

# The Paleo Solution

## Episode 27

- Andy Deas: Robb Wolf, Andy Deas back with Episode 27, Paleolithic Solution. What's up, dude?
- Robb Wolf: Dude, we survived Keystone's birthday party. It was a rager. Catnip was passed around in various -- in the sundry forms, so yeah, coming down from that.
- Andy Deas: With the onslaught of Keystone's birthday, that means I survived 30 days without caffeine.
- Robb Wolf: You did indeed and you weren't even like hijacking the Dutch Brothers, Dutch Wagon or whatever, the Dutch Mafia Wagon to get some coffee. So how are you feeling?
- Andy Deas: Actually, I feel pretty good. I haven't had any caffeine yet. Well, I also did 30 days no sugar or alcohol so I think this weekend I'll have a margarita. I'm not sure at this point how much caffeine I'll add back in. I may do a little regular coffee on the weekends. Maybe play with some decaf. I don't know yet. I feel pretty good.
- Robb Wolf: Cool! Cool!
- Andy Deas: Although it just goes to show you, Robb, since I had no sugar or alcohol for 30 days, even though I eat pretty Paleo, I did lose 10 pounds.
- Robb Wolf: Holy cats!
- Andy Deas: Which goes to show you, if you consume enough alcohol or sugar, even if you eat clean everywhere else, there's still some room for improvement.
- Robb Wolf: That's crazy talk, man.
- Andy Deas: I know. It's mind boggling, isn't it?
- Robb Wolf: You're right. We're just trying to formulate some sort of a plan for like ditching fruit and vegetables and subbing in 85% to 90% dark chocolate. We're just trying to figure out some sort of a physiological explanation for why that would be a reasonable proposition, but I think you just shot that down.

Andy Deas: Yeah, I had to ban myself from buying the Trader Joe's 85% dark chocolate bars because they are dang yummy and they come in that two-pack.

Robb Wolf: Yup.

Andy Deas: And I could just eat it two at a time like it didn't bother me.

Robb Wolf: Yeah. But if you're going to do some chocolate, that's a good way to go.

Andy Deas: That is very true. And other than that, the weather is good man. Anything else going on? How was the book, the latest on the book? Any updates?

Robb Wolf: We're getting some final or closer on a cover basically. I've just given it up to the publisher and his artist and they're just working with the book buyers, basically like the Barnes & Noble, Borders crowd, like they threw out a pretty significant purchase if we did any book cover other than the one that we cooked up initially; and then Borders was going to do a tiny order and Barnes & Noble possibly pass on the order if we went with the cover that we had. And I mean basically, they recognized that there's a good audience out there already kind of anticipating the book, but they're trying to make it more accessible to all the people who have no idea what the heck these shenanigans are about.

And so they seem to be really interested in the book, seem to have some expectations for it doing well. They've pre-read a couple of the chapters and the feedback from that has been really, really favorable. And they've offered no recommendations on changing content. They just really want a little bit of a different packaging. And so I guess all things considered, that's not that big a deal; and it's kind of cool that they're even taking any interest in it. So that's where we're at with that.

Almost finished on the re -- you know, basically going back through and rewriting everything. I'm rewriting the cortisol chapter. And truly not rewriting; it's just editing it and then I had a bunch of suggestions from Mat and Yael that I'm integrating into this stuff.

And then on the 15th, I'm going to send all of that to the editor and then we're going to be traveling for about 10 days. I'm just going to let the publisher like crunch all that stuff and then he'll tell me where I need to panic and what I need to fix. But we're getting close.

Andy Deas: So with this new cover, is there going to be like Robb Wolf topless Shawn Philips style, Tom Venuto style? I mean what are you talking about?

Robb Wolf: No, no. We're going more of a clinical look, just clean, probably something like The Original Human Diet and then The Paleolithic Solution. Hopefully, you're going to have a couple of -- hopefully a foreword from Professor Cordain and then a couple of other interesting things for the cover that I'm going to save until it's actually done.

Andy Deas: Cool!

Robb Wolf: But pretty excited about that.

Andy Deas: Well, the five-year wait is over, Robb. It's almost like the Chinese democracy, right?

Robb Wolf: Yeah, that was like 12 years so they're just a little bit better. And hopefully, unlike that, hopefully this is still relevant when it actually comes out.

Andy Deas: That's true. But to be honest Robb, they had a higher pinnacle to fall from at that point.

Robb Wolf: That is really true. I have nowhere to go but up. I have nothing to stand on currently.

Andy Deas: All right, on to the questions, Robb.

Robb Wolf: Indeed.

Andy Deas: 'Cause we will goof off for an hour.

Robb Wolf: That's true.

Andy Deas: So first one, question from Louis. He says, "Hey Robb, I'm your number one fan in New Brunswick, Canada, and maybe the only one. LOL." Why are people putting LOL in emails? Anyway, "I'm also listener number 9." Robb, I'm just going to start deleting questions with jokes that you're encouraging people to put in there.

Robb Wolf: It's just the repetition rubs you raw, Andy.

Andy Deas: It does.

Robb Wolf: Wait till you have kids. I am just trapped in about a 4-year-old mentality. That's all that's going on here.

Andy Deas: All right, all right, fair enough. Episode 100, there will be no more listener jokes when we get there. I'm not saying it again.

Robb Wolf: Okay, deal, deal.

Andy Deas: Okay. Louis goes on to say, he's a CrossFitter, a father of a 7-month-old, and a police officer. He eats mostly Paleo, strictly no dairy. "And when I cheat it's with corn tortillas or a beer. I have irregular sleep patterns (yeah, that sucks). I have been suffering from postnasal drip. Postnasal drip occurs when excessive mucus is produced by the sinuses. I get the sensation that there is always mucus in my throat. When I work out I constantly need to stop to clear my throat."

Robb Wolf: We can ditch this other chunk. This is just gross.

Andy Deas: It's awesome. Awesome!

Robb Wolf: Go for it. Okay.

Andy Deas: No, it's fine. Robb, there's a couple of questions that I would love to discuss and I can't even bring myself to read on the internet because they were like --

Robb Wolf: He's very detailed about the viscosity of his mucus, put it that way. You folks can read it when it goes up in the show notes.

Andy Deas: So anyway, it would suffice to say he goes on to say he still has his problem. He has researched on the internet and all the tips he can find is reduce gluten, "which is already what I am doing." Any tips on how to tweak his Paleo to help him overcome this?

Robb Wolf: Also he says twink instead of tweak, which is a little bit funny too. But Louis is like, "Oh, those guys are jerks, man!"

You know, the only thing that really leaps out at me with this is honestly the shift work, and Mat Lalonde and a couple of other people just shot in a study that shows a single night of sleep deprivation, which we have a question a little bit further down talking about sleep deprivation so we'll kind of tie these things together, but a single night of sleep deprivation starts setting up significant metabolic changes consistent with insulin resistance. It's a really massive stress. Once you start getting stressed, we

start getting inflammation. With the onset of inflammation, I think people can respond in a variety of different ways, and one of them that we see immediately is an increased sensitivity to allergens.

So like normally, we're kind of assailed by anything from like dust mites to ragweed to a variety of allergens, and depending on how inflamed our situation is, we will respond more or less to those kind of environmental allergens. And I would be willing to bet that if we took Louis and again like took him out of his normal environment and like the desert southwest, desert island kind of scenario where there's comparatively few allergens as compared to like a tightly closed-up building where you start getting a lot of mold and dust mite buildup or someplace like Chico; Chico has like the worst allergies on the planet because of all the agriculture around here and whatnot; but we change environments where you are exposed to a different profile of allergens and we make you sleep, and suddenly I think that you would see this stuff resolve.

And then the fact that he has a 7-month-old, that's going to impact sleep obviously too. So that's my gut sense and all that, if we're assuming that more or less pretty solid compliance, which it sounds like it. I mean some corn tortillas and a beer here and there, that's just not freaking me out at all. But the sleep deal, I would bet that that's probably what the issue is there.

Andy Deas:

All right, good. Question 2 from Greg: "Hey Robb, really digging your ongoing discussion of cortisol, stress, and overtraining on the podcast. With regards to carb intake and someone finding themselves in an overtrained state, it sounds like there is a sweet spot of not too low but not too high. I can get the logic behind really low intake causing a stress response, but can you explain why too many carbs/insulin causes a corresponding trigger of too much cortisol? Is it based on the subsequent low blood sugar that necessarily follows insulin, or is there something about insulin itself that causes stress? Would really like to understand this better. Thanks."

Robb Wolf:

So really good question and this is some stuff that I cover pretty extensively in the book, and I have to credit Mat Lalonde hugely with my improved understanding of all this. He has been really just scouring the new publications that are coming out, looking at like palmitic acid. Palmitic acid is a short-ish saturated fat that we can either get dietarily or it's the type of fat that we make from excessive carbohydrate intake, and that palmitic acid actually passes into the brain pretty freely and it blunts our ability to sense leptin. So it starts setting up leptin resistance which sets up insulin resistance, and this is where this whole cascade goes. So a

shout out to Mat again for his continued help in making the book not suck and helping me to understand what the heck I'm talking about.

But where this thing happens or how we can think about this under normal physiological circumstances, even if we eat a comparatively high-carbohydrate meal or diet -- let's think about the Kitavans for a second. We would take in some carbohydrate. There would be some insulin released to sequester that carbohydrate in our muscles and liver, stored as glycogen. If everything is kind of working well, we're going to release just about the right amount of insulin to stick that bolus of carbohydrate into our muscles without causing a subsequent crash.

Where we start getting problems is when the amount of insulin that we secrete is inappropriate for the amount of carbohydrate that we have, and so then we will end up with a significant blood sugar crash, which then one of two things can happen and this can go whether we are just simply fasting or if we are kind of going into a blood sugar trough, a blood sugar low; but normally, a little bit of hunger would release glucagon and we would release just a little bit of glucose out of the liver, we would be able to mobilize fat from the body fat for energy, and we would then be able to regulate our blood sugar levels within pretty tight parameters.

Where this starts going south is when we lose that ability to sense insulin or different tissues lose the ability to sense insulin and then we start getting problems. When insulin levels start cranking up, when we start losing insulin sensitivity, we don't lose that sensitivity uniformly. We can lose it in different tissues. And for whatever reason, part of the way that this stuff sets up is that we lose insulin sensitivity in the muscles in the adipose tissue, the fat tissue, which will leave us with actually high blood glucose levels, high insulin levels, but then our liver is actually perceiving a -- the liver will become also blunted in its ability to sense insulin. And when the blood sugar levels are perceived to be low, we will start converting protein into glucose or we will just simply dump whatever liver glycogen that we have into the bloodstream.

And so this can cause a cortisol release because our body thinks that we're in a blood sugar low when we're really not so we can release cortisol. The cortisol bumps up blood glucose levels. It becomes kind of a nasty feed forward kind of mechanism. And so what's happening here is just the state of elevated insulin causes a cortisol release because parts of our body think that it's in a starvation mode interestingly even though we're in a hyperfed mode.

And then the problem that starts arising out of that is that we're already in a bit of an insulin resistant state that cortisol release actually blunts our leptin sensitivity and our insulin sensitivity, and so this is where we start becoming chronically hungry and the ability to regulate our blood glucose levels starts getting less and less stable. It starts having higher and higher highs and lows and that's where the wheels start falling off the wagon.

Andy Deas: Good.

Robb Wolf: And I detailed this pretty heavily in the book and have some charts and kind of flow charts about how all this stuff happens, but if you basically have an understanding of where nutrients go into the body, protein, carbohydrate, and fat, and what happens to them under normal circumstances, then what happens to us under a fasted state, how do we release glucose into the blood from the liver, how do we mobilize fats and that whole scene, then we kind of combine elements of the overfed state and the fasted state when we start seeing a hyperinsulinemic state.

So it's basically like imagine the thermostat on your house isn't working, the gas tank on your car isn't working, and actually you have too much of something going on. We have too much glucose, too much overfeeding, but there are tissues that have lost their ability to sense the fact that we're overfed, but it responds in a way that thinks that we are actually starving, and that's where it's such a problem.

Andy Deas: Good. That was a good question.

Robb Wolf: Yeah, yeah, really good question.

Andy Deas: I'm very excited for the next question, Robb, 'cause in our next career we're going to be rock stars. So this will be something that we ought to consider.

Robb Wolf: Is this in Japan or are we going to do like a David Hasselhoff kind of gig or France or something?

Andy Deas: I'm thinking Germany might work for us though.

Robb Wolf: Cool! Cool!

Andy Deas: Although I do have a T-shirt that says, "I'm a legend in Japan" that I wear from time to time. So maybe that's a sign for us.

Robb Wolf: You are like 6 foot 8, so you are somewhat reminiscent of like Mothra or Godzilla.

Andy Deas: Ooh, ooh, that hurts, that hurts. Anyway, question from Keenan. I'm going to skip the first part and go on to kind of his question. So he "is a guitarist traveling in a pro band away from home, three or four days out of the week, most months. The lifestyle is ridiculously hectic. I do my best to try to limit my food to lean meats, greens, fruit, nuts, etc. when I can, and keep the beer minimum to none. Trying to stick with liquor, soda and lime." I like it.

"But there are certainly roadblocks. Sticking with heavy fish oil as per your recommendations. I have to be extremely proactive to get enough sleep, but consistency is absolutely out of the question. I spend a ton of time exhausted. I do, however, have time to train every now and then, in the form of bodyweight exercises, sprints, etc. When I'm home and rested I try to take advantage of my apartment's gym and get in a solid, high intensity full-body resistance workout about once a week, which takes three or four days of recovery time, at which point, I'm back on the road.

My question is, in general, is it even worth it to try and throw in any training if I'm on the road and severely sleep deprived? Should I just wait until I'm home for a couple of days and a little more rested? Should I spend the time in the morning scavenging for more quality food? I know what I should be doing in a perfect world but mine's far from it. I'm not looking to get jacked or ripped or set any records, just want to keep myself as healthy and immune as the situation allows."

Robb Wolf: I think that one, I mean it's a huge opportunity to be a paid traveling musician. I mean that's totally bad ass, you know. Ride that pony till it falls over and dies. And then from there, I think that there would be a really strong argument for trying to get some consistent training as often as you can. And even if you're pretty pooped, strength training, really low level circuits like a squat, push-up, pull-up kind of gig, but not trying to set any record; it's just basically getting some volume in there.

And what that's going to do is restore to the best of your ability some of your insulin sensitivity. It's going to normalize your hormone status a little bit, hopefully keep the testosterone levels propped up there. But it's really going to be a dose response curve that you've got a shallow window on, like you're not going to be able to push it super duper hard. Even when you're at home, I would be more inclined to do a little bit less volume and intensity on your home days so that you could get a couple



of days sequentially of training instead of one blistering day where you're kind of busted up for like four days and then you're back out on the road.

So my gut sense on this is modulating the intensity, go on a little bit more volume-paced, like you're kind of already burning the intensity piece just with the lifestyle, with being up late, playing in the show, having all that adrenaline rush and all that, which is awesome. But then, I would modulate that personally with just trying to get some exercise every day. I would try to get outside as much as you possibly can if there's a park, hiking trail, anything like that, and get outside, get sunlight under your skin, particularly like evening sunlight. The red wavelengths of light in the evening really help normalize the circadian rhythm even though you're going to basically like kind of shoot that in the head when you stay up late with flashing lights and rock show going on.

But I think that those things are going to -- from like kind of a Chinese medicine perspective, kind of yin-yang sort of thing, that whole rock star thing is very yang. It's just very, very active. You need some kind of yin balancing type stuff. God forbid, maybe even check out a yoga class or something like that. But be mobile. Do as much activity as makes you feel better and try to be outside and try to have some kind of yin-building type activities, and I think it will balance all that stuff out a lot.

Andy Deas: And Keenan goes on to say, "By the way, Tom Venuto is a douche." So I just need to throw that in there because it was funny.

Robb Wolf: That was like six podcasts ago. We need to start two of these a week so we can catch up on this stuff.

Andy Deas: Oh, Robb, that's just crazy talk.

Robb Wolf: That is crazy talk. People will get bored of us very, very quickly then.

Andy Deas: Seriously, for sure.

Robb Wolf: And, you know, the one other thing that I might throw in here is if he can figure out like even just once a week a heavy-ish squat, deadlift, and like upper body deal like a pull-up handstand push-up, like really make it kind of strength oriented and then the rest of his activity just kind of some volume, strength endurance kind of stuff. I think that would be some good balance with that and all of it could be super time efficient.

Andy Deas: Cool! I like it.

Robb Wolf: Yeah.

Andy Deas: I could think about that when I'm a rock star.

Robb Wolf: Seriously. We'll be set. We will live through his experiences here.

Andy Deas: All right, good. Next we got a question from Emily. She says, "Hi! My question has to do with the fish oil doses. Since Omega 3's are anticoagulants, is there any danger in taking such a high dosage of fish oil? I am currently taking 7 grams a day and just want to make sure I'm not putting myself at risk for thinning out my blood too much. I'm not having much luck researching this online. Thanks!"

Robb Wolf: You know, something that you could do if you really wanted to get a grasp on what is happening is you could go to your doctor and ask him or her to order a coag panel, it's a coagulation panel, and it basically shows at what relative rate your blood is in fact clotting. I really don't think, unless you have some sort of like hemophilia or some other clotting disorder, it's going to be hard to overdo the fish oil.

Or if you were in like a police, military situation, even police; like we've bounced this off of a lot of people like Joe Lee and some other folks; generally, unless we could see a situation where somebody could get wounded and potentially have a bleeding situation that couldn't be attended to immediately, but most other folks are of the opinion like if they got wounded in some situation, like they're going to have some sort of medical attention within a timely manner and like the blood-thinning properties of fish oil are not really going to be that big a deal.

At the level that Emily is taking, like 7 grams, unless she weighs like 90 pounds, she's probably not having a problem here at all. I mean you really don't know for sure unless you went and had a coag panel, but I would be shocked if there was a problem with this other than if she had some sort of like an innate clotting problem already. But she could certainly go and get that checked out. Her doctor will probably think it was the oddest request in the world, but that is something that she could do. But my gut sense is that that would not be a problem.

Andy Deas: Cool! Next we got a question from Alejandro. "Hello! I first want to thank you for putting all this information out there. I really appreciate it. As for my question, what recommendations do you have for acne? I read your 'CrossFit Compilation' in which you mention a diet for acne but you don't explicitly say what it is.

I started Paleo almost a year ago for this very same reason. I have been able to give up on my topical medication but I still get acne cysts and whiteheads often. Paleo has definitely helped me in many aspects -- better performance, single digit body fat, no more digestive issues, etc., but it has not eliminated my acne. What recommendations do you have? By the way, I'm 20, if that matters. Thank you."

Robb Wolf:

So Professor Cordain has a great ebook, "The Dietary Cure for Acne," only name in health and fitness that is possibly more awkward than NorCal Strength and Conditioning, but it tells you what it is.

But it lays out a much more detailed plan than simply Paleo. It looks also at some Omega-3/Omega-6 supplementation and a little bit of under-the-hood diagnostics that you can do to figure out if you have say like a GLA or a DGLA conversion issue, basically taking shorter chain Omega-6's and converting them into longer chain Omega-6's. That can cause a little bit of a problem for some people.

Every once in a while, maybe like one -- usually we see this with females but this can happen in guys too, but maybe one person in 30, one person in 50, they will start doing a standard kind of Paleo sort of gig. Everybody else reports significant improvements in their acne, particularly along like the chin, around the neck and on the back and all that sort of stuff, the very androgen-related acne locations.

But a couple of folks, it will actually make a little bit worse, the shift in the nutrition. Or at least, if it doesn't make it worse, it will still be a problem, and they usually benefit from sticking in 15 or so milligrams a day of primrose oil, GLA-containing oils, primrose oil, borage oil. It's hard to find that low of a dose and so what you might need to do is take it every other day, something along that line, but I think it's about a \$20 ebook or something but it's very, very worth the price and I don't really want to give away all the details of that because it's Professor Cordain's work and he does have an item for sale. But that's what I would recommend is checking that thing out.

I think there are a few videos online where Professor Cordain talks about the dietary cure for acne and there's definitely some Q&A material on his site. So I would check that stuff out. I think Alejandro is on the right track, but he just needs to find a few little tweaks to dial that in.

And I would throw out there also that folks who have acne issues like what he is describing are exceptionally sensitive to both sugar and dairy with regards to the acne. Those things can really flare it up. So you have

to be quite fastidious in that regard to make sure that you don't get any acne at all.

Andy Deas: All right. Now we got a question from Curious which I think they win the second price for the best handle we've had so far.

Robb Wolf: Who's the one that we have right now? DamnDirtyApe? Is that what is it?

Andy Deas: No, I like the -- what was the ripped guy's?

Robb Wolf: Oh, yeah, RatherRipped, but we also have DamnDirtyApe which I really like a lot too.

Andy Deas: Oh, that's a good one too. All right.

Robb Wolf: Yeah.

Andy Deas: All right. So maybe Curious is third. I was unaware of DamnDirtyApe. That's a good one.

Robb Wolf: Yeah.

Andy Deas: "Robb, I recently went to my GP and he is taking additional test but believes my testosterone levels are too low for my age (near 40) and wants me to start testosterone replacement therapy. The last blood test I had measured at 315." Remind me what we're measuring this in?

Robb Wolf: Nanograms per deciliter.

Andy Deas: Nanograms per deciliter. Yeah, sorry. "Are there natural methods to increase levels that actually work? Just curious as to what your thoughts, opinions, and suggestions may be when I review the results and discuss the options with the doc."

Robb Wolf: Hmm, this is a great question.

Andy Deas: That's why I put it in, Robb. I know you and this is close, dear to your heart, buddy.

Robb Wolf: Absolutely. You know, the stuff that I've tracked down on this, definitely zinc levels can have a pretty good impact on testosterone production. That's where the ZMA can be pretty helpful in this regard. I've been really thinking about even the basic ZMA recommendations. Zinc actually causes one to excrete copper. When you take in zinc, we tend to excrete

some copper. And Jarrow Formulas has a ZMA blend that has just a little tiny bit of copper in it, and I've been thinking about making the recommendation for folks to switch to a standard ZMA to something like the Jarrow Formulas which has just a little bit of copper in it.

Vitamin D is a huge issue with testosterone production, and so making sure that your vitamin D levels are at the high normal levels. And so I'm thinking 65 to 85, I think that's also nanograms per deciliter. I forgot what the measure is on that, but it's 65 to 95 normally. They're saying that anything 40 to 50 is good, and the Vitamin D Council dude is pretty damn sharp that runs that. He makes the argument that at 50, levels for 50 on vitamin D, your body is in substrate burnout with regards to vitamin D, like you were essentially in vitamin D deficiency. And Art De Vany has a -- it's old and I don't know if it's still available on his site, but a pretty good piece talking of vitamin D and testosterone production.

The other piece is tackling any type of lifestyle issue that could produce elevated cortisol levels. So this is a good spot where we start addressing training quality, training volume, coffee, like if you're doing too much coffee, sleep being huge, huge factors in all these.

Art also -- Art De Vany had a piece -- I'm just going purely by memory here, but like just a little bit of alcohol. It was like about the level of a half a drink to three-quarters of a drink a day blocked the conversion of testosterone into dihydrotestosterone so it ended up actually bumping up your free testosterone levels but it literally was at a fractional amount of alcohol, and anything above that actually ended up causing suppression in testosterone production. That's going purely by memory. Also, maybe we can do a little research on that and try to validate that.

And then the anti-porn feminist folks out there are going to hate this, but there's great studies showing that guys looking at scantily clad females, it definitely raises testosterone levels. So however you want to plan off, that's up for you to figure out how to do that, but those are the things that we're pretty solid on.

I have seen some good things come out of really high-quality Tribulus products but it's a little bit transient in who responds to this. It increases luteinizing hormone. Luteinizing hormone can cascade then into testosterone production.

Some of the things to look for in all this is to make sure that DHEA sulfate, DHEAS, is at normal levels. If DHEA sulfate is low, then you need to start looking upstream at like pregnenolone and some of the other precursor

molecules and possibly get some supplementation in that regard. This is where working with somebody, either a naturopath or an MD who is savvy to --

You know, basically just this either bioidentical hormone replacement or finding natural methods for propping up testosterone production is smart. I think you can get a lot of mileage out of these other methods. The problem with testosterone replacement specifically is that you are going to become dependent on the testosterone replacement, and it's not to say that that maybe at a certain point, you might want to consider testosterone replacement but the knowledge is that you're going to be on that then pretty much continuously after that and you might consider trying to get as much mileage out of your own production as you possibly can.

Art De Vany has kind of made some statements to the effect that you shouldn't really see a decrease in testosterone production or not a significant decrease with aging and he seems to have really like high normal levels even for like a 25 or 30-year-old but I don't know if he's kind of a statistical outlier or what the heck is going on with that guy,

So I think smart training covering the nutritional stuff, looking at some blood work that looks at precursor molecules like pregnenolone and DHEAS, looking at free versus bound testosterone to make sure that sex hormone binding protein is not super high. If sex hormone binding protein is high, then you may have a comparatively high total testosterone but the free testosterone is not really activating what you need to have it work on. Interesting stuff though, and I will further keep looking into how to prop this up for myself as well.

Andy Deas: Forever. It's Robb's longest-running research project.

Robb Wolf: Seriously, man. Yup. Either that or we'll start stealing the pineal glands out of like 12-year-old kids, so one or the other.

Andy Deas: Nice, Robb. That's a nice mental image.

Robb Wolf: Totally!

Andy Deas: Next question from Tim. "Robb, love the podcasts. Thank you so much for doing them. I have a question I hope you can field. A staple of my diet is organic free-range chicken (Whole Foods, TJ's)." West? Who's WF? I don't know. "Someone posted..."

Robb Wolf: Whole Foods?

Andy Deas: Whole Foods. Thank you. Wow! I am caffeine deprived still apparently.

Robb Wolf: One month later and you're still not functioning well.

Andy Deas: "Whole Foods posted that their chicken is fed a diet of soy and corn. Given the negative impact of both of these items in the human diet, is eating chicken raised on this diet problematic? Would I be better off ditching the chicken and switching almost exclusively to grass-feed beef like Bison? Thanks."

Robb Wolf: You know, you could make an argument for this on the Omega-3/Omega-6 profile. There's a potential that you're getting phytoestrogens from the soy concentrated in the chicken. A pastured chicken free-range deal would really be ideal. If you had a choice and you're okay with the kind of lack of variety there, I would side on kind of like a grass-fed beef, lamb kind of scenario, round it out with seafood, and then maybe sparingly use the chicken. I really like chicken. I love throwing a chicken in the oven and baking it, and then I use kind of the drippings off of that to make some soups.

So it's really nice in that regard, and I tend to get a similar kind of free-range chicken, but it's from a purely qualitative standpoint. I think you could make the argument that the grass-fed beef and similar products is probably better, but from just a variety and kind of yumminess factor, I really like a rotisserie chicken or a baked chicken every once in a while, probably like one a week.

Andy Deas: All right, good.

Robb Wolf: Yeah.

Andy Deas: Don't make me give up my chicken.

Robb Wolf: I won't do it. I will not come between Andy and his chicken.

Andy Deas: Chicken in a crackpot, Robb, works every time.

Robb Wolf: Seriously.

Andy Deas: Whole coconut milk, oh. Anyway, question from Justin: "Robb, question for the podcast...rereading Lights Out and giving some serious thought to the seasonal training idea. Given their recommendations on lowering

carbs to 25 to 45 grams in the winter, might it make more sense to hit a mass gain/starting strength protocol in the summertime when carbs and calories are more plentiful? Seems sort of counterintuitive. Everybody wants to be lean in the summer. What do you think?"

Robb Wolf:

I think this is pretty spot on and it's interesting. Scotty Hagnes kind of did this last year and he historically has been kind of following a very tight emulation of the whole Lights Out plan of like pretty low carb in the winter and then ratcheting the carbs up in the summer, but he really stepped this up. I think he was following the OPT WODs and was going I think upwards of 100-150 grams of carbs post workout, and I think he ended up putting on about 12-15 pounds of muscle.

And there is a phenomenon. Rutman was talking to me about it and he has written about it in the past also that there is a potent photo period relationship with strength and size increases, and so it's kind of understood in strength training circles that kind of the summer is your time to make gains, and so I think that there's a good argument for doing all of that type of stuff.

And the thing is that if you tackle this in kind of a moderate format, let's say you're already lean, but you start inching up your carbs, particularly the carbs post workout and maybe just kind of increase calories overall, but you just basically keep an eye on how lean you are, hopefully what we're seeing is increased amount of weight in all of your lifts and we should see some body mass increase with that. Hopefully you get a little bigger, definitely hopefully you get stronger, and I think nothing but good comes out of both scenarios with that. And trying to bank this on kind of an increased carbohydrate level during the summer sounds good to me.

One downside I think to doing like a legitimate like mass gain during the summer is like it's already warm, and I think for me it's just uncomfortable and kind of nasty trying to pack a ton of food down. Like Chico gets 105 to 120 in the summer and you eat a big meal and try to go to bed, and even if you have the air conditioning going, you're just hot and uncomfortable, whereas I've found that if I eat a little more lightly in the evening, my sleep quality is better and stuff like that. So I think that's just some stuff to consider.

But there are some legit kind of stuff that comes out of Lights Out. There are some legit things that come out of Strength and Conditioning where folks understand that the summertime is actually the time to make your strength and mass gains.



Andy Deas: I like that question.

Robb Wolf: Yeah.

Andy Deas: Some day we will go for a summer mass gain, Robb, as soon as Nicki approves.

Robb Wolf: Can we live near the beach?

Andy Deas: Absolutely.

Robb Wolf: Cool! Cool!

Andy Deas: And next question from Ross. "Robb, thanks for all of the awesome nutrition info. Quick question: As I dabble more in intermittent fasting (less out of curiosity than out of a very high workload), I've noticed that I can get some pretty bad breath. I understand this could be a sign of ketosis. Is it necessarily a sign of ketosis or could there be other explanations? My diet Paleo-ish, with peanut butter occasionally instead of nuts, lots of eggs, and lots of espresso. I have more fruit than veggies, and my acid-base balance could definitely use some work." Let's read the rest of it.

Robb Wolf: Okay. Go for it.

Andy Deas: We'll tie it altogether for you.

"Bonus round question: To what extent does the Paleo diet cause ketosis? Are there different degrees of ketosis, and how does slipping in and out of ketosis affect performance? When I reduce my food intake, my strength stays high as long as I get sufficient sleep, but I often lack tolerance for training volume, circuits, etc.

Sudden death overtime question (or death-by-over-time question): What are the short-term effects of sleep deprivation? I ask because I notice that sometimes I get a short-term burst of energy in response to total or near-total sleep deprivation. I've set PRs after all-nighters, although I crash hard the following day. Thanks."

Robb Wolf: Holy cat!

Andy Deas: That's a question and a half, Robb.

Robb Wolf: This is three questions wrapped into one. This is like chocolate, coconut, and almond all mixed together, something like that.

Andy Deas: That sounds good right now.

Robb Wolf: When we were up at Dave Horner and Nancy's for the folks that are doing CrossFit Seattle, Dave cracked open this new kind of new dessert which is basically like the Trader Joe's 85% dark chocolate and then you take some like Barlean's or another high-quality coconut butter and slather that on top, and then you take some almond butter and pudding with that, and it's like Almond Joy, only ten times better. Amazing! Amazing!

Andy Deas: Wow!

Robb Wolf: Yes. But okay, so with Ross's questions, definitely it sounds like he could be dipping into ketosis. That sounds like the bad breath kind of the ass-mouth effect. A simple way to deal with that is just upping your carbohydrate post workout if you want to. And like if you're at a reasonable level of leanness, then I think it will help that and maybe help with a little bit of sluggishness there.

Yams, sweet potatoes, squash, I've been ramping up my kind of squash intake post workout. Mat Lalonde and I had been talking a bunch. We ended up interacting with Mary Conover, who is a super sharp woman, and looking at like post-workout nutrition as it relates to like testosterone-cortisol ratios and stuff like that, and I think as always that there's a really strong argument for controlling your carbohydrate intake, for limiting carbohydrate intake in people who are insulin resistant, but I think that there's also kind of a sweet spot in there.

And again, we mentioned this a little bit earlier, I think that there's kind of some good stuff again to doing a moderate post-workout carb repletion. You don't have to do so much that you completely fill up all your carbohydrate reserves, but I think doing some can reverse that catabolic effect and everything, can hopefully keep that testosterone-cortisol ratio a little bit better. Certainly, there are some good examples and good arguments for doing a low-carb post-workout meal but I think it's all somewhat dependent on what you have going on. If you're really pushing that performance side of things, I think you could benefit from a little more carbohydrate ideal with the kind of ass-mouth kind of gig.

So let's see here. Are there different degrees of ketosis? I mean there kind of sort is. Simply doing a lot of exercise, even if you are high carb,

you will start producing ketone bodies because your body is trying to generate any type of fuel that it can. So I mean there kind of is different levels of ketosis. We have like overketosis in which we are essentially carbohydrate-restricted enough that ketones are kind of the primary fuel source, but then there's other degrees of that based on activity level and whatnot.

And then this sleep deprivation deal again, like I need to post this article. It was really interesting. But a single day of sleep deprivation can and does start inducing metabolic derangement and it happens in a variety like a broad spectrum of metabolic pathways. And so there may in fact be kind of a rebound effect to this. Let's say that biology has us wired up so that we have one night of bad sleep, the following day there may be a little bit of an adrenaline and cortisol response because our systems perceived us to be in a dangerous or threat-filled situation so we're going to have a little bit more of an adrenaline bump or whatnot.

But that's not a long-term tenable scenario and that's not really something that I would use as some sort of like a periodization scheme. Long term, it's a problem to be avoided and not really -- you're not going to go out and try to use this to your advantage or at least I wouldn't. And so it kind of makes sense that you might experience this, but it by no means has given you a reason to try to do it. It makes sense that it would happen but I wouldn't try to do something with this.

Andy Deas: All right. I'm going to stay up all night and try to bust my deadlift record tomorrow, Robb.

Robb Wolf: You let me know how that goes. I will be sleeping in.

Andy Deas: You don't want to watch, huh?

Robb Wolf: No, no. I know I've set many more PRs coming in rested than I have half baked on no sleep.

Andy Deas: Yeah. Cool! I would agree with that logic. All right, good. Well, Robb, with that, that is the end of Episode 27. How do you feel?

Robb Wolf: You know, relieved. It's a whole new day.

Andy Deas: That's right. And the sun is still shining and we made it through without rain. So rain must be over for Chico for the summer I hope.

Robb Wolf: Possibly. It depends on how it goes. Every once in a while, June, we get another snap and it rains all the way up until the beginning of July. And so it basically is like rainy and humid and about 75 to 85 degrees. And then the sun goes away or the clouds go away and then it's 110 degrees and really humid. It's awesome.

Andy Deas: I'm excited. I'm looking forward to it actually.

Robb Wolf: Yeah, you're going to hate me for me talking you into moving here from Arizona.

Andy Deas: All right, Robb. Well, I'll talk to you next week. Enjoy the rest of your day.

Robb Wolf: Right on. Good luck breaking your deadlift PR.

Andy Deas: Thanks man. See you.

Robb Wolf: Later.