

The Paleo Solution

Episode 25

Andy Deas: Robb Wolf, Andy Deas, the Paleolithic Solution, Episode 25. How are you?

Robb Wolf: Oh, good. Good. The sun is out in Chico. So I hear.

Andy Deas: And we're 25. We're a quarter of a century.

Robb Wolf: Yeah, yeah, we're like in dog years or something, like we're aged so....

Andy Deas: Robb, I want to tell you that continuing with my obsession with The Boondock Saints.

Robb Wolf: Oh, God!

Andy Deas: After watching The Boondock Saints II and being crushed at how bad I thought it was, I did watch Overnight which is the documentary that they filmed during the making of the first one, and it was well worth the 90 minutes of my life that I sacrificed.

Robb Wolf: So you enjoy exposés of neurotic individuals who overhype their sense of self-importance and then create something good and then ultimately burn it into the ground. You find that interesting?

Andy Deas: Well, I just think it's fascinating that you sell a script and all of a sudden you're like the smartest man in America; although, I suspect Troy Duffy always thought he was the smartest man in America. Just selling a script made him think he was -- gave him some validation.

Robb Wolf: Reinforced the neuroses?

Andy Deas: Yes.

Robb Wolf: Yeah.

Andy Deas: Especially when at that time there were still trying to -- his band was supposed to play on the soundtrack for the movie which is, I would say, unheard of.

Robb Wolf: Well, it's more talent than I have so I can't tear him down too badly.

Andy Deas: Don't sell yourself short, Robb. You're an incredible slouch.

Robb Wolf: Thank you. Thank you.

Andy Deas: So episode 25. We're working on the book. I mean how are you feeling?

Robb Wolf: Really good. Reworking the grains chapter, basically the Neolithic foods chapter, getting ready to jump into the lipid chapter, and everything is chugging along pretty well. I'm going to rework a pretty big chunk of kind of Paleo transition to Neolithic foods and all that. I've kind of waffled back and forth on even tackling that upfront. I thought about potentially sticking it in the appendix of the book. But I think I'm going to do a small chapter early to address all that stuff because it just kind of ties everything together but it's....

It's going pretty well. Just getting in and trying to wordsmith everything. Make sure that one paragraph kind of leads into the next one. The initial go through you just kind of brain dump, and oftentimes the information is not as free flowing or easy flowing as it could be with a little bit of tinkering. So that's feeling better and better. And once I get the main bullets and stuff done, I'm going to go to Vegas which is where the publisher is luckily enough and basically camp there and do all the charts, graphs, photos for the exercise portion and all that sort of jive. And we just finalized the cover art for the book. So good stuff ahead. Making progress.

Andy Deas: So my heart bleeds for you, Vegas; that's really tough, Robb.

Robb Wolf: I hate Vegas. I hate it. I'm like the one person that's like -- I'll do one night out, I hate gambling, and then I'm over it. Whereas like every other person is like, "Whoo, Vegas. Stay up for five days straight. Hookers. Cocaine." And I mean that's great but I'm just such a wimp when it comes to my sleep that day one is cool. Day two is like "What in God's name am I doing here," and if it extends beyond that then I start contemplating like the final exit so yeah. It's kind of a waste for me so we'll see.

Andy Deas: Well, maybe this time will be better.

Robb Wolf: We'll hope. We'll hope.

Andy Deas: We'll hope. All right. Cool. Well, good questions as always. Some I think have a potential to spin you out today so it's always a positive, and it's episode 3 without caffeine for me, and I feel better so...

Robb Wolf: You're getting perkier, and I'm getting less perky so yeah. Things are heading in a bad direction.

Andy Deas: Well, for you but for me I'm better.

Robb Wolf: Perfect.

Andy Deas: So we got this first question, Robb. It's kind of complicated. You want me just to read all for the bullets and then handle question or what do you think?

Robb Wolf: Yeah, yeah, let's hit all the bullets, and then we'll kind of tie it together.

Andy Deas: Okay. So we got a question from Ankit, "Robb, I have to say you have been a lifesaver. I was on the road to diabetes and other health problems like the rest of my family who are vegetarian. I attended your seminar in Atlanta and I'm a bit confused with some information overload. I'm a bit confused on what fuel the body will use and when it will use the fuel.

This is my current understanding: 1) Body converts carbs in to glucose to be used by either the muscle or liver. The excess go to adipose tissue, a.k.a. fat. 2) Doing a low carb ketogenic diet your body converts fat and protein into ketones. I'm not sure when you use fat and when you use protein though. 3) In a CrossFit style of workout it seems like we use up the glucose but after the glucose stores in the muscle and liver are used up I'm a bit confused on where the fuel comes from. From what I read it comes from glucose produced from amino acids, a.k.a. muscle. 4) Moderate activity like walking will use ketones from fat production if the glucose isn't available."

And then he goes on to say, "I'm not exactly sure how you get your body to use ketones as a primary fuel even if you are doing the high workload WODs. My hunch is that if you keep carb intake below 50 grams a day then you have to really up the protein intake maybe even beyond the 1 gram per pound of body weight. My question really is when does your body use glucose -- from stores or from muscle? When does it use ketones -- from fat or from protein?. Or am I way off on the mechanism?"

Robb Wolf: So holy cats!

Andy Deas: Holy cats! That's complicated.

Robb Wolf: Holy cats! There's a lot going on there. There's a bunch of moving parts. This is why most fitness organizations actually require some silly stuff like

integrated fuel metabolism, anatomy, physiology, basic cell metabolism as part of their certification because this stuff is really important to understand. If somebody comes to you and they want to talk to you about the ketogenic diet or you just want to think through the mechanism of how somebody fuels himself for triathlon or something like that, it's kind of helpful to know a little bit of what's going on under the hood.

This is a lot of the stuff that Matt Lalonde is developing for that advanced topics deal so that whether you've been in a university setting or not and had seen this material, then you'd be able to actually have some legitimate stepping and where this stuff is coming from. So it's a great question, and it's a good stuff. So the bullet point 1, the body converts carbs into glucose, that's pretty much accurate. The problem that starts arising is in bullet point 2, and I don't know how to ferret this out. But everybody lumps protein into the ketogenic process, and that's wrong. Protein is not involved in ketosis at all.

Maybe it's because Barry Sears in Enter the Zone said that protein causes ketosis which at that time caused me to really question what the heck does a PhD in biochemistry was talking about when he was saying that protein causes ketosis. Protein does not cause or is not involved in ketosis, other than if you eat enough protein, that protein can and will get converted into glucose, and if you get enough glucose in your system then that can pull you out of ketosis. Ketosis is 100% a product of burning fat as your primary fuel source, and you begin to burn fat at such a rate that you get these fat metabolism byproducts called ketone bodies that start plugging into the different energy systems in your body in place of what normally glucose -- the role that glucose would play if it was -- if you were eating a lot of carbohydrate.

So this is kind of a sliding scale or if you were to think of it at a different way, we can inject different fuels into like a lawnmower. Let's say we had a lawnmower that could run on either protein, carbohydrate, and fat, and let's say this lawnmower became adaptive to whatever the fuel was that we're feeding it. Whatever fuel is there in excess or in the largest amount, the lawnmower would kind of adapt to that. And this is largely what we see with our bodies, is whatever fuel we stick in it, the body tends to become more adapted to that specific fuel.

So a lot of the standard health recommendations right now are like a high carb, low fat kind of approach particularly when we're talking about endurance athletics and stuff like that. And to be sure there are situations where people do better on more carbs versus less carbs

although the inverse is true as well, but the thing is is that we've just become completely enamored with carbohydrate, and we forget what the impact of the hormonal release that occurs with carbohydrate. We release insulin. We have some dysregulation of lectin signaling. We have advanced glycation end-products, basically sugars, sticking to our body's proteins and accelerate our aging rate.

And so from a wellness and life extension kind of standpoint, even to some degree of performance optimization standpoint, what we want is the right amount of carbohydrate to fuel the type of activity that we're doing. And then as she points out -- Ankit points out here in number 3, CrossFit style workouts seem to use the glucose preferentially which is definitely true. High intensity activity definitely makes preferential use of first ATP, creatine phosphate for very short term, very explosive activity, then we start digging into our glycogen stores.

And when you start doing that, when you set up that process of very high intensity activity, we also make our muscle cells very, very insulin sensitive. And so we will start pulling glucose out of the blood. And the liver then can start propping up blood glucose levels to some degree, and that's a way that we can maintain this intermediate -- high-ish to intermediate intensity activity -- 800-meter runs, 5k runs, that sort of stuff where you're going very, very hard but say like 20 minutes at the outset, more along like the 5-minute level is pretty standard.

And so the whole thing is just largely like a duration and a fueling question. How long are you doing an activity? What is the fueling that you're giving your body? And this is where -- she had the statement down there, "I'm not exactly sure how you get your body to use ketones as a primary fuel?" The way to get ketones as a primary fuel is limit carbohydrate and then work out at an activity that does not overly tax hepatic glycogen stores because you can work out at such a level of intensity that you will release cortisol which will stimulate gluconeogenesis -- basically the breakdown of proteins in your body which would be predominantly muscle protein. And the whole theory behind this or the reason why the body does this is that the body starts becoming glucose deficient.

The liver can't supply enough glucose to keep blood glucose levels up in this ketogenic state. Even when we're in ketosis, our body still has a certain level of blood glucose that is circulating because parts of the brain and red blood cells only run on glucose, and they never convert fully over to ketones as a fuel source. So we always have some blood glucose in there. So if you're really trying to optimize ketosis, you need to keep your

strength and conditioning type stuff short-ish, so kind of short -- small volume or you need to keep the intensity comparatively low such that you're not massively taxing blood glucose stores and stimulating hepatic glucose release.

I don't know if that helps or if that confuses things more, but there's not a simple answer to this other than your body adapts to the type of fuels you give it. I think there's some strong arguments for making it more fat adapted based on the type of activity that you're doing that will cause different types of fuel demands. And Matt Lalonde, Scotty Hagnas have done some pretty good examples of high volume CrossFit type training on essentially ketogenic diet level, but both of those guys have had points where they would need to do a carb up because of sequential really hard days. They end up depleting their glycogen stores to such a point that they're just not bouncing back from activity.

But also keep in mind that protein can be used to replenish glycogen both liver and muscle glycogen via gluconeogenesis, but protein does not play a role in ketosis. It's not a ketogenic product. Only fat is.

Andy Deas:

Well said, Robb.

Robb Wolf:

That would be a good whiteboard discussion. Some pictures would help that a lot.

Andy Deas:

Yeah, that was only 10+ minutes.

Robb Wolf:

Andy went out and had a smoke, and he's actually having a cup of coffee and then came back and he's like, "God! Robb is still talking." So...

Andy Deas:

Still talking about this. No, that was good. Well done, Robb. You're getting shorter.

Robb Wolf:

That's good to know. Thank you. Good to know I'm being -- my style points are Robb is shutting up sooner.

Andy Deas:

Yes, yes. Well, it's one way to measure your progress so...

Robb Wolf:

Awesome. Good to know.

Andy Deas:

Next, we got a question from Alex. I actually love this question. "Your site and podcasts are awesome. You can count me as another one of your few fans from the Midwest (Michigan)." I mean, I'm from Ohio so not so awesome, Alex. But anyway. "I started doing CrossFit but quickly

switched to Starting Strength once I realized how bad my numbers were in terms of base strength. I made even more gains when I switched to Paleo with my only cheat coming from beer, but I try to avoid it.

My question: What do you think about the website 70sbig.com? It's run by some of the guys from Rippetoe's gym. They advocate calories and protein by any means necessary, and although they tend to praise Paleo, it seems that cheeseburgers and the gallon of milk a day are regularly mentioned. Is it okay to do something like that diet for 6 months while I work on my base strength? Is it a bad idea to build my body with such unhealthy food, even if I go back to Paleo to maintain it? I plan to switch to CrossFit football programming once my strength goals are reached. I'm 5'11", 170, and my last Starting Strength workout included sets of 215x5 for squats. Not fat, not super lean either."

Robb Wolf: First, 70sbig is pure genius.

Andy Deas: Yes.

Robb Wolf: Just to get that out of the way. Hilarious and some really good info on there. And then you know as to this question of food quality, I just -- the thing that I see stymieing people again and again and again is definitely overall caloric content, and folks struggle just getting enough food down. People kind of whine and complain that Paleo is kind of hard to do that, but I just totally disagree.

We've done some examples there with the CrossFit football meal plans like my 1000 calorie curry, the 1000 calorie omelet. You do four meals like that. If somebody checked my math last time saying that a gallon of milk only had 2500 calories instead of 3500 calories. I thought I was dead on with that 3500 calories. But either way, you could easily do four meals that are 1000 calories, just standards meals, and then you sneak down a gallon of milk a day and that's somewhere between 2500 and 3500 calories. I still think it's at 3500 calories, but whichever. That's somewhere between 6500 and 7500 calories, and by God you will grow off of that. And so it just -- it doesn't seem all that necessary a deal to go to just the complete crap food.

And here is the other layer to this. When you're taking in all this food you really want your digestion to be as good as it can be because it's not just a matter of stuffing food down your pie hole. If your digestion is blown out, if you've got gut irritation from either grains, legumes, or dairy and that's where the dairy can be a little bit dodgy to some degree. But if you have some degree of gut inflammation going on, you're going to absorb

less food and there's no doubt that across the board kind of processed cereal grain type stuff is going to be problematic in this regard. Cheeseburgers as delicious as they are, like if you're gluten intolerant and I think everybody is gluten intolerant, then it's going to cause some degree of gut irritation. That gut irritation is going to lead into some systemic inflammation. That systemic inflammation is going to limit to some degree your ability to grow.

And this is some interesting stuff that people like Welbourn who have been -- just run the gamut with mass gain protocols and he's worked with a lot of people on this stuff, this basic Paleo plus dairy seems to work really, really well because we've got a lot of calories; we have a lot of nutrient density for those calories, but then we're tending to minimize the amounts of inflammation, gut damage, and all that sort of stuff that we're accruing in this whole process. And so I mean by all means do whatever you want to do. Cheeseburgers, ice cream, 20 rep back squats, linear progression, get some. You know what? You'll be huge at the end of that.

But then part of that when you start shifting into metabolic derangement, this is a really important thing to keep in mind. A long time ago, somebody asked either on the website or it may have been a podcast question that we either addressed or didn't have a chance to address immediately. The question was: Why do people seem to gain muscle mass on low carb diets? What we understand is that when insulin levels are high, and high can be a very relative thing depending on who you are, but when insulin levels are high, cortisol levels are high.

If cortisol levels are high, you're tending to -- regardless of the rest of your fueling, you're tending to convert protein into glucose which is stripping muscle out of your body, stripping protein out of your body and further feeding into the process of becoming fat and diabetic. And so I just can't see how you would lose by controlling those factors to the best of your ability. So it's certainly a fun way to go. If you want to play with it, by all means do it. It seems like insanity doing that. Northern hemisphere as we head into summer like I would get lean and try to look good for whatever like t-shirtless time you do although if you're doing Fran it's always a good time to pull your t-shirt off.

So that may be a relative thing. But I would play within those parameters. I'd definitely get the allure of just eat big, lift big, get big. But I think you can do it in a smarter way too, and you'll get better results ultimately. And if you're -- the whole thing is just purely performance based. I think you could argue it that way. If it's aesthetics based, I think you could

argue it that way. And if it's health based, I think you could argue it that way. Again, maybe that's being puritanical, but I think it would work better. You'll look better. You'll feel better all the way around.

Andy Deas: I need to get one of those 70sbig t-shirts.

Robb Wolf: Totally. Totally.

Andy Deas: Those are sweet. All right. Good question. Hello, 70sbig.

Robb Wolf: Seriously.

Andy Deas: Next, we got a question from Kevin, "Diana," I have no idea how to say Diana's name so I'm not going to try, "of Modern Paleo fame, suggested you may have interest or ideas regarding this question. I've recently read and put into practice the ideas in Dr. McGuff's book, Body By Science. And he is very clearly in favor of adequate recovery time between workouts, using your time under load numbers to determine if you're getting enough recovery. The assumption is you should improve every workout.

However, throughout my life I'd found when dealing with muscle soreness a good remedy to alleviate the discomfort was some light or even moderate exercise of those same muscle groups. Almost every time I've done that I've felt better immediately and found that the soreness subsided by the next day. So my question is if you have any ideas regarding muscle soreness? And do you think doing a light workout to follow up and relieve discomfort may actually harm or delay your overall goal of increasing strength?"

Robb Wolf: This is like right out of the Westside Barbell recuperation playbook. They will do band pressdowns like band triceps extensions, band lat rows, sled walking, all that sort of stuff. And the commonality with all these movements that they tend to use for recovery purposes is that they are either lacking entirely or very, very skinny on eccentric loading. And even though certain fitness organizations have directors of training have no idea what the difference between eccentric and concentric loading is. And even though eccentric loading is one of the primary cause of rhabdomyolysis which can cause death and dismemberment and all kinds of fun stuff. It's really important to understand the distinction between that stuff.

So this is some of the stuff that when you're constructing your programming you need to give it a little bit of thought if you actually

want to make progress because you need to balance to some degree eccentric versus concentric loading and keep in mind how that can affect your soreness, the muscle recruitment later, and stuff like that. Just on the neurological. So we're working with Glen Cordoza who is training at Xtreme Couture and the demands of MMA are very mixed, but they're very neurologically specific. You need a lot of accuracy when you're throwing punches and kicks, when you're playing grappling and all that sort of stuff. And so when you expose somebody to a particular work load, you want to really keep in mind how much eccentric loading are you giving them because that eccentric loading causes more muscular fatigue, more muscular damage, and causes problems with neurological transmission and signals. So this stuff is all important in this kind of total package of what we're looking at with the training.

And then you get back to the original question like to actually tie it in here, our rehab protocols can be very, very oriented on the concentric side only. So sled drags, band pressdowns, band bench press, any type of movement that we can rig up -- the sled is just a great tool in this regard. You can do side laterals, delt work, rowing movements, pressing movements both overhead and horizontal pressing movements, walking backwards, walking forwards. All of this stuff is a nice, light, easy workout that is concentric movements only. So it's going to be very, very low shear force, and it basically just increases that metabolic rate in that muscle which will tend to help you recover.

But here again, to some degree no matter what you do with your muscles, there is a little bit of tissue breakdown, a little bit of damage. So the dose is very, very important here. If you're really focused on making, say like specifically size and strength gains, you want your recovery workouts to be exactly that, only recovery. And so you need to think about what the volume is on this activity. And there's no doubt that some of McGuff's stuff is really good, but it really depends more and more and more on how neurologically based your activity is. And if you're strength-oriented, it's very neurologically based. If you are looking for kind of maximum hypertrophy, then there's a lot of recovery element to that.

So folks need to keep an eye on how they're training and not beat themselves to death so much that they're really not making progress. You can use compressed blocks of training, block periodization, to have a super compensation period where you throw a lot of volume, a lot of intensity at somebody and then dial that volume back to hopefully get a peaking scenario. But you need to keep all of that stuff in mind within the scenario, and this is basically like a very microcycle kind of approach. This is looking workout to workout, how you can mitigate soreness and

improve recovery so that you can get back in the gym and do some more work.

Andy Deas: Yeah. I love McGuff's stuff, but some of it is like out there like -- I remember looking on his blog like two weeks ago. He's like training once every 14 days now.

Robb Wolf: Yeah. Clarence Bass was doing that stuff too.

Andy Deas: Yeah.

Robb Wolf: It's super minimalistic training, and it's interesting like DeVany kind of gets into that mode. There's some interesting stuff. And I remember there was -- what was that hypertrophy specific training that T-Nation was kind of running with there for a while?

Andy Deas: Oh, yeah, yeah, I can't remember what it's called. Yeah.

Robb Wolf: Part of that guy's idea was that actually, you want some mild detraining in the muscles that you're working to actually get further stimulus. You allow a little bit of detraining, and then you get an enhanced kind of tissue breakdown stimulus in those muscles. And so normally the exposures that we're getting them are kind of work hardening the muscles. And I think generally from a strength standpoint we want consistency like this is kind of classic Pavel-esque like five days a week of powerlifting movements, vary the volume, vary the intensity, vary all the variables as much as you can.

But then there's another side to this which is this ultra minimalist training which is like send the stimulus and then wait almost as long as you possibly can until that stimulus -- it's like if there was an echo that lasted for five days or something, when is that echo just barely still there and then drop in another stimulus. And so it's a completely different way of tackling all this stuff. I would argue fairly different means. It would be more of kind of a health, maintenance, bodybuilding kind of thing, very reminiscent of like Clarence Bass, Art DeVany, and all that stuff. But it's all good. It all works, and it all ties together, but it's on this either a continuum or a long disparate paths that maybe you can see one path from another but you may want a different path for various reasons.

I think that's a little bit of the delimitation or... **[0:27:25] [Audio gap]** Some of what he's recommending is obviously at odds with what we see works to the high volume consistent training that you see in Olympic weightlifters and powerlifters and all that sort of stuff, this kind of

Russian or Bulgarian method of training where you're in the gym all the time, varying the volume, varying the intensity. But what DeVany is talking about is also legit, like that kind of hit, Stewart, McGuff kind of gig. There's legitimacy to that too. It just depends on what are you up to, what are your goals, what are you trying to achieve.

Andy Deas: Yup. All right. Good. All right. Next, we got a question from Amanda. It's fairly long so I'm going to kind to roll through it, and bear with me for a second, Robb. Amanda says, "I just recently got linked in to the podcasts and have been gleaning a lot of great information, so thanks for all that you do. I have been grasping at straws for the last couple years attempting to pinpoint what is going on with my body and am running low on possible solutions.

A little background: Brand X scaled WOD, 3 on 1 off, teach 4 indoor cycle classes per week, I take a deload week about every 12-16 weeks, sleep averages about 7 hours/night, started Paleo about 9 weeks ago and was relatively low carb before that, average 1800-2000cals/day but I don't count." Robb Wolf.

Robb Wolf: Tough podcast, dude.

Andy Deas: Dude, you're killing me. You're killing me. All right. I'm still reading, Robb. It's performance art. I think we're good.

Robb Wolf: Okay.

Andy Deas: Blame Kelly Starrett. "I suffer, and have for many years, from chronic constipation. I also was on Depo Provera injections for 8+ years due to uterine fibroids. I stopped the injections about five years ago and have not had a cycle since. I've seen two gynecologists who don't seem to have an issue with that as long as I am not trying to conceive. I have had my thyroid checked twice and been declared WNL. I also suffer from cold intolerance, pale skin, coarse hair, dry skin, low energy, among other symptoms. I worked with a naturopath and determined iodine deficiency, started supplementing and still no real difference. The doctor I saw about the constipation said take stool softeners and eat more fiber -- didn't work.

I finally saw an acupuncturist for three months and even with weekly treatments, herbs and teas, I saw no change. I am heading to a gastroenterologist this afternoon to chase this rabbit down yet another hole. I've heard you talk about estrogen dominance and am now wondering if that's an issue to further explore. I know it's a very long

post, but I'm pretty much at a loss as to where to turn, who to listen to and what else to try. Thanks in advance for any information you can give me. Might this be a record for the longest podcast question in history?" That is absolutely not the record.

Robb Wolf: No. Nor the most numerous.

Andy Deas: Poor Derrick.

Robb Wolf: Poor Derrick. We love you, Derrick.

Andy Deas: Anyway...Robb Wolf, I'm going to let you handle this one.

Robb Wolf: Okay. So up frontier we have one thing that kind of pops up is this uterine fibroids, fibrocystic breast disease, uterine fibroids, polycystic ovarian syndrome. All of this kind of proliferative growth, overgrowth type things, endometriosis, these things are all classic hyperinsulinism kind of scenarios that we see with a lot of females and males can have them to some degree too. Usually, you'll start seeing some prostate enlargement stuff like that. Usually, we have elevated insulin, lower sex hormone binding protein, and so we'll have like estrogen dominance going on in those scenarios.

The Depo Provera is kind of like knock the cycle down which obviously can have some downsides to that long-term. One of the underlying things that we've seen, and I can't remember who it was. Somebody -- I forget who it was, but somebody had a post on the Paleo diet potentially being skinny in iodine, and this is one of those things that we do see pretty consistently as a lot of females are also iodine deficient. Which although she started supplementing iodine, she doesn't -- some things that aren't mentioned here is like overall blood work like estrogen, estradiol, progesterone, all that sort of stuff, is it -- has it been tracked over several weeks like a weekly checkup to see if there is any type of budging in these levels.

Normally, we would see -- since she's not having cycle, it's a little more difficult to tell where she's having this whole thing. But spectrum of blood work would give us an idea if she's getting any type of firing of her estrogen progesterone, estradiol, just where all that stuff is. And then woven into this -- so she started supplementing with iodine, but if you don't test -- I mean it's nice. Ideally, we supplement with iodine. The best-case scenario like we get a resolution of some of the hyperinsulinism problem. Low iodine which is usually -- this is what WNL refers to, within normal limits. Most of these women end up being low normal, but they

would actually benefit on their T3, but they would be much better off. They run well at medium to even medium high, and that's where like their base set point is. And what happens when they shift from a low normal to a medium or even high-ish normal is that signs and symptoms of insulin resistance and actually some hypercorticism like the cold intolerance, pale skin, all that sort of stuff, all that stuff result.

So even though she's supplementing with iodine, we don't know that she took blood measures on the iodine. So we don't know for sure that she's absorbing it. She could have some other gut health. We still don't know 100% for sure. Did she mention that she's doing 100% Paleo gig here?

Andy Deas: She just started it.

Robb Wolf: Started Paleo nine weeks ago so...yeah, I mean that's definitely some stuff to track as well. I mean I would just to some degree keep trooping along here. Make sure the sleep is good, magnesium supplementation, check and make sure that that iodine is getting absorbed. See if the T3 levels are actually going up, and if it's not then you need to start doing some other investigating. The whole constipation deal, like that is very prostaglandin, eicosanoid driven, like how much fluid we have in our stools. And if there's something amiss there, then she could simply be reabsorbing too much fluid out of the stool. And so that's where she has some problems with constipation and getting that normalized whether it's a fatty acid issue, whether it's a thyroid issue, then it should fix that problem almost immediately. It should fix the cycle. It should fix the constipation issue too. But there's obviously something going on like an estrogen related, thyroid related, but without more blood work it's kind of hard to track down what's going on there.

Andy Deas: All right. Next -- sorry, I'm not -- I'm actually sighing because my cell phone died today.

Robb Wolf: Let's get a moment of silence.

Andy Deas: Well, Robb, it is my connection to the outside world, and it's problematic for me right now. I'm sorry. I may shed a tear right now. It has survived five years.

Robb Wolf: Oh, wow! Wow!

Andy Deas: Yeah. Anyway, moving on.

Robb Wolf: A moment of mourning for Andy's cell phone.

Andy Deas:

Next, we got a question from Tim, "Hi, Robb and Andy. I'm absolutely in love with the podcast. I'm 19 years old and have recently decided to embrace the whole primal lifestyle. Having previously been an endurance junkie, I'm beginning a more strength orientated deal along with the diet which I'd already been rolling with. Anyway, in the last podcast you mentioned hyper insulin production regarding the gum situation and I wondered if this could be used to positive effect if confined to a very short time like consuming a large quantity of high GI carbs immediately post-workout?"

2. Bearing in mind my past (excessive cardio, not enough food) are there any suggestions regarding my diet/training if I'm trying to add serious muscle? I'm currently badly underweight, as in unhealthy, and have high cortisol levels and reduced immune function according to my bloods. Damn it, got loads to ask but I'd like to leave it at that for now. Keep up the good work. Thanks."

Robb Wolf:

God love you for a short concise question. The whole high glycemic carb post-workout is classic Berardi massive eating dealio. We understand that post-workout window is much more insulin sensitive, could definitely be a good deal for mass gain. But if he legitimately has some elevated cortisol levels, I would be really -- you could use a little bit of post-workout carbs, but I would not go bananas on it because again that elevated insulin causes a cortisol release as well. Now, being too low carb can exacerbate a cortisol kind of scenario.

So there's definitely kind of like a Goldilocks just right kind of place, and I would just keep it to probably 20 to 40 grams of carbs post-workout mainly like the yam and sweet potato kind of gig. Make sure that sleep is good. I wouldn't go anywhere near anything that even remotely looks like cardio or Metcon for months. Lift heavy weights. Drag a sled if you want to get a little bit of conditioning. Go for a hike. Go for a walk. But with the legitimate kind of cortisol scenario and some immune compromised status, you've got to be smart about it. This is also kind of classic kind of coming out of the endurance junkie thing; although, we see a ton of in CrossFit athletes now because of the lack of periodization, the all volume, all intensity going on all the time. So something to really keep in mind.

The second question was how to add serious muscle. Eat big, lift heavy. I would be moderate on that initially. I would just lift heavy. Eat well, but I wouldn't try to hyper feed right now if you have a legitimate cortisol issue because you will be cascading more energy in the cortisol than you will testosterone, and the likelihood of just getting fat is pretty high and

I'm a great example of that although he is 19 years old and hopefully has a much better hormonal profile than I do. But that is a factor. Get healthy. Just get strong. Get healthy. Get non-neurotic about your training. Get on a starting strength deal or some sort of linear progression deal, and then as you get healthier and start feeling better then start upping the food intake.

Andy Deas: Good. Good question.

Robb Wolf: Good question.

Andy Deas: Next, we got a question from Duncan, "Hi, Robb, Andy. I have been following your work for a few years now. I'm loving the podcast, by the way, and am hoping you can help. I'm based in UK and have recently had a blood test that has given the following result: Cholesterol (Fasting): 4.8,"what is this?

Robb Wolf: This is actually all the units that the rest of the planet --

Andy Deas: Oh, Robb, metric. No. Okay.

Robb Wolf: So his cholesterol is "4.8 mmo/li, triglyceride is 0.62 mmo/li, HDL 1.37 mmo/li." We'll have all that stuff on the show notes. "LDL 3.15 mm/li." So this is a still embarrassing and frustrating situation for me, that we are the only country on the planet that uses ridiculous units of measure, milligrams per millimole -- milligrams per deciliter and stuff like that. Just as a frustrated chemist aside, imagine that you wanted to buy a bunch of eggs, like a bunch of eggs. Which would you rather have these things? Say, you were wanting a quote on some eggs and the person could either report it to you that it was like dollars per dozen of eggs or it's dollars per gram of eggs, which one helps you more?

Andy Deas: Dozen.

Robb Wolf: Dozen, obviously because it actually tells you how many is there, and so this whole millimole per liter deal, it actually tells you how much of something is there and it's super frustrating. This is also similar to us crash landing a mars rover because of lack of English and metric conversion. So Americans, math challenged. Okay, here we go. So the guy's question is basically -- what do we have?

Go ahead, Andy. I jumped in. I'm just going wild. I'm out of control. Somebody hold me down.

Andy Deas: "My doctor is now telling me to take Benecol daily to reverse the HDL/LDL numbers as he says the ratios are currently not good. I have two questions: How good/bad are these results in reality? Is there an alternative to Benecol, something with less additives?"

Robb Wolf: So if you pull up conversions of metric to US conversions of all this stuff, you look at his numbers and they're not bad really at all. I mean they're not -- the triglycerides are good. LDL/HDL numbers are really not particularly bad. I really am not sure what his doc is worried about. Normal for total cholesterol is around 5.2 millimoles. HDL normal is about 1 millimole. LDL normal is about 3.4 millimoles. Triglycerides normal would be below 1.7 which -- that's similar to our whole deal with the other measurement which like normal is like 150 milligrams per deciliter. I think that's too high. I think that is just abnormally high.

But when we consider that and then look at his actual numbers, they're not bad. I really am not seeing what his doctor is concerned about. The Benecol is this margarine type stuff with plant sterols. The plant sterols inhibit cholesterol production out of the liver and can bring total cholesterol down. There's some studies that seem to show they might be beneficial for some cardiovascular risk factors, but I can't help but wonder if they're not -- like perhaps they're bringing cholesterol down but is the reason that they're actually have benefit, that they're lowering systemic inflammation somewhere.

So I'd like to see some Benecol and then looking at like C-reactive protein or something like that. So I just -- first deal is that these numbers are not particularly concerning to me at all. I don't know that they're concerning at all. I might look at LDL particle size. And then the other issue here is like the Benecol -- I guess good on his doctor for recommending something that's a little more natural, but when you look at the ingredients, it's a margarine made out of highly oxidizable polyunsaturated fats.

Man, the margarine thing has been tried. It hasn't been a good idea for the most part so far. So I would be very nervous using something like this over the long haul. I just can't see any solid recommendation for that versus like standard kind of lowish carb diet, fish oil, vitamin D, that whole scenario. So....

Andy Deas: Yes.

Robb Wolf: Are you -- did you go feeble over the metric stuff there?

Andy Deas: No. I was just -- it's all happened before, Robb. It will happen again.

Robb Wolf: True enough.

Andy Deas: And I was still sad about my cell phone.

Robb Wolf: Hey, you know the uptick is May 5th, Cinco de Mayo, is Keystone's 10th birthday.

Andy Deas: And the day my 30-day no caffeine, no alcohol, no anything challenge ends.

Robb Wolf: Exactly. So we're going to party. Keystone will be wearing a party hat and eating catnip so....

Andy Deas: That reminds me we still have to post the picture of Keystone for the blog. Several people have requested since we talk about him incessantly.

Robb Wolf: Okay. We'll do it for the show notes next time. Some classic Keystone photos. Maybe a few of him cleaning himself.

Andy Deas: Nice. Awesome. Next, we got a question from RatherRipped. I think we're awarding the best handle we've had so far.

Robb Wolf: Definitely.

Andy Deas: The best in the podcast. "Regarding ulcerative colitis, I had a sudden onset in September, which has not gone away. I train hard at CrossFit and wonder if fatigue not diet is the problem. I know that autoimmune conditions can be stress and fatigue related. But I began the Paleo diet in May/June with phenomenal results, and I am following a very simple program. Compliance was and is quite good, but I do eat a high amount of fruits. I wonder if at my age, 56, am I over training. I know that my sleep is disrupted by the CrossFit routine and my recovery is terrible. At four days per week maybe I am doing too much?

Maybe I need to scale more. I love the weightlifting and strength aspects of CrossFit, mainly because they make me look better and it facilitates natural weight loss. I would like to hear feedback on this – health longevity performance. Everything is great except for the ulcerative colitis which represents ill health."

Robb Wolf: Yeah, I think this is a slam dunk here. As soon as you start seeing any type of digestive problems or sleep disturbances pop up, like it's a given

there's some sort of significant stress. And if the main that we're tracking back here is the training load and volume, then I think this is kind of a given. The training, the mixed modal stuff, the competitive environment can be a lot of fun. For a lot of people, the way that they tackle it, it's just too damn much. And you can do some things like really trying to optimize post-workout recovery, doing more carbs, just try to mitigate cortisol release, but I think just fundamentally a little bit mellower pace is really, really helpful for making this stuff better.

And I know for myself the sleep, digestive function, and just generally how I feel are very, very powerfully influenced by the volume and the intensity of the training I'm trying to do. And I would just love to train -- falls out all the time, go real hard, lift real hard. I mean I love doing that stuff. There's no lack of will there, but it's kind of what's the aftermath from that? And what I find more and more is I need to purposefully train within myself -- and this is all again like kind of classic Pavel type stuff. I do has been yammering at me about this for years. And see some of the benefit of the mixed modal training but in very limited and specific doses, and there's a really big need for building volume and building capacity slowly in an intelligent manner.

Louie Simmons had some commentary on this. It was pretty interesting. That was basically if you wanted to build some CrossFit type capacity, you would do yourself well to tackle it very, very gradually and very easy in the beginning and then slowly layer that volume and the intensity. And nobody is doing that stuff. They're just jumping in and hitting it really hard. And four days a week sounds like not all that much, but the reality is when you're doing the fairly exhaustive work, like what we're talking about there, it's too much, and it's clear given the GI upset.

Andy Deas:

Yup. All right. Good. Next, we got a question from Becky, "Hi, Robb, I've been listening to your podcasts since the beginning, and first I want to say thanks so much for all that you do. I have a question about cortisol, and I'm hoping you can help me out because I'm at the point where I'm not sure what else to do. I've been doing Paleo for about 8 months now, but my body composition still isn't where I want it to be. I feel like I've tried everything I can think of -- eliminated fruit, under 30 grams of carbs a day, which is usually cauliflower or broccoli at dinner only, went off birth control pill but haven't seen much difference. I feel like the one thing left that could be a problem is cortisol levels.

I do CrossFit workouts about four times a week and play indoor soccer two times a week. My sleep is definitely less than optimal. Do you think that's my problem, or is there something I'm missing? These changes

have only been within the last month, so do I need to wait longer to see results? Should I just try sleeping longer or are there supplements to take to help lower cortisol levels? Thanks so much for any help you can give."

Robb Wolf: You should always sleep more.

Andy Deas: Yes.

Robb Wolf: That's a given.

Andy Deas: What's the quote, Robb? What's the sleep quote?

Robb Wolf: Sleep as much as you can without getting divorced or fired.

Andy Deas: There you go.

Robb Wolf: The tagline that I've added in there is if either the job sucks or the marriage is dodgy, then maybe those are worth shelving.

Andy Deas: Robb.

Robb Wolf: I actually want to back up really quick to the previous guy. It just popped into my head, a quick dealio which is -- wait, where did it go? Number 7, RatherRipped. He mentions that he's eating a lot of fruit. Fruit can be a GI irritant. Fructose can be a GI irritant. They can be subclinical or not really that much of a problem until you have some GI irritation. I was talking to Scotty Hagnas a little bit about this excretory IGA, and this is kind of immune status marker that is really important in how we snare bacteria and viruses in the GI tract and all the stuff, mucosal membranes. And that can get suppressed under high work load scenarios. And so that popped up with RatherRipped.

And then we also have a situation here in which Becky has eliminated fruit, but she's still having some problems. It's that thing again -- you know what? And I want to back something up here. This isn't in the question, but what gets thrown around a lot and I have been guilty of this to some degree, is throwing around the term adrenal fatigue. And the adrenal fatigue is very maligned in the mainstream science kind of scene. There is a legitimate situation in which there's a condition called adrenal insufficiency in which the adrenals are no longer producing cortisol. And I think that it's reasonable for people to drive themselves to that point because of lifestyle, because of lack of sleep, because of overtraining and all that sort of stuff. But so much of what we are seeing and so much of

the problems that we are seeing are not adrenal fatigue, it is hypercorticism. It is elevated cortisol.

So I just wanted to make that clarification. Sometimes I'll get sloppy with my terminology, and I'll say adrenal fatigue. It is not adrenal fatigue. It is chronically elevated cortisol. That, in my opinion, can turn into over adrenal fatigue in which you have adrenal insufficiency which can cause thyroid dysregulation and a whole host of other problems. It can kill you. You can die from that. But a lot of what we're seeing here is immune compromise status, fat gain through the trunk, sleep disturbances, and all that sort of stuff. No physician would characterize that as adrenal fatigue but they might perk their ears up more if you said that it was elevated cortisol from overreaching, overtraining or like lack of sleep. But it's kind of a funny distinction. They get all spun out and butt-hurt about saying adrenal fatigue. But then if you couch it in the terms of hypercorticism, elevated cortisol, that sort of stuff, then they're okay about it. And I know Andy is like, "Damn it. Move it along," because that isn't part of the question, but it's just something that needs to be addressed.

So yeah, with Becky, I think there is no doubt she has some issues going on here. Plugging up the sleep is like number one deal, dialing back the volume and the intensity until you start feeling better. And then the thing that people do, they feel better and then they start pushing too hard again. And part of the problem with standard CrossFit stuff is you don't know what's coming up next, so you don't really know how hard to push. Unless you're really good about just knowing, "Okay, I'm just going to go relative perceived exertion, 70% or 75% effort," unless you can do that, then you need to plan ahead and plan accordingly so that you are not knackered yourself. So that you're leaving a little bit in the hole -- in the tank so that you're not -- you're continuing to propagate this problem.

So the sleep needs to be addressed. The training needs to be addressed. Having some sort of a plan and a direction with the training would be really, really helpful. And she should see immediate alleviation with that problem. But then don't push it too hard. That's the problem that I see again and again. People feel a little bit better, and then they push it hard again.

Andy Deas: Yup. More strength training, less thrusters.

Robb Wolf: It's madness. Madness, I tell you.

Andy Deas: That's insanity. Good. All right, last question, Robb.

Robb Wolf: Nearing the finish line.

Andy Deas: We're nearing the finish line, 55 minutes in. A question from Adam, fairly lengthy. I'm going to try to sprint through this. "Hey, Robb. I attended one of your last nutrition certs in Monrovia and loved the info. I am in the Navy and gave a nutrition lecture to all of the Personal Fitness Assessment failures in my squadron. Several of the people have taken part or all of what I told them on board and have seen significant results. One of the attendees talked to me after the lecture about his problems, and I wanted to see if you could help him out.

He is 38. He only gets about 4 to 6 hours of sleep a night. Anything longer than 4 to 6 hours, and he will wake up and have trouble getting back to sleep. He has an abnormally low heart rate (sleeping heart rate of 46, normal heart rate of 54 to 56). The doctors have him on caffeine pills, and without those, he says he will just 'zone out' on the drive home and drive off of the road. The doctors say all of his tests are normal (heart stress test, EKG, radioactive dye test). He is 5'8", and weighs 202 lbs. He is about 23% body fat, and carries his weight in the mid section, mostly love handles.

The docs say his cholesterol is 1 to 1, good to bad, whatever that means. A heart specialist said if he continues having problems, they need to check the electrical current to his heart. I talked to him about metabolic derangement, hyperinsulinemia, Paleo, and the Zone. I also talked to him about cortisol issues and advised him to get more sleep. He has a lot of trouble getting to sleep at night and is tired all day. I gave him some melatonin to try (always helps me get to sleep when I have trouble) and talked to him about the Natural Calm magnesium (he hasn't bought any yet).

Normally when he wakes up, he is very disoriented and groggy, and it takes him 20 minutes or so to wake up enough to even get in the shower. He said the melatonin made him even more sluggish the next morning. He can't get to sleep before 1:00 to 2:00 a.m. He gets drowsy in the afternoon, and then is wide awake in the evening. He doesn't actually get tired until about 4:00 a.m. so it is a struggle to get to sleep even at 1:00 a.m. He has worked nights before, but he has been on the day shift for five years.

Have you ever heard of a low heart rate issue and a 'zoning out' situation that requires caffeine pills? The Navy docs are scratching their heads about all of this, so I wanted to see if you could help the guy out. Thanks in advance for the help."

Robb Wolf:

The spacing out dealio, the interesting if he has rebound blood pressure drop. Normally, when we go from a seated to a standing position, we'll have a slight lag in our blood pressure, but then the heart rate will kick up and will compensate for the increased fluid volume. A calming feature of -- here I was. I was going to say adrenal fatigue but hypercorticism, elevated cortisol is a lack of responsiveness to changes in blood volume -- not blood volume but the blood column basically when you're standing versus lying and all that sort of stuff.

And so people will feel tingly, lightheaded going from seated to standing. We see this with sleep deprivation. You see it with overcaffeination. You see it with overtraining. The combo is kind of a wicked affair when you stick all of those things together. The fact he's storing all of his fat at the midline elevated insulin -- elevated insulin can elevate cortisol. This guy, I would be willing to bet, has probably put himself on a little bit of a deranged sleep cycle. You stay up late watching TV, playing video games, whatever, and then you just get more and more and more out of whack.

And so I would be willing to bet that there's probably some history with that. Hopefully, he doesn't have some sort of an electrical conductants issue in his heart. That can be a whole other thing too if there's some sort of like SI node disruption in how he's propagating his normal heartbeat. That could be totally unrelated from the metabolic derangement but definitely why he's lethargic. And so he could -- this is where also -- it's great if you have a good doc who will take the time to do a lot of tests to kind of narrow out issues.

This guy could legitimately have like some metabolic derangement. He could have some high cortisol levels, and all of that stuff could be completely and totally unrelated to his heart issue, if he actually has a heart issue. The heart issue could be some sort of a congenital defect that is caused by -- well, some sort of malformation in the heart. But then that said, if he has hyperinsulinism, he likely has low plasma magnesium; he likely has low tissue magnesium which is probably causing problems in the electrical conductants in the heart.

So this could be a situation in which he has kind of a baseline problem that is made worse by elevated cortisol, elevated insulin. So it's a lot. I don't have an easy answer to that other than he may want to go non-military with docs to figure out what's going on. And certainly, doing the best he can to get his sleep under control. Turn off the TV. Keep the lights low. When the sun goes down, then go to bed. And it's that deal again like if you were out camping and you were in a tent in the middle of the

woods, the sun goes down, and you pretty much go down too, and I see that as almost a universal feature. It's a fact that we have bright lights on, and we're messing around on the computer and all kinds of other stuff that it ends up keeping people awake.

So there's definitely some stuff going on here, but no doubt some metabolic derangement, maybe some high cortisol, but the dude obviously could have some heart electrical transmission issues too. And it could be pretty serious. Definitely, he should continue to investigate it and try and figure out what's going on.

Andy Deas: Yup. All right. Good. Well, Robb, at a little over an hour, we have finished this week's questions.

Robb Wolf: Sweet.

Andy Deas: And all things going as planned, Dallas and Melissa, Whole9 next week.

Robb Wolf: There goes the neighborhood.

Andy Deas: That's right. That's right. End of life as we know it.

Robb Wolf: Indeed.

Andy Deas: Well, thank you, and I'll talk to you next week.

Robb Wolf: Right on, Andy. Talk to you soon.

Andy Deas: All right. See you, Robb.

Robb Wolf: Bye.