

The Paleo Solution

Episode 28

Andy Deas: Robb Wolf, Andy Deas back with Episode 28, Paleolithic Solution. What's going on?

Robb Wolf: Nothing new. The sun is shining, the gato is happy, and life is good.

Andy Deas: Yes. When the gato is happy, all is well with the world.

Robb Wolf: What's cracking with you? Deadlift PRs or anything else?

Andy Deas: No success with deadlift PRs. Nothing, man. Playing a little more single leg work, Robb, so we're going to see how that goes. A little work on some of my hip instability issues.

Robb Wolf: Are you planning to win like a one-legged ass-kicking contest or something or?

Andy Deas: No, Robb. We're just going to see how it impacts my cranky hip.

Robb Wolf: Cool!

Andy Deas: As Kelly Starrett says, "These hips feel like they're from different people."

Robb Wolf: There's some Frankenstein jokes just waiting to happen there.

Andy Deas: Oh, I know.

Robb Wolf: But we'll keep it quiet since you're way bigger than I am so --

Andy Deas: There's lots of stuff to mind with that, Robb, but we're going to keep it professional here.

Robb Wolf: Sweet! Sweet!

Andy Deas: All right. So this is, as stated by Robb Wolf, what could be a beefy episode. So we'll see how it goes.

Robb Wolf: Yeah. There's a couple of questions here that individually could almost be a whole episode by themselves. So we'll see if I either get confused or make everybody else confused, then we may just shut it all down so --

Andy Deas: Or if you just slam down the microphone and walk away, we'll know that this episode puts you over the edge.

Robb Wolf: That's a sign that the interview is over.

Andy Deas: All right. First question from Mike. "Robb, a segment on adrenal would be great. Even if you add some insight on how you are dealing with it yourself. Personally I feel like I've been toeing the line on adrenal fatigue for most of my adult life, and lately I feel like I'm getting closer to the bad side of that line.

I do pretty well with the Paleo plus some dairy, fish oil, vitamin D, Natural Calm at night, and as gluten free as possible. I've even cut the amount of coffee in recent years, and I've debated switching what I do drink to decaf as I like the taste of coffee and caffeine has never had much of an effect on me anyway. I would love to hear your thoughts on the topic. Thanks you for all the great work you do."

Robb Wolf: Gosh! You know, this also could be rather large. In the book I ended up doing a huge lifestyle factor just to address sleep, stress, exercise, just our own perception of stress. Different people are wired up differently. Poliquin calls this, what was his term for this, the "wolf versus dog" kind of scenario? And his whole thing was that certain people say like they go into Military Special Forces or like very high stress kind of scenarios and these people just tend to have a favorable hormonal response to legitimately like nail-biting stressful situations.

And we would call these people type A. I think that no matter who you are or even if you tend to be more of this type of personality, you can reach points of overload. This may change as you get older. You could get sick and it could modify the way that you respond to stress.

So I mean it's kind of the same old stuff. We have dietary factors that can affect our adrenals. Elevated insulin can start releasing cortisol. It can be a stressor. Food intolerances can be a stressor. Overeating or undereating can be a stressor. Then obviously sleep is a major factor in how we're dealing with stress and cortisol. And then training volume, periodization, just our perception of training too. Like, do we actually like what we're doing? People who love the activity that they're doing, it just registers much less stressful.

And this is some of the interesting stuff about even kind of CrossFit type training or asking yourself, "Why am I doing what I'm doing?" If it's kind

of like ego-driven type stuff, just kind of keeping up with the Jones's, I think it tends to be a lot more stressful versus like, "I just like doing this and I like being competitive" or whatever. Like there are some very different internal versus external motivations that can change the way that a situation is stressful, and I think it's worth keeping in mind with regards to all that stuff.

But the whole lifestyle thing is huge and it's very, very individualistic. The coffee thing is pretty individual. Mat Lalonde would say don't do any and I can kind of see where he is coming from. My one thing with the coffee is if you are in a spot where you're really not overwhelmed by stress and you can really keep your intake at pretty moderate levels, and moderate, unfortunately for me, is taking it in at much lower levels than what I would probably like, then I think there's probably kind of an ergogenic effect, a performance enhancing effect, there's some antioxidants and some other kind of good stuff that comes out if, but you really need to keep an eye on it. I think you can get some benefit out of decaf just from like the antioxidant effect if that's the way you want to roll with that.

But the whole adrenal scene should be figured into the overall hormonal profile, whether you're male or a female trying to keep some optimized hormonal states and that is dependent upon who you are, where you want to be, like are you looking towards like a health and longevity bias, are you looking at like a performance bias, are you focused on a specific athletic activity, and then that can start steering where you're driving all that stuff.

Andy Deas: Robb, do you want to talk a little about how you address your adrenal stuff with your training?

Robb Wolf: Sure. You know, I didn't address it very well for a long time. I was very ineffective at it and a lot of that is I think a little bit again of this type A personality where, you know -- and I've been used to being at a high level, the different stuff I've been into over the years and at some point, that can kind of catch up with you especially when you're trying to do several things at once. And the thing that I consistently did was that I would to start to feel a little better, like I would focus on my sleep, I would get a little bit of capacity built back up, and then I would start burning things too hard again, particularly from kind of mixed modal exercise type stuff.

And I always did pretty well within the, you know, when I was doing more CrossFit-esque type stuff; but instinctively, I always kept things on the shorter side. I always modified my movement pool, stuff like an Angie. I

thought doing 100 air squats which is kind of silly and so I would modify what was I up to with that. I would do ladders of like jumping, squats, dips and pull-ups that were weighted, and I did really well with that, like I ended up doing a lot less total movements and a lot less time spent doing that.

And it wasn't until I started pushing out 30-minute long workouts that I started having some really big problems, and that coupled with travel, particularly like east coast-west coast type travel, was really problematic for me. So what I've done is I just don't push anything that is kind of metabolically related even when I've been doing some Thai boxing lately. It's about a 70% to 85% effort like I usually know that I've got a little bit of capacity left in the tank and I'm just trying to build volume and intensity slowly. And to the degree that I've done that, I've been getting stronger and getting some capacity back without it knacker me for a couple of days.

And so I really look at how do I feel in the workout? If it's kind of white buffalo in the sky type thing, then I'm pushing too hard. If I am laid up the next day, like I just did my squat day on my Wendler kind of 5-3-1 deal and it was my big week, the 95% squat deal, and I did 130-135 kilos for 13 reps, 12 reps, right around there, and then I did some front squats and then I did some short sprints with D-ball slams and I did that on Wednesday. Or let's see here. Tuesday, today is Thursday. On Wednesday then I was destroyed. I could barely keep my eyes open and so I went I think a little bit too hard on that day. I should have done a little bit less volume.

So I started keeping an eye on my volume. I started keeping an eye on the intensity, my relative perceived effort at the stuff that I'm doing, and I'm doing much, much better. And keeping some sort of a plan in there so that I stay within my means; and like next week is an unload week, I'm going to follow that unload week and then get back at it, and that's been very, very helpful.

Andy Deas: Good. Yeah, I hate deload weeks.

Robb Wolf: It makes you feel like you're just kind of puttering around like you should be doing something else; but then hopefully, if you do those deload weeks correctly, you go back in the following week and you're really chomping at the bit like you're ready to go. Your connective tissue and everything feels good like that low level soreness or maybe not low level anymore, just like the aches and pains.

I've noticed when I'm doing too much stuff like my hamstrings because I'm such kind of a posterior chain dominant person. Like my hamstrings, when I'm training too consistently, are just lit up and sore and tight all the time, and that's also kind of another little gauge. It's like can I actually -- I'm pretty good at getting into the splits and so like if I can get down into splits, then that's kind of like an internal gauge that my inflammation and kind of neurological status is okay, that I'm not going too hard. And when I start having problems getting down into the splits, I'm just kind of pushing too hard, like my connective tissue is kind of fired up. I have high cortisol levels probably and I'm just stiff and sore, and so that's a good feedback mechanism for me.

Andy Deas:

Good. All right, next question from John Michael. "Hey Robb, really diggin' the podcasts. One question from #20. You recommend not taking cod liver oil because the vitamin A has an effect on vitamin D somehow. Could you explain this for me? I've only heard good things about cod liver oil and vitamin A from the Weston A. Price Foundation and you seem to contradict them. Are the bad effects of vitamin A only present with synthetically added supplements?"

Robb Wolf:

Yes. We had somebody ask this question and they were just at the Paleolithic Solution Seminar that we had up in Seattle, and they're good on them. They did some homework, asked around a little bit, and the folks who manufacture some cod liver oil supplements were saying, "No, this is absolutely false. The vitamin A has been taken in as per ancestral diets for eons and whatnot."

This was kind of new stuff to me and John Welbourn and I had our ears pinned back by Professor Cordain when we are at the Paleo Brands Seminar back in September of last year because we were using cod liver oil. Loren was like, "Obviously, you didn't read my Paleo Diet Update, Paleo Diet Newsletter," where he talks about this issue.

There was a study that was in I believe Journal of Respiratory Medicine. I have a link to it from a couple of days ago from The Paleolithic Solution, the Seattle seminar, and we can pull that out and stick it in the show notes. But basically, there was a piece that looked at upper respiratory infections in kids and looked at the relative amounts of vitamin D and vitamin A that these kids were taking in, and they've found two interesting facts. One was that these kids who had low vitamin D levels in general were at higher risk of upper respiratory infections which makes sense on a lot of levels because of the immune modulating effects of vitamin D. But then also, what they've found was that kids who had high vitamin D levels but also high vitamin A levels and vitamin A from like the

retinol form of vitamin A like what we would get out of cod liver oil also have high rates of upper respiratory infection.

And so what we take from this, there's a mechanism whereby the vitamin A ends up being competitive with the activities of vitamin D. And when we really look at kind of a reconstructed kind of ancestral diet, Professor Cordain's proposition on this is that the bulk of our vitamin A would have been obtained from conversion of carotenoids, beta-carotene type of carotenoids into retinol, into the active form of vitamin A. And this happens on as an needed basis; and the retinoic acid, retinol ends up being occurring in much lower levels than what we would get say out of a cod liver oil scenario or eating liver out of a critter let's say.

And so the idea there is that we would generally see much higher levels of vitamin D than vitamin A, and the vitamin D being higher because of photo exposure, sun exposure upwards of anywhere from like 10 to 20,000 IUs of vitamin D per day, but with vitamin A levels significantly lower.

And so this is the recommendation. Some of the folks that push the vitamin A supplementation take some pretty good exception with this. The folks who commented on this to the reader, who asked this question a few days ago, said that the study was flawed that I'm referring to, but they don't offer any type of analysis to the study. So I would be curious to know what their analysis is of the study and how exactly they see it being flawed because from my perspective, we have a pretty direct mechanism that's going on here and some kind of testable observations, and it seems to be pretty consistent.

So I would just kind of throw back to these folks, give some counterstudies, show me a countermechanism that we're talking about, and then we could understand where we're at. Maybe I'm completely wrong on this spot. Maybe Cordain is wrong on this spot. And if we are, if I am, then I'll change my position and I'll admit some fault. But as it stands right now, we're going with the best data that we have and this conservative recommendation seems to make sense, particularly when we can simply have people take fish oil, supplement with vitamin D, and basically focus on getting vitamin A from carotenoid type sources and they should be just fine in that regard.

Andy Deas:

Yup. All right, good. Question from Bill: "Quick question about maximizing effectiveness of carb intake on cortisol levels. In a nutshell, if carb intake is restricted sufficiently to require more or less continuous gluconeogenesis to maintain blood sugar, and cortisol is the pathway by

which gluconeogenesis is activated, wouldn't eating close to zero carbs result in continuously elevated cortisol levels?

Likewise, to maximize development of muscle occurring in reduced cortisol environment, wouldn't the ideal, although perhaps unattainable diet be the one that provided just enough carbs to nearly eliminate gluconeogenesis, thus generating the lowest levels of cortisol due to diet, all other factors being equal? Or is my understanding of this simply immature?"

Robb Wolf:

This one reminds me of another question that we had a while back on this, and it's really good, but cortisol is not the singular way that we can kick on gluconeogenesis. Glucagon release is another way of kicking on gluconeogenesis. We can get glucagon release simply from a large protein meal, and even within that context, if we have a large protein meal with a fair amount of fat and we have a release of fatty acids into the system, we may not even get that much of a glucagon response, but we can still certainly get gluconeogenesis from protein catabolism, breakdown of protein producing glucose.

Mike Eades has a really interesting blog post on using hepatic gluconeogenesis as a way of filling up liver and muscular glycogen; and I think that this is an attainable situation so long as protein intake is large enough, and where we could start getting into a problem is if our exercise level is of sufficient intensity or volume to start digging into glycogen reserves, both muscular and liver glycogen reserves. And if we were to deplete liver glycogen sufficiently, then we could get into a situation in which cortisol would be released and then we could get into a problematic scenario of high cortisol levels and kind of a catabolism run wild. So that's an issue.

I think that this supposition of like let's take in just enough carbohydrate so that ideal with my gluconeogenesis issues but don't really impacts it, like fat burning or overall carbohydrate or insulin release, excuse me, that makes sense, that totally makes sense. And I think if we look at the metabolic diet, even some elements of the Zone, some stuff that we've played with with carbohydrate repartitioning and all that, what this kind of boils down to is eat as much as vegetable matter as you can that's kind of low-ish glycemic load.

And usually, if you're really trying to eat a lot of carbs in this manner, you end up with like 50, maybe 100 grams of carbs, and I think that's kind of a nice spot for most people to be even if they are doing a fair amount of training, that that's kind of a sustainable level. And what this should

theoretically do is fill up liver glycogen and muscular glycogen enough, but we're really focused on liver glycogen specifically, should fill liver glycogen from carbohydrate enough so that you are sparing the use of protein to be used as building material as opposed to an energy source, particularly an energy source coming from just converting it into gluconeogenesis.

And so I think that that's a smart level to be at. I think taking care of post-workout nutrition is a good way of kind of optimizing that but it's good thinking. It's definitely good thinking. Keeping some records on what levels of all this stuff you're consuming can help you dial this in, but I think people find this in kind of an instinctive way of eating too. There is definitely some good thought process that's going on.

Andy Deas:

Yup. All right, good question. Next we got a beefy one I think. Question from Paul: "I have a question for the podcast. Robb and Andy have mentioned a few times about taking digestive enzymes to aid in food absorption. James Fitzgerald also brings this up in his Nutrition 201 DVD. I found this article on Poliquin's website that explains how it works and how to figure out how many pills are required. However, I also found this post on T-Nation, basically debunking the Poliquin article.

I eat strict Paleo, sleep 7.5 to 8.5 hours a night and follow OPT's workouts so I do have periodization and get proper rest. I am desperate to improve my athletic performance. I missed qualifying for Regionals by three spots, and I was hoping that proper food absorption might be my missing link. I did the enzyme test and got the warm feeling at six pills, using NOW Super Foods Enzymes. So five pills each meal is my lucky number.

Long question shortened... Is Poliquin right about these enzymes or is the MD from T-Nation right and I am wasting my time?"

Robb Wolf:

You know...

Andy Deas:

What would Jim Wendler say, Robb?

Robb Wolf:

He'd say eat some nachos and go lift heavily. So yeah, Wendler is -- actually, we have a video of Wendler saying he loves hydrochloric acid, but I think is making some serious fun of people. So, you know, clinically, just my experience on this, I've seen people really, really benefit from the NOW Foods Super Enzymes. Mat Lalonde and I were talking about this, and some of the science we haven't really kind of wrapped our heads around fully, but hypochloridia is a real phenomenon in which people are not producing sufficient stomach acid.

And the interesting thing is the stomach acid is less a factor in actually breaking food down specifically than it is in signaling the release of downstream digestive co-factors, like bile released from the gall bladder, stimulation of pancreatic digestive enzymes that break down protein, carbohydrate, and fat. So it's less a deal I think of actually that it breaks the food down specifically, but what we're doing is we're like really priming the pump or sending the signal downstream for the rest of our digestive system to be kicked on.

Now, the NOW Foods Super Enzymes are kind of nice also in that they have enzymes that break down proteins, carbohydrates, and fats. They function at a pH level which occurs in the small intestine which is really important. Enzymes have a narrow pH frequency with which they work. And then it also has some ox bile, which I think a lot of people have problems releasing sufficient bile salts to help emulsify fats and kind of kick over the digestive process.

So what I'm seeing is that people who had other, you know, they would complain about weak digestion, bloating from meals that contain fruits and vegetables or just generally they're like, "I feel a little bit bloated, a little bit slow in my digestion." They do this whole process of figuring out where they feel heat with taking betaine hydrochloride or like a NOW Foods Super Enzyme kind of gig, where they find that heat level like dial their dosage back by like one capsule, and they stay at that level until they feel heat again, and then dial a capsule back and kind of do that process.

And what these people do is they build their digestion back to where they do not need to take the digestive enzymes, and frequently, these people report kind of undigested food in their stools. The food comes out looking the same way that it went in, particularly vegetable matter type stuff. And over the course of time, their stool quality changes and so they start actually digesting their food.

So at the end of the day, what I find is that -- here's some stuff to just kind of consider here. These digestive enzymes that we're recommending are dirt-cheap. The NOW Foods Super Enzymes are super, super cheap. So if you want to give it a shot, it's not going to really cost you all that much. If your digestion is not working that well, like that's a baseline, kind of leaving money on the table kind of scenario that you could improve.

And clinically, what I'm seeing again and again and again is that a lot of people benefit from this type of stuff. You know, stress, overfeeding, and all those type of things definitely impact digestive quality. One of the interesting things that I've found when I did a little bit of intermittent fasting, when I wasn't overdoing it, when I wasn't doing it in an overtraining scenario, was that I noticed it improved my digestion. It seemed like my digestion was allowed some time to relax and then I was digesting my food better like it was coming out better broken down and all that.

So I think it's very, very compelling with all this stuff. My hat is definitely thrown in on the fact that this stuff works. Poliquin recommends this stuff. OPT recommends this stuff. Chuck recommends this stuff. I've seen huge benefit from a ton of people with regards to this whole process. So I would just ask, even this MD who wrote the piece, you know, have you worked with people clinically who have digestive problems, and have you even tried this scenario? So maybe we don't fully understand the science behind this, but does it actually work? And from my perspective, it definitely does.

And it's one of these things where it's pretty damn cheap, so it's not like we're shaking people down for a ton of money to do something that's of really dubious success so --

Andy Deas: Robb, you're making a fortune off this. Don't lie.

Robb Wolf: I am NOW Foods Super Enzyme, so yeah.

Andy Deas: Awesome! I'm glad we got that out in the open.

Robb Wolf: Seriously. Yeah, I feel better too. There's a little bit of a cathartic feeling. I do admit that.

Andy Deas: Next, a question from Jeremy. "Robb, love the pseudo sciency goodness of the website/podcast. So far this year I've added 55 pounds to my deadlift, 50 pounds to my squat, and 60 pounds to my bench press all while doing a borderline ketogenic/low-carb diet. Thanks for the good work.

Thought I would bring this to your attention. Read it this morning. Seems like the guy is cherry-picking studies to support his point of view, and his conclusion is convoluted at best. Check it out."

So we got this article from a link, EliteFTS, called “Low Carb Dogma” by Jamie Hale.

Robb Wolf:

Mm-hmm, mm-hmm. And it’s huge. It just has a ton of material in it. He gets in and goes in and looks at it like a low carb and weight loss; and basically, his supposition is that, you know, low-carb diets do not really outperform other diets, which time and again, I think we’ve found this to not really be the case. Do low-carbohydrate diets decrease hunger?

And this is some stuff that both Mike Eades and Taubes in Good Calories, Bad Calories, we have some really good data on this stuff showing that almost grand levels of calorie intake can occur on a low-carb diet with virtually no sense of hunger. And the interesting point here is that I wouldn’t be surprised if somewhere in Hale’s background he writes an anti-low-carbohydrate diet post that’s basically saying you shouldn’t eat a low-carbohydrate diet if you want to get big because it’s hard to have adequate appetite to eat enough food which I definitely, you know.

A ton of people have recognized that, that for some people trying to do a legitimate mass gain and eat a lot of calories, if you eat a ton of protein and fat, the satiety signals that are sent are so potent that you just don’t want to eat a lot of food and that oftentimes it’s easier to consume more calories if you include carbohydrate in the mix.

And it’s very well understood that in an order of magnitude, protein then carbohydrate, or excuse me, protein then fat then carbohydrate release neuropeptide YY which is one of the main stimulants for satiety. Protein has a potent satiety signal. Fat intake is only right behind it. And then interestingly, carbohydrate is quite a bit further down the list than these other two nutrients.

And then carbohydrate has the interesting side effect, that if you consume enough carbohydrate we end up converting that carbohydrate into palmitic acid. Palmitic acid, as I think we mentioned in the last podcast, is very free to pass through the blood-brain barrier and actually inhibits the sense of leptin, and leptin is another one of our very potent stimulators of satiety. So we have some known understood mechanisms here at any given caloric intake of protein, fat being better stimulators of satiety than carbohydrate, and really causing a much better response with regards to fat loss.

And some of these studies, you know, like I haven’t dug in on them, but he mentions in one of them that overproduction of insulin driven by carbohydrate consumption is the primary cause of obesity. Like they do

some compare and contrast with some protein and carbohydrate intake, but I know a bunch of this stuff like we're doing shakes, like there's just some really poorly designed stuff in here that I would argue as to some degree being cherry-picked.

And even our old friend, Krieger, James Krieger, who has really taken us the task on some stuff about all this same stuff. And like Mat and I were talking about saying simply insulin is a little bit oversimplistic because protein sources like fish and beef release insulin, and so why don't those things cause -- and significant amount of insulin, so why don't those things cause insulin resistance? Well, part of insulin resistance is being set up by changes in hepatic status with regards to like palmitic acid production and what can happen with leptin sensitivity.

So it's an oversimplification. If you want to geek out on another level, then yeah, it's like, okay, simply spiking insulin is not the causative factor in insulin resistance. That is true. Like we need another layer of sophistication if we want to be completely accurate, but the thing is that clinically, what you do to address the situation is no damn different, like we still need to regulate carbohydrate levels to a point relative to each individual, we are not causing hepatic, essentially an overload of either fructose or glucose so that we overfill hepatic liver glycogen and start causing problems downstream from there.

So when you really get down to brass tacks, simply saying "insulin spiking" is inaccurate because we have situations in which protein sources can raise insulin. So that's true. But it really doesn't change anything, and when you look at people who are actually effective at changing body composition in people and in large numbers of people, by in large, these people are defaulting to some sort of a carbohydrate controlled scenario. You don't see Weightwatchers-esque like Dean Ornish-esque type people doing calorie-restricted, higher-carbohydrate diets working in the vast majority of people. We just don't see this stuff happening.

And again and again, like the work from Staffan Lindeberg and they just had a new piece in a clinical trial, like a metabolic work trial of a Paleo diet being compared against standard grain-based diet. These aren't even low-carbohydrate levels but Paleo type carbs affecting blood glucose levels in very different ways because of lectin effects, because of cortisol effects and a bunch of other issues. So like these food quality issues, the total amount of carbohydrate, the stuff matters and it definitely matters on another order of magnitude beyond simply insulin sensitivity.

But for simplicity, that statement works; and if you put these guys' feet to the fire, if you want to see people succeed and succeed in large numbers, then you start looking at carbohydrate control protocols, especially carbohydrate control protocols with Paleo-type carb. And I know these guys don't like that and everybody wants to have -- be a unique flower and particularly like the Lyle McDonald kind of camp who I think that they were so close to having so much of this stuff right. I think they're just kind of pissed off that they've missed some kind of obvious pieces here and could have had the whole thing tied together. But again and again and again, we see this consistency.

So I would throw back to Hale, explain to me why we see a significant difference in the study that Staffan Lindeberg did in which he compares groups of type 2 diabetics eating similar amounts of protein, carbohydrate, and fat, but in one group, the carbohydrates are from what we would consider Paleo sources, roots, tubers, fruit, veggies, and the other group we have a standard kind of grain, legume, and dairy-based approach. And in the Paleo scenario, we have a resolution of type 2 diabetes. Essentially, these people become non-diabetic on this approach. Whereas the grain, legume, and dairy-based Mediterranean type diet does not improve blood lipid parameters at all. So why? Why are we seeing this issue? Why are we not seeing a resolution of the issue?

And this is very well controlled. It's a clinical trial. It's a gold standard with regards to this. And the rest of this stuff, it's surveys and a bunch of other things that are basically crap like it can give you maybe some guidelines but there's absolutely nothing to hang your hat on. So I would want to hear the response to that why we have a distinction there and how does that play into the overall picture.

Andy Deas: Yeah. All right, good. You're pretty calm today, Robb, so that was a polite answer I think for you.

Robb Wolf: I'm trying not to be too big of a jerk.

Andy Deas: Next we got a question from Danny. "Newbie alert," he says. "Hi, Robb. First up, a bit of background on me. I have gone from doing Brazilian jujitsu three times a week and CrossFit three times a week, plus ashtanga yoga twice a week. This is all from snapping my ACL in my right knee." So I assume he snapped his ACL after doing all that work.

"I've had surgery on it and looking at getting back into training. I'm looking to start eating the Paleo way. However, what would you say are

the best books for newbies like me to set me on the right track, i.e., what to eat and when? What's your take on the whole wheatgrass juice trend?" I love that question. "Along with taking glucosamine and Omega, what other supplement would I need?"

He is 5'10", weighs 13 stone 5, and "not loving my body shape. Once again, thanks for your podcast. It's been a great help on other aspects of the Paleo way for us UK listeners. Much love to the podcasts. Danny from Manchester, UK."

Robb Wolf: Wow, he managed to sneak like 15 questions into the sentence. It's like super short entry, which is great, and then like 20 questions. So great books. "Protein Power Lifeplan," phenomenal; "Lights Out: Sleep Sugar, and Survival," really amazing. I still really like "Natural Hormonal Enhancement" is a really solid book. I think "The Primal Blueprint" is a great book for getting folks dialed in on all this stuff, what to eat and when.

I mean really, this is pretty simple stuff, like if you're not lean, control carbohydrate levels, which most of these books are going to kind of steer you in that direction. If you're trying to optimize some performance, then we're going to start looking at post-workout recovery kind of considerations which are protein and carbohydrate driven. I've done a ton of blog posts on this, just specific post-workout recovery and the tradeoffs, like am I trying to lean out? Am I trying to optimize performance? Make sure you understand who you are and what you're trying to do because you need to focus on one specific goal to get that stuff done.

Wheatgrass, I'm not a fan of. It just kind of freaks me out. I think there might be some lectins in there. You could play around with it. I'm just not really of that. Poliquin is not a fan of the green foods that are derivatives of wheat, barley, rye grasses and so I tend to kind of side with that.

Glucosamine and Omega is good; magnesium, ZMA and/or a Natural Calm kind of dealio. And I think that pretty much hits his questions. Were you trying to set me up for more of an intrigue with that?

Andy Deas: No, that wasn't so bad at all.

Robb Wolf: Yeah.

Andy Deas: See, you're calm. All right, good. Next we got a question from Matt. "Robb, love the podcast. You mentioned cortisol issues and working out

in a fasted state, and I was hoping you could go into that some more. I currently train at a 6 a.m. class, so I usually don't eat anything before working out. I'm making decent progress with regular PRs across the board, but I've been having trouble dropping some of the excess fat around the umbilicus, which you've mentioned before as a possible sign of cortisol issues. What is the mechanism by which fasted training affects cortisol production? I know Martin Beakhan, Berkhan..." we never know how to say his name.

Robb Wolf: We never get it right, yeah.

Andy Deas: We're sorry, Martin. "...at Leangains talks about taking BCAAs before fasted training to promote muscle growth. Would BCAAs be enough to counteract whatever causes elevated cortisol during fasted training?" Let's just start there.

Robb Wolf: Yeah. So let's see here. What's the mechanism with fasted training? So as baseline, particularly if you're doing something like a CrossFit sort of gig, you jump in, you start doing high intensity full body movements, say like thruster, pull-up, run, which these movements are very, very glucose demanding or very glycogen demanding.

At any given moment, we have a circulating pool of glucose that is just in our bloodstream. That glucose is titrating into our muscles and our brain and our organs and tissues at some sort of a slow rate. Like if we're fat-adapted, then different tissues will run more on like fat and ketone bodies than it will on just specifically glucose. But there's still stuff that will only run on glucose and so that's just kind of some stuff to keep in mind.

And so we launch in, we start doing a workout, and our muscular glycogen starts -- we start burning through it immediately and this is where we start producing blood lactate, start getting muscle burning. But this stimulus of burning through muscle glycogen, it decreases essentially the stored carbohydrate in the muscles and it opens the door for glucose to go out of the bloodstream and into the muscles to start propping up the glycogen in the muscles to allow us to perform.

Now, if our liver glycogen is stalked enough then we can get a bump up in liver production without really releasing cortisol. We can start propping up blood glucose levels and not really get too much of a cortisol release. Adrenaline, growth hormone can promote this stuff. These things are released in response to kind of anticipatory excitement. High blood lactate levels can start driving this stuff a little bit.

But if we are too low and if our blood sugar dips too low, say like we work out very, very hard very quickly and we don't have a lot of muscle glycogen or liver glycogen stored, then we can start getting a cortisol response which will start breaking down proteins to make blood glucose help to prop that up. And we can start breaking down branched-chain amino acids or circulating in the blood and converting those into glucose.

So this is the whole process that's going on and this is where like just a little sniggle of protein or like a branched-chain amino acid supplement or just a smidge of carbohydrate, really just like 5 or 10 grams of carbohydrate, it doesn't need to be much at all, can really help prop up blood glucose levels and prevent a really significant cortisol response.

Now, depending on where you're at in this whole spectrum, some fasted training may be totally fine. You may mainly get a growth hormone release out of this, and this is a lot of what Art De Vany talks about. But you need to be well-rested. You need to have some of your other ducks in a row.

A 6 a.m. class is almost guaranteed that you're getting up with an alarm, almost guaranteed you're waking up with inadequate sleep. And so when we start talking about leaning out, the cortisol issue becomes a big factor, but it's not just cortisol, it's also just the lack of sleep; and it gets hard because like people have silly stuff like jobs that they need to go up and get the workout in so that they can then go to work and get all that stuff done in a timely manner. But these are some of the factors that are going on behind the scenes: sleep, cortisol levels, all that sort of jive.

I think the recommendation for some BCAAs, branched-chain amino acids before training definitely makes sense. You can play with it. See if it helps your situation. But as we go back to again and again, nutritional tinkering will help lack of sleep but it won't fix it. I wish we could undo all of sleep issues with nutrition but we can't. I wish that there were other supplements that we could do that would undo it but it just doesn't cut it.

Andy Deas: I also just want to read his calorie thing. I thought it was interesting.

Robb Wolf: Yeah, and he mentions his sleep in this too.

Andy Deas: Yeah. "I recently cut my calories from 2300 a day to about 1800. I'm weighing and measuring mostly to ensure I'm getting enough protein. I don't think I'm overtraining, and I have no real stress to speak of.

The only other factor I can think of that might be causing cortisol issues is sleep. I usually get about 6.5 hours during the week, 7 to 7.5 on the weekends. I usually don't have any issues falling asleep or staying asleep, but once I wake up, that's usually it for me.

5'11", 180. CrossFit Main Site WODs 5 on, 2 off. 180 grams of protein and less than 50 carbs. Fish oil, vitamin D, magnesium, etc."

Robb Wolf: Yeah, you could do some tinkering with post-workout carb repletion and see if this helps. The lack of sleep is concerning to me. Like I'd like to see an 8 to 9 in there ideally, and this could be a deal where maybe some additional magnesium, some Natural Calm, maybe modulating your intensity a little bit, like I really want to know why and when specifically he's waking up. I would like to see better sleep throughout the night and all that sort of stuff. And as soon as those things start falling into place, then we start seeing people lean out, like it's just kind of an "if A then B" kind of scenario.

Andy Deas: What are your thoughts on Main Site WODs, 5 on, 2 off? That seems pretty excessive.

Robb Wolf: It's tough, you know. Originally, there are kind of a couple of theoretical templates with that, like a 3 on, 1 off, and then a 5 on, 2 off. And even in their original CrossFit Journal piece, he admitted that the folks following the 5 on, 2 off, they were pretty torched by the end of that whole scene.

Larry Lindeman, really bright dude who was around the CrossFit scene early, early on, he very early kind of instinctively figured out that maybe he would do one day kind of as prescribed, second day half volume, third day maybe three-quarters volume. So he started instituting his own kind of modifications on the programming. And this is back before even the -- you know, I would say that the volume on that training has just gotten bigger and bigger with time. Instead of getting more sophisticated, it just kind of gone more volume, and I think that that's a significant problem for most people.

So depending on your work, your schedule, say like people want to work out through the week and then have the weekends off, that's totally legit. But I think doing something like a Max Effort Black Box kind of gig where you know -- Rut has some really slick protocols where like one week you would do three Max Effort days, two met-con days, and then rotate; and three met-con days, two Max Effort days and you kind of

have a rotating template like that so you're getting five days a week of training.

You could drop in some skill work, like some gymnastic works in addition to your Max Effort work just to get a little bit more fun stuff in there. But I think something like that where you're really tackling the whole thing in a more punctuated manner, not quite as much cortisol intensive, like lactate intensive type training could be a really good move. And we just never see people suffer from kind of a focus on technical strength-oriented training. They always seem to benefit from that.

Andy Deas: Yup.

Robb Wolf: Yeah. But that's a blistering schedule. But for some people, that's just what fits in with their lifestyle and how they want to train; and that totally is legit but I would give some thought towards ways to modify all that.

Andy Deas: Yup.

Robb Wolf: And if it's gauche to do Max Effort Black Box because Rut is kind of on the outs, then you could always do the newly anointed Westside barbell for CrossFit.

Andy Deas: Robb, leave Louie out of this. And with that, Robb, that's the last question of the day.

Robb Wolf: Damn it! Okay. I guess we'll get to Sundog next time.

Andy Deas: Yeah. We'll do Sundog the first in the next episode.

Robb Wolf: That's a biggie, so cool.

Andy Deas: Yeah. Well, thank you, sir. You enjoy the rest of your week and have a good weekend. I'll talk to you soon.

Robb Wolf: Thanks, dude. Enjoy your first margarita and coffee or whatever you're going to do here soon.

Andy Deas: Thanks, man. We'll talk to you.

Robb Wolf: All right. Bye, Andy.

Andy Deas: Bye.