eating healthy and can do so without much yearning for the bad stuff. But ever so often it is nice.

I love to cook. I love food. I love good beer, etc. So what is your thought on cheating and possibly fueling more cancer? I think I'm getting all worked up and maybe for no reason. We went to dinner yesterday and I had a steak with grilled mash and onions. That makes it sound gross. But I got a salad with their house dressing warm bacon and ate two small pieces of cheese bread. That was my first bread in 4 weeks. I didn't cheat horrible but wondering if even something that little is bad for someone like me, someone who has a history of cancer. Am I making sense? Yes. Yes, you are.

Robb: Probably much more sense than we are going to make on this. Squatchy definitely has a thematic flare. Going to give that guy continuing props.

Greg: He has this incredible flow from questions.

Robb: Indeed. Indeed. So one thing that would be interesting to know is if this was I don't want to say legit breast cancer.

[0:29:57]

But there is a tendency on the oncology scene to take a situation called ductal carcinoma in situ, DCIS and called it breast cancer. Now what this is are precancerous cells that have the potential to go bad, to go worst but it's also a little bit similar to early stages of prostate cancer where the stuff can cook and ferment for decades and do nothing. It comes in. It goes away. The immune system clears it. Is there a potential it can do something? Yeah. But you also have the potential of just having 100% normal tissue. Something happens and then it's metastatic stage IV breast cancer a couple of years later. So you know there's just potential all over the board there.

And so one of the questions I would be interested in knowing is exactly what flavor of cancer this was. In general, breast, colon, prostate, astrocyte brain tumors, glioblastomas, these types of cancer are very responsive to growth factors like insulin and hyperinsulinemia. Insulin like growth factor like we would get out of dairy, all of them are derived from the same embryological tissue and so they then to have very similar responses to androgens and growth factors. And so with all of that in mind, I could make an argument for being a little bit on the ketogenic side at least say a week out of each month or a month out of each quarter or something like that. Just as a means of keeping the kind of growth signaling on the low end with stuff like this. And it's not fully in the genre of what Tom Seyfried from Boston University who has done extensive research on cancer and ketosis.

He recommends that we would need to do like a ketogenic calorie restricted or fasted state scenario for anywhere like fasting for a week per year or calorie restriction plus ketosis for a month or longer per year. And like not only calorie restriction like twelve, eleven hundred calories, like not very pleasant. I think it'd almost be easier to fast for the week but eat that skinny for the month. But the idea with this stuff is again like a hormetic stressor causing a challenge on potential cancerous or I guess precancerous tissues that are glucose dependent and gluconeogenic substrate dependent from amino acids. And that this would kind of press a system reset so that we clear some of these cancer cells or precancer cells by limiting the substrate it uses as fuel and then also by just kind of firing up the immune system. Because the immune system kind of goes into high alert during these times.

So I could make an argument for being a little bit ketogenic at least once in a while if you've got a family history of cancer or you've gone through a bout of this. From there like what type of shenanigans can you get away with? Again, it's really really hard to say. What are your vitamin D levels? What's your activity level? Was your sleep absolutely bullet proof. Like are you going to bed at like 8:30 each night, pitch black room, sleeping 10 hours, waking up totally refreshed and everything is

good. I think if you've got that going on and you've got work that you love, you've got a great family life, you got awesome social support like you're Mary freaking Poppins and everything is great.

Greg: Minus the spoonful of sugar.

Robb: Minus the spoonful of sugar then in that case maybe you can get away with only spoonful of sugar.

Greg: Only a spoonful. Not a serving spoon either.

Robb: Yeah. Yeah. Not something you would serve military rations with for sure. But on the other side of that, you're really stressed out. You're type A, you have low vitamin D. You're shackled to a desk all the time. God, it's sounding like Greg and I.

Greg: You're describing my life right now.

Robb: I need to do a breast and a prostate exam on my self here. So, the other side of this super stressed out, not good sleep, challenging work environment. And challenging not in a gee whiz I jump out of bed to go do my work because it's exciting but like wow I would crawl into a manhole cover and not come out if I could do it versus going to work. So I think again all of these lifestyle factors, all of these other epigenetic factors are really important in considering what you've got going on. The more stress you are, the more your sleep is impacted, the less social support you have.

[0:34:58] And by social support I mean friends and family and people that you interact on with a daily basis, the more impacted you are on those other areas. I think you have to be tighter on the food side or the potential for problem increases. It's a multifactorial kind of problem and I think that that's where this evolutionary biology template is really really powerful because we don't just look at food. It's not just the zone. It's not just Atkins. It's this integrated approach trying to look at the full kind genetic, life history of an organisms in this case us and trying to figure out like what are the optimums. You know getting good sleep, getting good exercise, getting some vitamin D from sun exposure, having lots of meaningful social interaction. And then eating a diet that is on typically more inline with our evolution our genetic would kind of recommend than not.

And then that makes the occasional hell kick ups not that big of a deal but again with the caveat like the two small pieces of cheese bread. I mean if that's absolutely a deal breaker for you like give me cheese bread or give me death kind of gig then by all means do the cheese bread. But it's another one these pieces of the puzzle I feel like there

are so many other options that doesn't involve the gluten, doesn't involve the potential GI irritation and all of the other systemic inflammatory issue then I'm just hard press to be very flexible on that. Again it's your self experimentation. You do what you do. If you do fine on it then great, but we see so much stuff and so much stuff on the gluten and the connection between gluten and a variety of pathologies that it just seems really easy to make an argument to not have that be part of the hookers and cocaine binge. There're so many other things that you can do.

Greg: Cool. You know you can go on with the other things you can do with hookers and cocaine.

Robb: You know nachos and ice cream and dark chocolate. I think we have, and then gluten-free options.

Greg: Slow down. I'm trying to write them all down.

Robb: Nikki makes these grain-free chocolate chip cookies and its almond flour and butter and then we get like this 85% or 90% dark chocolate, chocolate chip cookies. They have so much butter in them you really can't eat them warm because its like scraping fresh dog excrement out of your lawn or something. It just has a not satisfying texture then. But you throw it in the refrigerator and chill them and they're amazing. They're totally amazing and she'll make those every once in a while and they're phenomenal. And dunk them in some decaf espresso and they taste delicious. You know it seems like we have so many other really cool options floating around that it doesn't seem super compelling if you got control over your environment.

And we've got a couple of question from people coming up next that are in the military and they have way less control in their environment so we need to be a little more flexible. Because as folks living at home or in the state or any type of westernized country typically you've got so many options before you. I don't know. Again I don't want it to be cultist but I see so many people do so well cutting the gluten out that I'm just remiss to really give anybody a stamp of approval on that. It's like fuck yeah. Light it up. Smoke it. Snort it. Do whatever you want. Take gluten from every orifice so yeah.

Greg: I mean so many restaurants now had entire gluten free menu or at least like a few things to choose from. So if you're going to kick your heels up always check that for an option first because you go gluten freak out. Okay. Paleo in Kuwait. Pam says good afternoon from Kuwait. I've just arrived here 3 weeks ago with the military and I'm having a tough time eating Paleo. That's weird. I know the basics but my issues are finding good healthy fats and I'm about tired of a grilled

chicken breast. Even the eggs are powdered so I opt for egg whites which are probably processed as well. Although, I'm able to get my workouts in I'm feeling yucky from not getting the nutrients that my body needs. Any ideas, tips or meal supplements that I can try without paying out the you know what for being shipped to Kuwait. Thanks.

Robb: Man. You know people have sent folks care packages with like nuts and coconut oil. I would be willing to bet that if you went to the kitchen that you could probably get your hands on some butter and just like a brick o' butter. And if you have a refrigerator in your barracks then you could throw that in there. It sounds kind of wacky but you literally just like you finish a regular meal that's maybe a little skinny on fats and good fats and you just go in and carved off a hunk of it, gnaw on it.

[0:40:06] Actually it taste pretty damn good. They probably have some whole manufacturing cream so you could use some whole manufacturing cream. It's just kind of hard. You know locally you might be able to get some red palm oil, you might be able to get some coconut oil. You might be able to get some coconut products. It's really interesting. I know that stuff is produced in those areas. But its like we've been to Nicaragua the only coffee that is sold in Nicaragua is like the worst of all stuff you've ever seen cause they literally export all of the good stuff. Like there is nothing good that you can really find in the country and it maybe a little bit there. So those would be the idea. Try to get the family to send you care package with a bunch of almonds or whatever nut you like maybe some coconut oil on that shipment.

Like who is it Tropical Traditions sells like the 5 galloon thing of coconut oil and its probably a little bit pricey to ship it over there but you just drop a spoon in that and go to town and you're pretty good for at least a 6-month deployment I think even really digging in on that stuff. Trying to find some butter or some whole cream from the kitchen and then trying to see what the local kind of shopkeeper scene is there in Kuwait. And again I suspect you can find some red palm oil, coconut products and possibly some olive oil.

Greg: Cool. Let's see here. Hormesis. Everyone loves a good hormesis question.

Robb: It's not chili.

Greg: Oh man, I want some chili now. David says I've heard about a lot of Paleo folk talked about minimizing toxins in their daily life almost to the point where it seems like they're trying to live in a clean room. Well I appreciate wanting to nourish the body, is there a value in

hormesis. The Greeks believe that exposing oneself to toxins or physical damage in some way can be beneficial i.e. whatever doesn't kill you, only makes you stronger. I thought that was the Germans. Nietzsche was the one who said, isn't he?

Robb: Something like that.

Greg: Then he died from stomach problems. With that in mind, how much should we really be concerned about toxins in our modern environment? Doesn't our body have coping mechanism to adjust to become more adapt at handling toxins over time i.e. cytochrome P450 enzyme. Thanks for everything you do. Love the podcast. You guys rock. This was also demonstrated in the film the Princess Bride.

Robb: That's true. Too true. Too true. Phenomenal movie too. One of the best ever made. So yeah, I mean this hormesis gig, you know getting punctuated exposures to challenges I think that clearly this is a really beneficial thing for humans pretty much anything alive. I remember as a kid there were some studies it was like in the Funk and Wagnalls big book of science or something like that. I remember this thing. It showed a plant that outside and it had temperature changes and exposure to bugs and everything. And it looked a little beat up. And then there was a plant that was indoors but it had some fluctuations in temperatures and sometime went without water and stuff like that. It looked really good. And then there was a plant that was 100% protected from like temperature change, predation and then the plant ended dying.

And I think that it's almost like we're a signal processing reservoir. You know like living stuff it process the signals from the environment and that's part of what keeps the organism alive. If you cut off all the signals then the kind of patterning of the organism kind of drifts and it loses the ability to survive literally. And so trying to overly protect yourself I guess is kind of goofy. But the hormetic stressors that we know are kind of good like limiting macronutrients at various times. Like having periods of time where your protein intake is low or your carb intake is lower. You know there's some protein recycling, there's some cellular autophagy that's good with all that stuff. But then that said we know that exercise is really powerful for unlocking the same type or hormetic stress response in the cellular autophagy.

So go lift some weights and do some sprinting and you get kind of the same effect from protein cycling and carbohydrate cycling. You know barring over consuming calories which at the end of the day all of the theories about insulin modulation and all the rest of that stuff I think clearly like Chris Masterjohn talks that he gave at AHS 2012 is it was really good.

[0:45:07]

And I talked about this in part 3 on my thoughts on low carbon Paleo. If you guys haven't read that three part series, you definitely need to do it. But you know he makes the point that most of what we would attribute to metabolic arrangement is over consumption of calories in general which initially causes interestingly kind of an oxidative stress response because the body tries to up regulate its metabolic processes. It enacts uncoupling proteins in the mitochondria which basically allows free radicals, electrons to just kind of spill out into the environment and this cause a lot of heat. There's a lot of heat generation, not much work generation, not much ATP manufacture. And this is a coping mechanism to deal with stress of too much.

But overtime what happen is the individual becomes insulin resistant in an attempt to take nutrients and instead of pumping them through any mitochondria, they're stored in adipose tissue. It's a way of just kind of walling this stuff off and storing it. But obviously that has some negative health consequences. Oh gosh, I had like a zillion thoughts on this. And another thing I was working on some research related inflammation in different processes and I was kind of thinking you know if cardiovascular disease is an inflammatory process I bet we see worse allergies in people with cardiovascular disease or maybe you could make the argument that people with lots allergies tend to have greater rates of vascular disease. You know depending on which side of the coin you look at. So a little bit of quick PubMed searching and I found a slew of stuff. And it's correlative. It's not double blind placebo controlled, randomized crossover gold standard study.

But it's just intriguing that in the literature there's clearly relationship between elevated frequent allergies and elevated likelihood of cardiovascular disease. And when we view this whole thing from the picture of systemic inflammatory response and that response be either be the innate immune system or on the adaptive immune system typically resulting more in autoimmune type of stuff, innate immune system responses more like allergies, metabolic arrangement, gut permeability and stuff like that. But when we view this from a big picture perspective any type of chronic inflammation is going to be problematic for damn near any organ system that you can think of then it starts making an argument. The original question is should we minimize toxins. So what are those toxins?

Like should you not sniff gasoline? Probably. Again with all the ones that we've talked about today, should you try to avoid gluten? Yeah, I would I would make a really strong argument for that. Like I think it is clear that gluten is at play in gallbladder disorder. A host of these gut related systemic inflammatory issues ranging from autism to cardiovascular disease, thyroid dysregulation and on and on and on. So could we make a really solid argument for avoiding gluten as

toxicant? Yes, I think that that's pretty safe. Even things like green vegetables like salad greens or some of the more wild rustic stuff like mustard greens and chard and stuff like that. If those things get too big, if the leaves get too big the amount of oxalates in the leaves gets very very high and you could cause kidney failure, kidney damage from consuming plants that have a really really high oxalate content.

So that's a toxicant that we would probably want to avoid you know. So all of these things have thresholds of reactivity and again vitamin D status, sleep status, what type of shape you're in. You know all of these things are going to feed into how you respond to things your genetics and the epigenetic. You know we're going to feed into how you respond to this stuff. So I'm all about embracing things like a dip in cool water, spending some time in a sauna, exercising, maybe a little bit of intermittent fasting again with the caveat that we are not under a ton of stress, that our sleep isn't disturbed. That we're not doing Fran followed by Helen followed by Diane in a fasted state for super hard charging athletes like fasting should be used very very sparingly, very targeted.

[0:50:00] Like maybe you use it on testing day when you're doing anaerobic type stuff or something so that your GI track is empty and you have no issues with shunting blood away from the digestive track and muscles so.

Greg: Also now what about aside from food based toxin and that's kind of physical toxins, what about stuff like bacteria. Cause I think to me that's more I think what he had in mind like all these generation of Clorox kids whose moms is like soak them in Lysol 6x a day and probably have the adaptive immune systems of like a 50-year AIDS patient. What's your thought based on that?

Robb: I think that stuff is silly. And you know like each time we go to Whole Foods they have the little canister of wipes out there and everybody judiciously wipes their cart off.

Greg: It's just hilarious cause half of them don't shower.

Robb: Right. Right. Yeah. They roll around with like a dust storm like pig pan around them anyway that smells of patchouli and rank hippy. So yeah I think that people are generally doing themselves a huge disservice by hyper-cleansing themselves and particularly their kids. Now that said when I go on an airplane I do wish I might even start wearing like one of these little mini HEPA filters things because I don't get sick every time I go on a plane. But typically when I'm traveling I have some sort of a speaking engagement gig and there's a lot of handshaking and hanging out with people late night. It's usually not a

good a food as normal. And like the potential for me to get sick is just greater. I get sick more often when I'm on the road.

So barring really extreme things like that I think that people are really doing themselves and their kids a disservice by hyper-cleansing everything. Like with Zoey we take her to a little park down the street from where we're at. And it's pretty cool. It's got like a rubberized surface and all the stuff crawl around on and everything and there is rocks and dirt and cheese sticks. Of course, the only thing she wants to play with is whatever is stuck in the crevice of the playground equipment and everything. And I just don't sweat it like I'm not super paranoid about washing her hands. We were just in NorCal last weekend and she crawled all over the gym floor and everything. I washed her hands after that cause I mean she literally looked like she had like soot black on her or something.

But it wasn't this deal where every 10 minutes I was pulling out some sort of a sani wipe deal I'm trying to mop her down. I know for a fact from the literature and just kind of I guess a little bit of faith in this kind of evolutionary biology model that a kid who's exposed to some immune challenge is going to be way healthier. They have less likelihood of asthma. They have less likelihood of cancer. They just tend to be healthier. So I think that trying to avoid stuff like plasticizers like heating up your food in some 1980s Tupperware is probably not a good idea.

Greg: You got stuff it's all warped when you take it out and it's half and pen into your food.

Robb: Yeah. Your scramble eggs are now orange because of transfer of plasticizers and stuff. Like that's a horrible idea. I think when you repaint your house get a new carpet. I think getting some stuff that has a low what do they called it VOC like volatile out gassing something and others. Basically it's not out gassing a bunch of really gnarly stuff which a lot of those are like xenoestrogens and they're toxic and all the rest of that. I think that doing some stuff like that to minimize your toxicant load is not a bad idea. I don't think there's any real downside to doing stuff like that. I think it's more environmentally sound both on the big scale and on the smaller scale.

So I think some stuff like that are legit. But yeah you're pointing that out to me is good. I think that people are definitely doing their kids a disservice being hypervigilant on the hygiene side. Kids are meant to be dirty. They need to play in tepid standing water and get a gut pathogens every once in a while and harden the fuck up from that stuff. It will be good for them.

Greg: Seriously maybe kick them off the fucking couch for a minute and go have them roll around in some dirt they wouldn't be such whiny pussies.

Robb: One could dare to dream you know. It's interesting. You know there's enough CrossFit gyms around and there are enough people who've had kids in these gyms. It's interesting to me like these kids almost seem like a different species than the rest of the population. Like my nephew, Hayden. He's four years old and he can kick up into a handstand and cruise around on his hands.

[0:55:00] And really amazing balance. Sharp as a whip and you know he's a kid. He can get tired and annoying and stuff like that just like any kid can.

Greg: Just like any human.

Robb: Yeah. Just like any human but he's a really solid kid. And then we see the other kids in the gym and some of the stuff that they can do. Like Hayden, 4 years old, just like dead sprint this weekend, jump probably clear a good 2 or 3 foot gap which is considering he's 2 feet tall you know his body length kind of good, jump and grab the gymnastic ring that was low. You know down in his grasping range with one hand and then swung one handed. I was like thinking that would be a not insignificant task for me to like jump, cover a 5-foot gap, catch the ring at the end of the 5-foot gap one handed and then maintain my grip.

Like I know I could do it but it would give me a pause. I would run through that in my head before doing it. And this kid it was just nothing for him. And just getting on to a whole other side topic but you know the fact that we don't have playground equipment. Oh, the playground equipment now is so whinified.

Greg: Oh my god.

Robb: You know there's nothing...

Greg: It's freaking just a god damn shame.

Robb: There're no just jungle gym bars.

Greg: You can't get sprinters. You can't get burn. Like you can't do anything cool.

Robb: Yeah.

Greg: There's nowhere to like to hang your fellow kids like from their shoelaces. It's bullshit.

Robb: So I think that there's a lot of stuff like that. So I think David's question is interesting. Like you're kind of on to something like are we overprotecting ourselves and I would say in some ways yes. You know like trying to hyper-sanitize everything. Trying to make every playground you know 100% safe. If it's a 100% safe then it's 100% useless. Occasionally some kid is going to get hurt. Often times catastrophically. But it's a one in a million or one in a two million thing and it's horrible, horrible. But then the rest of our kids, the rest of our society are kind of paying the price for trying to guarantee 100% safety.

And so you know you've got those two ends of the spectrum. But then you got you this middle ground where I do think that we live in a little bit of a toxic environment. Lots of xenoestrogens, lots of plasticizers, bad food as a baseline you know all that sort of jive. But I think trying to be a little bit hearty and adaptable I think that that's really solid.

Greg: Cool.

Robb: And it seems obvious but you know when you cruise around the rest of the world it clearly is not. At least you know a lot of the United States.

Greg: Yes. All right, well we got to do this one because it says it's urgent. She probably has a thing on your contact forms that says if this is an emergency please close the browser down and dial 911.

Robb: Dial 911. Yeah.

Greg: Okay. Mike says insert praise about the vast wealth of knowledge I have received since I found your podcast here but really thanks for what you do. I'm a service member and I'm being deployed to Africa in about a month. My military doctor has given me doxycycline to take for the duration of my deployment, 6 months, to ward off malaria. It seems like a smart idea to not get malaria. However, I know that a doxycycline is going to wreak havoc on my gut. I've been Paleo for a while now and I feel like I have gotten my gut under control as I have had candida and other gut issues. I've listened to almost all of your podcast and I plan on consuming some gluten containing products before the deployment so that I do not have a serious gut issues while in theater.

However, would you suggest taking the malaria pills? If so, should I take something else to mitigate the damage to my gut? So I maybe keep an eye on malaria symptoms and take the doxycycline if I think I might have it. Do you know of any other alternatives to the

doxycycline? I know that you are not a doctor and I'm not requesting medical advice but any help you can offer would be much appreciated. Thank you again.

Robb: I'm glad he had exculpatory clause in there so that's cool. You know there are some other antimalarials but all of them are pretty gnarly. The doxycycline isn't great but you know the problem with taking it post script. What the doxycycline does is it prevents the plasmodium, the organisms, the parasite from replicating. And so you're going to be way too far down the line I mean cause you don't always know when you get a mosquito bite. So if you're just okay if I get a mosquito bite then I'll start taking it. If you're in an area where they really suspect this stuff then the likelihood of getting a mosquito bite is pretty high.

[1:00:00] You have two different varieties of malaria. One of them is a pretty bet its going to kill you death. The other one you're going to have a real high fever and be miserable for a while but you're probably going to live particularly if you've got modern medical support. But it's a gnarly adventure doing that like I just wow. Yeah. Humans have a lot of different interesting adaptations to malaria that we've developed in the course of like 5,000 to 8,000 years because it's such a selection pressure on us, so it's really gnarly bug. You can take some *Saccharomyces boulardii*. Jarrow Formulas has that. If you've had yeast issues in the past then you can be taking that with the doxycycline then that should help mitigate the likelihood of yeast overgrowth issues. *Saccharomyces* is a beneficial yeast and it should help displace other things like candida. Generally good eats. I forget if doxycycline is increases photosensitivity.

So you'd want to look into that. I'm also unclear if it has impact on the pathway of vitamin D manufacture. So even if you're kind of relying on some sunlight to make vitamin D, I'm unclear if doxycycline is in that amoxicillin family. I guess I could do some googling on that. But my keyboard is out of reach right now so I'll leave that up to you to do some googling on that. But those are some things to keep in mind. I think a probiotic is probably going to be challenging to track down on deployment in Africa. If you could find any type of fermented food that you trust then you could give that a whirl.

But otherwise I think in the grand scheme of things avoiding malaria is probably your big deal. The second deal is trying to minimize the likelihood of getting some sort of a yeast overgrowth again which I think the *Saccharomyces boulardii* would be a good option with that. That stuff is heat stable so you don't need to refrigerate it. You could buy 4 or 5 or 6 bottles of *S. boulardii* from Jarrow Foods and you should be good to go. Then its just eat as well as you can. Sleep as

well as you can. Do the investing on doxycycline and photo reactivity and also vitamin D production just so that if it does interrupt vitamin D production then that's a legit argument for making sure that she's got some liquid vitamin D drops from Carlson or something like that.

Greg: Sweet. All right. Well this one is already over so let's just wrap it up with one more.

Robb: Sweet.

Greg: Why not. Dan says hey Robb. I was listening to episode 73 and you were responding to a letter about someone getting their gallbladder removed and you guys were joking about insulin tans or tyrosinates reaction. Tyrosinates? You tell me, Robb.

Robb: It should be tyrosinase reaction and so this is where Dan heard one thing but it kind of rattle into his noggin differently but it should be tyrosinase. It's an enzyme. Yeah.

Greg: That makes a lot more sense.

Robb: Yeah.

Greg: This one made it sound like something like proper possessive amino acid.

Robb: Nope. Nope.

Greg: Okay. I'm 27 years old and I've had age spots, liver spots, sun spots at least since high school. I was told they were sun damage and that's generally all I find online. But I think that's bogus because I barely have them on my arms or face mostly on my back, stomach and chest. Also I lived in Vancouver, BC so there's really not any sun to cause any damage. My father is covered in them more so than anyone I've ever seen. His back is basically one liver spot. Do I have any chance here to turn this around or am I destined to become one large liver spot. My father is also a sugar addict, eats lots of bread and butter, drinks only coke or lemonade. Another background for me is that I've been aware that I have candida since maybe 2008 but I may have gut floor issues earlier than that.

I often get red burning eyes which I was told could be a result of my liver maybe from processing toxin from candida. I also have had skin problems, sensitive flushing skin, keratosis pilaris on arms and dry skin on my face. All these things have gotten much better but are still much present. I've been following Paleo loosely since 2011. Still drink milk, have cheese, sugar and grains occasionally. That's pretty loose. I take multivitamin and probiotic vitamin D and cod liver oil and

vitamin C. My question is could you elaborate more on, remind me again what it was?

Robb: Tyrosinase

Greg: There you go. I'll change this in the notes.

Robb: The show notes. All right. Cool.

Greg: Reaction and maybe offer an idea of what's going on with me. And could you offer any advice on foods to avoid on some foods/supplements that may be able to help with slowing down the liver spotting. And I guess more importantly helping my liver function if that's an issue. Thanks.

[1:05:00]

Robb: Yeah. I mean they called them liver spots but the tyrosinase is a browning reaction. And it's kind of funny. It ranges from browning toast to stuff that going sideways in your forehead and getting a giant nasty liver spot. And oxidative stress is really the biggie here. And so if your pops is this reactive and I'm just kind of picturing like the super pasty like Irish guy or something. Just eat a super pro-inflammatory diet. The fact that you suspect some candida, you know you're feeling better but stuff still kind of loose. I would tighten that stuff up, Dan. I mean it's another one of those things where tighten it up till you get really healthy and then figure out what type of shenanigans you can get away with. Like it seems like you're still in this kind of middle ground that is not doing you too many favors.

Really high sugary food, pro-inflammatory food, gut irritants, low vitamin D level, bad sleep on and on and on broken freaking record. It's kind of all the same stuff. Antioxidant rich foods. So like if you're training hard and you need some carbs doing like some yams and some purple sweet potatoes which are really antioxidant rich versus like white rice I think that you're going to get better results off that just based off the accompanying antioxidants that you're getting out of that story. Depending on your insulin sensitivity, we could maybe argue bringing it down a little bit in total carbohydrates, needing a little bit more mono and saturated fats, maybe some grass fed butter, getting iron status check. Because if your ferritin level and iron saturation level is very high, that is a very potent pro-oxidant. And so it's interesting whenever we start seeing any type of cumulative oxidative stress, maybe this is an argument for another flowchart that I could put together with Amber.

But when we start thinking oxidative stress we can think about gut permeability, we can think about low vitamin D levels, we can think about iron overload, poor sleep, etc., etc. etc. You know all the same culprits but it's interesting that they all kind of converge and they have overlapped. The effects are not localized which is why we keep saying systemic inflammation. But if we have high iron status then it means we're in a pro-oxidative state which means the likelihood of this tyrosinase activity is greater and then we also are likely to be insulin resistant which elevates blood glucose which increases the likelihood of this tyrosinase kind of reaction. So it all starts kind jamming together. And when you look at people who are suffering from these problems then they've got multiple pieces that are broken that need to get fix or the situation is going to get much much worst.

Greg: Well what do you know.

Robb: That's all I've got on that. No matter what else Squatchy put in here, we're done.

Greg: Yeah. We're done. If Robb says we're done then we're done.

Robb: We're done. We're out.

Greg: All right.

Robb: Anything else. Can you think of anything else that people need to be aware of?

Greg: Nope.

Robb: Perfect.

Greg: That's it.

Robb: All right then well again happy birthday.

Greg: Yeah. Next week I'll actually be present for the recording of the Paleo Solution podcast.

Robb: Cool. We'll get something strength and conditioning oriented coming up soon. We need to get Mark Bell on the show. We got Nate Miyaki coming on here at some point. We have some other guest that we want to have on. It's just Greg has been really busy and then with me and the baby it's frequently easier for Greg and I to just kind of fly by the seat of our pants and find a block of time where we're like okay you're good, okay I'm good and we just kind of bang it out versus when we actually have a legitimate guest we have to...

Greg: Actually...

Robb: By a timeline. Yeah so.

Greg: Yes.

Robb: That's the story.

Greg: Cool. All right.

Robb: All right man well thanks.

Greg: All right, will talk to you next time.

Robb: All right later G. Bye.

[1:09:24] End of Audio