

# The Paleo Solution

## Episode 24

Andy Deas: Robb Wolf, Andy Deas back with Episode 24, Paleolithic Solution. How are you, buddy?

Robb Wolf: I'm caffeinated. You're not.

Andy Deas: But I think I sound good this week. People at the gym common after the first few days and now I'm on day 10, like I feel good.

Robb Wolf: Yeah. That gray, zombie-like pallor has kind of lifted from you, so yes.

Andy Deas: Someone actually asked me if I was intoxicated. Apparently, I was so goofy about day 3.

Robb Wolf: See, I was saying like the whole auditory and visual hallucinations start kicking in.

Andy Deas: Well, I was not intoxicated although I wished I was.

Robb Wolf: Yeah.

Andy Deas: And I wanted to also say that several people friended me on Facebook with the like tagline, "Hey, I'm joining you with the no caffeine revolution." So we'll see how this plays out for all those poor souls.

Robb Wolf: Nothing good will come out of this. I can tell you that right now.

Andy Deas: Dude, day 10 I'm good, I'm good. We'll see how I feel after 30 days. And the other thing I wanted to mention is I finally sat down and watched The Boondock Saints II and it was a painful two hours. There were some good scenes and some parts I enjoyed, but as usual, really pallid in the comparison. I think waiting 15 years or whatever to do the follow-up is problematic, especially when one of the main actors definitely had what I would consider some poor plastic surgery done. At certain angles, you're like, "Ooh, that's his face?" So I think I'm just going to stick with The Boondock Saints I and pretend they never made the second one.

Robb Wolf: Cool! Well, I think The Empire Strikes Back is legitimately the only sequel which was better.

Andy Deas: Yeah. There was actually a little article this week in Entertainment Weekly about that being the best of the Star Wars series.

Robb Wolf: Without a doubt.

Andy Deas: Yeah. So all right, man. Well, back to the questions. Anything you want to say about the book? It's sunny today, Robb. I feel like things should be picking up for you. You just went to New York. I mean --

Robb Wolf: We did a gig in Hoboken and Brooklyn and that was awesome. Really good crowds. The Hoboken crowd had so many questions that we're actually behind schedule an hour at one point, but we managed to catch up and finish on time.

It was really good. The book is going well. We're just duking it out with some distributors on some taglines, sub-issues, and some cover art and some different stuff like that; and all I want to do is write my damn book and be done. So it's just the details that are involved with finishing a project like this up but it's getting close, it's getting close.

Andy Deas: I think you should just self-publish it, drive around the country in your little car, pack up Nicki and Keystone, and you could just hawk it out the back.

Robb Wolf: I'm in. I'm in. That sounds like a way better option at this point.

Andy Deas: I feel like by week 3 Nicki and Keystone would be at home.

Robb Wolf: No. By like week 3 of suggesting that, I would be all alone for sure and I would not have the gato. I would lose the custody battle on that.

Andy Deas: That would be a sad state of affairs for sure.

Robb Wolf: Yeah.

Andy Deas: So I guess we'll go mainstream, Robb. Good work!

Robb Wolf: Cool! My pleasure. My pleasure.

Andy Deas: All right. First question today is from Eric D. By the way, he says he is addicted to listening to these things and he is turning some of the guys in his jits classes on to your website. So instead of 15 you may have 18 or 19 listeners.

Robb Wolf: Nah, it's a lie. The FTC has put a block on anything more than about 8 listeners, so any reports of more listeners is completely hyped.

Andy Deas: Eventually, I'm just going to draw a line in the sand, and if we make it to Episode 100, we're just going to end these jokes. They will be banned.

Robb Wolf: Then we'll figure out something else to be idiots about.

Andy Deas: Anyway, Eric has a fast question about post workout. He had posted before that he has been eating three meals a day, low carb with all carbs coming from veggies such as broccoli, spinach, red cabbage, asparagus, etc. and was not eating a post-workout meal. He started feeling lethargic so he added a post workout per your recommendation.

Also, according to your reply and earlier podcast, switched my jits strength and conditioning from CrossFit Strength Bias to two times a week of ring-based warm-up, squat, shoulder press, bodyweight press, pull one day and the other being a ring-based warm-up, deadlift, bench or clean, bodyweight pull and bodyweight press.

Before I go on, how many freaking acronyms can we have for CrossFit? CrossFit Strength Bias, CrossFit Football, CrossFit Max Effort.

Robb Wolf: Now we have Westside, CrossFit Westside.

Andy Deas: CrossFit Westside.

Robb Wolf: With Crazy Louie at the helm.

Andy Deas: We're just going to call it Strength and Conditioning.

Anyway, I have been using the following post workout. On strength days I eat an organic sweet potato with cinnamon on top, can of salmon, and two eggs. On jits nights I eat the salmon, eggs, and then a very small shake of one cup frozen spinach, one spoon cocoa, a splash of light coconut milk, and then between a quarter cup and full cup of natural blueberries depending on intensity and time spent rolling. The lethargic feeling has gone away, as well as lasting soreness, and energy in class seems to be going well.

My question is if this looks solid or maybe I should eat more carbs post workout on jits days and no post-workout carbs post strength. Maybe I'm splitting hairs but you've helped so many people so far; and considering you have done jits, which is awesome by the way, you're the perfect guy

to ask this stuff. Concerns are staying strong and eventually trying to get deadlift and squat up to two times bodyweight and staying below 10% body fat. Not all about vanity here either, I perform better being lean and generally feel better about life.

Robb Wolf: You know, honestly, I could go either way with this, but generally, I would just throw carbs into the more glycolytic demanding activity, and so that strength work really isn't going to take a whole lot of starch out of his birches.

So I don't really see a need for it unless Eric's just not recovering from his post-workout refeeds; and if that's the case, like if he is say like getting geared up for a tournament or something and he is upping his volume and that one meal post workout isn't quite doing it, then he could look at a couple of meals, the post-workout meal being larger in carbs, secondary meal being a little bit smaller but some more dense carbs. That's when you might start considering a shake, like looking at something like the OPT post-workout recovery shake and stuff like that.

But most people I find do great. Like Glen always did fine on the yams, sweet potatoes, salmon kind of gig and we played with shakes and didn't really notice that big of a difference with it. But I think what he is doing is fine. I would only tweak a secondary meal with more carbohydrate if you're feeling like you're not performing.

Andy Deas: I'm kind of nauseated at the idea of a one cup frozen spinach.

Robb Wolf: I was trying to just glide right past that and hope you or no one else was going to commentate on that.

Andy Deas: I was like, "Hmm, coconut milk, cocoa, blueberries, sounds good. Frozen spinach? Okay."

Robb Wolf: We need to get Eric's address and we'll send him some Poliquin like mixed greens, like the green super food stuff that's all dehydrated, and he can throw that in there instead.

Andy Deas: There you go. All right, cool.

Next we got a question from Alex. "Hi, Robb. I've been suffering from depression for almost 4 years. The worst part is the early awakening insomnia that leaves me brain-dead and tired. I have read that some people claim to have overcome their depression with a Paleo diet. Is this true? If so, how?"

I have just read Potatoes Not Prozac. The author tells people to have a potato before bed in order to get the tryptophan from your dinner past the blood brain barrier. What do you make of this? I tried this but to no avail. I have also eliminated dairy/wheat/sugar from my diet. I do feel better without these in my diet for sure, but they have done nothing for the insomnia/depression.

I will attempt full Paleo soon. I am reluctant because I already have a hard time keeping a smile on my face for work and I know that the transition to a low carb diet on mood and energy sucks. I've tried it before the depression. I do remember my emotions were solid after a few days and I was so excited that I finally found a diet that made me feel so good. Boy, was I disappointed when I started to get nauseous at the idea of more meat along with constipation. I guess I did not give myself the full three weeks to adapt. Any info on how Paleo and brain chemistry would be a godsend. Thanks."

Robb Wolf:

Oh, man. Depression can have a couple of different vectors like there can be serotonin deficiency, there can be so like key players we have like serotonin, acetylcholine, dopamine -- God, I'm blanking on a couple other major players; and usually, anxiety is more of like an acetylcholine kind of gig instead of like overt depression.

But all of these things get really, really heavily influenced by systemic inflammation, insulin levels, cortisol levels. Elevated cortisol can be problematic in that it actually degrades serotonin, and so that could be a problem. The fact that the Potatoes Not Prozac, the idea behind that is kind of intriguing at first until you realize that a lot of people are actually getting too much serotonin in some ways due to a chronically high carbohydrate diet, and so you actually end up with some serotonin receptor site downregulation and kind of a burnout.

The Paleo diet, especially when it's pushed a little bit more low carb, the ketosis kind of elevates dopamine. Dopamine is really the kind of go/do/achieve neurotransmitter. It is what makes you wake up. It makes you motivated. So the focus on serotonin is a little bit misplaced. Serotonin is important for sleep and for recovery and stuff like that.

Over the weekend in Hoboken, I came up with this idea that the Paleo diet is a little bit like shotgun art where they'll put like paint in a shotgun barrel and just like blast it out of the barrel along with the shot and everything and then they make artwork with this stuff. And the Paleo diet is a little bit like that in that it's very much like a shotgun approach. It

ends up addressing a bunch of different things all at once - systemic inflammation, elevated dopamine levels, optimizing serotonin levels. A lot of times, you can go to psychiatrists and get some pretty extensive blood work, pretty extensive neurological screening, and they still don't really know what specific neurotransmitters are problematic for your situation.

But what's interesting, this kind of generalized Paleo approach ends up addressing most issues kind of simultaneously and in synchrony, throwing in the fish oil, like I would probably throw in the high dose fish oil, like definitely the half a gram to one gram per 10 pounds of bodyweight per day. Make sure to supplement vitamin D and that's what I would tackle on this.

The constipation with this, it's interesting. It's rare that I see someone with this. Occasionally, somebody will report constipation with kind of a Paleo diet. Usually, they have been eating a lot of bread or gluten prior to this event and the gut irritants in these foods tend to increase our gastric motility. It pushes food through them because the gut is recognizing that's being exposed to an irritant. That will normalize after a couple of weeks. Drink a lot of water, eat a little more fat, and you should be fine with that.

But I think if the depression is severe enough, and I had pretty -- I would say moderate to severe depression when I was living in Seattle between the lack of sunlight when I was sick from GI problems and kind of a vegan diet almost killing me. I would definitely take a little constipation over being depressed any day. So that's just me. But if Alex tweaks any of these variables, let us know what the changes are, good, bad, or otherwise so that we can get that back to folks.

Andy Deas: All right, good. Next we got a question from unknown. Actually, it's not unknown but somehow I lost the name.

Robb Wolf: Or we're just protecting their identity.

Andy Deas: It's a joke. For another time, we'll include that question maybe next week.

"Robb, love the show and your work. I will be one of the first to buy your book in Phoenix. I am a 34-year-old male, 6'5", 210, 11% body fat. I have been CrossFit style training for close to a year and eating mostly Paleo since the beginning of the year. Over the last few months I have had major life changes (divorce) and a substantial increase in work load that

has resulted in increased stress, poor sleep, and my training over the last month has cratered. I habitually rely on sugar-free energy drinks and I swear I am addicted.

What are some steps and a timeline to get off this poison? When I try cold turkey, I end up feeling like a zombie and can barely function. I have to use my brain for a living. I've taken your advice and done some Google searches, but I don't like the fact that the sites that I am reading are trying to sell me snake oil and telling me that it could be two years before I am back to normal and no longer have to purchase their product. How does one suffering from adrenal fatigue start working back to normalcy? Keep up the great work and I cannot wait for the book."

Robb Wolf:

So the biggies here are like poor sleep, big stress. It's a tough, tough kind of feed-forward mechanism that starts happening with this. She'd get into a stress-filled environment. Your sleep quality tanks. Your insulin sensitivity decreases, which further makes you produce cortisol.

It's very synergistic what these things do. Elevated cortisol increases insulin secretion. It decreases insulin sensitivity at the cell level. Then that increased insulin secretion actually further causes adrenocortical stimulation and causes a release of cortisol. So these things get just feed-forward like nothing else.

And these energy drinks, the artificial sweeteners cause problems with insulin dysregulation. So I get that it's a problem that you're going to feel like hell. You just kind of have to decide that you're going to pull the Band-Aid off and be done with it. You can certainly try titrating down. If you're doing six of them a day, try doing five a day for a couple of days and then four a day, then three then two then one and titrate down. I think titrating down on a specific schedule totally makes sense, but you will hit some point in which you're just going to have to deal with the suffering of getting over it.

Andy is going through that with the caffeine withdrawal. I've gone through it with the caffeine withdrawal before. A little bit of coffee can help all of that. Exercising can help, appropriate dose, not trying to kill yourself. That's all totally legit, all very, very helpful. But the situation that starts getting set up here is somewhat of a downward spiral and you just have to intervene and change direction, or else, it's not going to get fixed.

Andy Deas:

I assume when he was talking about the sites that he is reading trying to sell him snake oil, I assume those are some of the adrenal fatigue sites.

Robb Wolf: I would guess so. Yeah, yeah.

Andy Deas: And I guess what's your thoughts on that because I think we both have been through some adrenal fatigue stuff and I don't know. I saw great benefits from some of the products. I think the challenges, just like he is asking, is that unfortunately for some of them it can take a while until you don't really need that stuff to feel better.

Robb Wolf: Yeah, I would definitely agree. Even built within that, I don't know if I'm ever going to be able to train at the level of volume and intensity that I've done in the past. Part of that, I'm like 38 years old, so am I just kind of comparing with when I was 32 and kind of hitting my peak? I would hope that but maybe, but there's definitely a reality in the literature when you look at overreaching, overtraining, and like general kind of high-stress scenarios that people have dealt with. It can take a long time to fully recover from that, and I could lie and say something different but that seems to be the reality.

Now, the thing is that people would usually start feeling better and then they can tend to overdo what they're doing particularly in their training, or they will get a little bit cheeky with their sleep and start skipping on the sleep again, and then it kind of gets them right back to where they were.

So I don't know how long it's going to take you to get back to normalcy, and I don't know what normalcy is going to be once you're there. I don't know what your normal baseline is going to be. I know mine is like for me to feel good and like really feel good just day to day and be able to like think and write a book and be pleasant, at least somewhat pleasant to be around, I need to really keep an eye on my training and my general stress levels.

And if one thing starts getting worse, like if the book deadline starts getting really gnarly, then I have to really kind of dial back the training volume and intensity to keep that in mind. You have to start keeping more of an eye on that and especially if you've driven into this once or twice before. People who suffer heat exhaustion are more prone to succumbing to heat exhaustion in the future and I see this as being really no different than that. You just have to play the whole thing a little bit smarter and keep an eye on how you're feeling and dial things in appropriately.



The adrenal fatigue supplements like the Ortho-Adapt is really, really good. Phosphatidylserine definitely seems helpful. You have to use that in a smart way, or else, you can overdo it. I don't know. Without seeing specific numbers on this person and being able to manage them day by day, I don't know how long the process is going to take.

Andy Deas:

Yeah. And I know for me, I mean I've used some of the Dr. James Wilson stuff supplements and I've been very happy with them, but then there's been periods of time where I've been super stressed and I've noticed that I would need then to up my dosage back to sort of when I had like the worst adrenal fatigue symptoms, and then I feel better.

So I talked to that doctor, "Can you expand a little bit about that?" and he said, "Some of it can be real." He's like, "Some of it is probably the placebo effect." He was like, "But it obviously works in your minds, which is enough to alleviate some of the symptoms." But it's one of those tough things because I'm kind of in the same boat, whereas like some of the stuff I'm like, "Wow, how long do I need to take some of these glandular extracts? Do I really need to take this forever?" Well, I hope not.

Robb Wolf:

Right, right. And, you know, usually, I think like a couple of months and people start feeling quite a bit better, but the thing is that feeling quite a bit better then leads you to want to train or function kind of the way that you did before, but that's exactly what usually gets you into the problem.

I just did a consult with a girl earlier who is a really prominent CrossFit Games hopeful and she has sky-high cortisol levels. I mean like up there and consistently up there. And there are some sleep disturbance going on and everything, and she's just a pipe-hitting monster, like monster athlete, and we're going to play with some lifestyle things to try to get the testosterone-cortisol ratio reestablished for her.

But it's just the lifestyle, owning a gym, training, trying to compete on the schedule that is normal for kind of CrossFit Games kind of preparation or whatever. It doesn't really matter what it is that you're doing, but any of it can be too much. It is interesting though that the most athletic activities you work hard into it. Like if you're a skier, if you're a jujitsu player, whatever, you work hard into your specific sport.

There were some really interesting studies looking at judo players in the '96 Olympics or something like that, and what they found with the judokas is that they were constantly in a state of kind of low grade overreaching, overtraining. Hard training will elevate cortisol levels in general, but if you're doing that training smart, you will also see elevated

testosterone levels, and the testosterone will outpace the cortisol increase. Where things start going south is when you either push so hard or for so long that we start seeing a suppression in testosterone levels.

What they saw on this judoka was that when they would get ready to compete, they would taper, basically dial back their volume and intensity. They would super compensate and then be really, really ready for game day. And I think to some degree, that's some of the fun that is made of periodization is that to some degree, all that you're doing is keeping a pulse on the person and when they're getting ready to peak, you dial them back, let them super compensate, let all that work capacity, all that extra volume that you've thrown in the back end allow you to pop up to a supernormal level of performance, and then hopefully you time all of that.

The challenge within some CrossFit type stuff is that because you vary the volume, the intensity, the movements, the structure, the pacing always then you never really work hard into it. You are constantly assailed by a new stressor, which can be amazing for reversing metabolic derangement in somebody who is a type 2 diabetic, suppressing inflammation in somebody who's got rheumatoid arthritis or something, but that stimulus taken too far and too long can be really, really problematic. So that's the interesting world that we're in right now with this mixed modal stuff being as popular as it is.

Andy Deas:

Yup. All right, good. Next question from Nick. "Robb, please help! I have been reading up on nightshades and I'm freaking out now. I eat probably two or three peppers a day either with a salad or chopped up in an omelet, and I also throw in some tomatoes in that salad and roast eggplant and other veggies at night.

Is it true that these nightshades can cause such things as arthritis and cancer in the digestive tract? Should I cut these out? I feel like every time I start eating certain veggies I find a new reason why I shouldn't eat them. I eat 100% Paleo with a wide variety of veggie but a large group are nightshades. If I keep eating them, am I in danger of these problems or is it different for everyone?"

Robb Wolf:

Yeah. To some degree, it's different for everybody. The nightshades do have some gut-irritating constituents in them. Different people respond differently to varying levels. I think that's a great argument for just generally varying your food intake.

I just find kind of naturally like I will be really heavy on tomatoes during the summer and whatnot, and then I tend to kind of decrease that intake during the winter months, and it just kind of fluctuates kind of naturally like that. Anybody with some serious inflammation or overt autoimmune disease, I would definitely consider pulling the nightshades out and just see if you feel better; but I feel like I'm kind of the canary in the coalmine and like if anything is going to mess with anyone, I'm the person that messes with them and I have not really noticed that much of a problem if any type of a problem from the nightshades.

One thought with that, Bruce Ames. Bruce Ames is the guy that developed this thing called the Ames test which is a measure of mutagenicity, how much DNA damage would be imbued into a particular population of bacteria, and it's a quantifiable method of showing how much DNA damage a particular substance can induce in an organism like gosh, a pesticide or like arsenic or something like that. And so in the Ames test then you get a quantification of how much mutagenicity in that how much mutagenicity is there then there's potential for carcinogens also.

What Bruce Ames had found was that there is nothing that doesn't contain mutagens, carcinogens. When you look at the list, it's like apples, oranges, bananas, kiwis, strawberries. Everything contains some sort of mutagenic, carcinogenic substance in some degree, but it doesn't necessarily mean that you shouldn't ever have any of this stuff. It's just an argument for varying the amounts and varieties of particularly the fruits and vegetables that you're taking in so that in toxicologist geek-speak you would say you would diversify the toxin load, diversify the metabolic pathways that are being encumbered by detoxifying these different constituents, and then it's not really a big deal.

That's kind of getting aside from just the potential gut irritation out of nightshades, but it's just something to keep in mind. You should not stress over it or freak out, but it's just something to kind of weave into your program, just some general variety.

Andy Deas: Good! Ah, nightshades. Robb, step away from the apples.

Robb Wolf: I do what I can.

Andy Deas: Anyway, cool! Next question from Kevin. "Robb, Andy, I've been enjoying the podcasts! At an intellectual level I've been a Paleo believer for several years, but I've never been able to tolerate the diet. I know what you're thinking. Here's another guy who's OD'ing on bananas and almond

butter, but I've given it an honest shot many times and usually land in the ER with level 10 abdominal pain.

My issue is the fruits and vegetables, especially vegetables. I've been gluten free for a couple years. I know that I've developed sensitivity to some good Paleo foods but I avoid them. Recently I confirmed an overgrowth of yeast/fungus in my gut. Interestingly, it's not..."

Robb Wolf: Candida albicans.

Andy Deas: Thanks you. "But rather something unique that the lab was not able to specifically type. It seems to feed on all things fiber. I'm confident that this is the source of my problem.

My current survival diet does consist of an excess of nuts. The fiber in nuts does not seem to bother me as much. Aside from that and the minimal fruits and vegetables, the rest of my diet is Paleo. I compensate for the nuts with high doses of fish oil. I take lots of vitamins and drink lemon juice to maintain neutral pH. I'm trying to load up on probiotics, antifungals, and gradually increase well-cooked veggies and some fruits.

I'm 42, 5'9", about 150 pounds, a little leaner than I would like to be, but body comp is surprisingly good given that I rarely feel good enough to put in a decent workout. Sleep quality is terrible.

I haven't heard you guys comment on the role of gut flora yet. I'd be really interested to know if you have run into anything like this or have thoughts about how a person with dysbiosis can best make the conversion to Paleo."

Robb Wolf: Hmm, whacky! Yeah. You know, the sleep quality there could simply be some cortisol release, stress release out of the gut, just simply the gut being exposed to this kind of whacky yeast. There's a product, Jarrow Formulas makes it, called *Saccharomyces boulardii*, and we can put a link into the show notes on that.

*Saccharomyces boulardii* is actually a highly beneficial gut yeast. It's found on some tropical fruit. It's kind of interesting. It actually has been very, very effective in treating some forms of dysentery and what not, but you could really try dosing heavily with the *Saccharomyces boulardii*. And under normal circumstances, you would try to put in some gut bacteria like the *Lactobacilli* and *Bifidum* species; but I think in this situation, going yeast versus yeast would probably be smarter, although if he is on the fluconazole, that could be a little bit of a problem.

But he could start doing a mixed bag of doing both bacteria supplementation with like a New Chapter or a Jarrow Formulas, like Jarrow has Jarro-Dophilus like a really big dose Acidophilus bifidum mix, about 12 different species, and then also do the Saccharomyces boulardii. And hopefully, in the process of that, displace these nastier yeasts that are causing problems and that would be the direction I would go with it.

The whole psychoneuroimmunology, like the gut health that stems from our bacterial flora is just a huge topic. We've touched on it peripherally a little bit, like I definitely like probiotics but that's just a whole other probably episode in and of itself that although informational would probably put folks to sleep. But I mean the bottom line is this is part of why most indigenous species have some sort of a fermented food, whether it's yogurt or sauerkraut or kimchi or something like that. The repopulation of our gut flora is a pretty interesting and important aspect of health.

It's really weird but the bacteria actually are legitimately our first -- I don't want to say line of defense but our first line of interaction of the gut contents in our intestines and us because really, if our gut is healthy, it's not just the gut contents interacting the cells themselves, like the cell membranes of the villi and the microvilli in say like the small intestine. It's actually a layer of bacteria, beneficial flora, and this beneficial flora are actually doing a bunch of chemical converting different constituents like vitamins, converting them from provitamins into actual vitamins and whatnot. There's a zillion different things that the gut bacteria do and they also help protect us from parasitic and opportunistic bacteria and viruses, in this case yeast.

I bet that we could probably trace back some sort of an illness. If we dug around with Kevin, I bet we could find some sort of a precipitating event with this that probably predisposed him to this whacky gut bug that he has.

Andy Deas: All right, good. Good question.

Robb Wolf: Yeah, definitely. Interesting stuff.

Andy Deas: Now we snuck one in on the supplement, all because it's praised by Mike Mahler.

Robb Wolf: There we go. Yeah.

Andy Deas: A question from Anthony. “Hey Robb. Thanks for all you do, brother. You’re a true inspiration. I have a question about Sun Warrior Protein. It’s rice-based and heavily praised heavily by Mike Mahler. They even claim a 98% correlation to mother’s milk. Would love to hear your thoughts when you do your supplement podcast. Thanks again! Anthony (podcast listener #6).”

Robb Wolf: Man, even drawing a correlation between rice and boobs, I can’t say how much that bums me out. It’s good. Comparatively, this rice-based type protein like the Sun Warrior stuff is hypoallergenic. Most people are not allergic or have significant gut problems from rice, although it does have some immunological problems with GERD.

So whether people are doing a rice protein or just generally doing rice as a meal, a lot of folks will experience GERD, gastroesophageal reflux disease. This is made worse when the carbohydrate content is high and the lectin content of the grains are there because it’s not just an insulin deal. It’s also kind of an immunological factor. And when you put the two in combination, then that’s where we have a problem.

I would just kind of beg the question like why exactly are you doing this? If you’re doing the Mike Mahler thing and you want to be vegan eating concentrated rice, bean, and pea proteins to prove that concentrating this stuff in a chemical vat instead of feeding it to animals and eating them somehow works, then knock yourselves out, but honestly, I don’t see the point of any of this stuff.

Occasionally, you’ll have somebody with some serious GI problems where they have like multiple chemical sensitivities, multiple allergies. They react to like fish, eggs, beef, chicken, everything, but they are a low reactor to rice and that might be an argument for using some sort of a rice-based protein powder until their gut normalizes and they can start the elimination diet. They downregulate some of the antigens to things like chicken or beef or lamb or whatever. They can bind some things that they don’t have problems with. It could plug the gap in that case. But otherwise, I just am a little stumped into the utility of a product like this.

Is that more neutral than what you were expecting? Andy is laughing.

Andy Deas: Rice and beans are not protein, Robb.

Robb Wolf: They are Third World proteins.

Andy Deas: No disrespect to Mahler.

Robb Wolf: No, no. He pulls it off and props to him for it, but again, if you really want to impress me on that stuff, just eat these foods in an unprocessed format. Eat beans and rice and split peas, and then however you're doing.

But when you take this stuff and you process it in what is essentially the same way that happens when we feed it to an animal, you're just doing a Paleo-esque diet with a non -- I don't know. I'm not even sure what the thing is establishing other than it just proves that if you want to be muscular and have good performance, you needed to eat fairly high amounts of protein and fat. So in some ways, it's just a validating point of the whole kind of Paleo protein concept, but each to their own.

Andy Deas: Yup. All right, good. Next we got a question from Mike. "Just thought of one more thing right after I sent that long list of questions. I know a lot of people will try to use almond meal to bread chicken or make Paleo pancakes or stuff like that. I've always been concerned about oxidizing the PUFAs in the nuts when baking or frying them. Kurt Harris of the PaNu blog recently commented on that as well in this post and I was curious about your thoughts." So first of all, I want to comment that Kurt Harris names his posts really cool. This one was called "Smoking Candy Cigarettes."

Robb Wolf: Yes, I remember that one. That one's good.

Andy Deas: So start there, Robb. Any thoughts on that?

Robb Wolf: You know, it could be a factor. We're just moving so much more towards kind of a low nut consumption deal because of the short-chain Omega-6's. It seems kind of compelling to at least limit this stuff. I know there was a time when I was eating just almonds by the pound a day. I would make the nutty hot cereal and it was really good. I'd throw down nuts with all my meals. I was taking lots and lots of fish oil and I had some inflammation problems that I do not have now using more coconut milk. I've even been dabbling with a little bit more pastured butter and I don't really have a problem with that.

So I think that there's an argument for this; and like depending on how you're cooking it, you definitely like the linoleic acid and the short-chain Omega-6 that is in say like almonds, it's not a huge amount of it but it's enough that you could end up with some reactive oxygen species like the oxidized fats that we're really trying to avoid, and it is kind of an argument in that case for at least minimizing the intake of really thoroughly cooked products like that.

But then, when we do our Paleo pancakes and it has like brown rice flour and all those things, you're making acrylamides and some other nasties, which there again, it's kind of like, "Okay, how much life do you want to live? How much of these snacky foods do you want? Where is the balance in all that?" And I think just understanding that daily consumption of that stuff might add up into being a problem at some point, and keeping it more for kind of treats would be my answer to that.

Andy Deas: All right. And part two, "Also, saw this the other day and while some aspects of it were a little over my head, thought you may find it interesting. I'm sure you have a more depth and understanding of it than I do." So this is from a Hyperlipid blog titled "Gluten: Does Celiac Disease Require an Infection?"

Robb Wolf: That's something that I've wondered about actually for a long time, and there are some data that would kind of indicate that some sort of a combination of gut flora change like a Candida infection very, very common for people who have developed -- or not Candida, the Giardia, Giardia, the amoebic kind of dysentery kind of gig. That stuff just waylays that gut lining, lays it open, damages it, and makes it possible for other confounding problems to occur in the gut including celiac disease.

And so I wouldn't be surprised if there isn't some sort of a gut antigen-pathogen kind of deal set up here where you're exposed to some sort of a grain, legume, dairy, or maybe a nightshade, and then there's a damage that is caused by a pathogen, and that there could be some -- I don't know if that is absolutely necessary for all situations, but I think that it could be a very, very common causative factor in the whole thing.

The thing that arises then is that it is not uncommon to get some sort of a gut pathogen, whether it's a virus, bacteria. So it doesn't really, you know, you'd have to live then in a completely sterile environment to then decrease your likelihood of developing say celiac or gluten intolerance or something along that line.

The one thing that is interesting with this though is that in kids, newborns in particular, they theoretically would not have had a gut pathogen as of yet, but they tend to react very, very strongly directly to lectins being fed to them, also to lectins that are in the mother's milk. So I think there's something to this.

I think anytime you irritate an area, say like with a bacterial or viral infection, something like Giardia, the likelihood of collateral damage like



celiac would be much greater, but I can think of some situations where you would not directly look at it and say, "Okay, we had a gut pathogen and now we've got intolerance to grains or legumes." I can see some scenarios like that too but it's really interesting.

Andy Deas: Yup. All right, good. That was a good question. I like it.

Robb Wolf: Yeah.

Andy Deas: Probably you could name your blog posts cooler, Robb. I feel like it could be improving.

Robb Wolf: Dude, the once a day was about Ido. How much more cool can you get than that? Ido Portal, folks.

Andy Deas: That's because Ido is cool, not because you come up with cool taglines.

Robb Wolf: Again, I do what I can.

Andy Deas: Anyway, next question from Terry. "I really appreciate the type 1 diabetes information. My trainer is very concerned about my level of training. So often printed material is so basic and then ends with 'verify with your doctor' who more often than not has little additional guidance. I really found the article interesting but I need some explanations and/or plain English to use the advice you offer, e.g. exercise induced glucose release, adrenal hormone facilitation, VO2 max. Though I have heard the last term, your three points require a better understanding or I need to know mine.

I do high and low intensity workouts, including CrossFit and kettle bells, and I do endurance running, marathons (13 at this writing) and plan this winter season to do more 5K and 10K runs. Goal for spring or summer is to complete a triathlon. I also follow a Paleo diet but not religiously.

Usually, my A1Cs are in the high 6's and very low 7's. This mid 50's guy, type 1 since early 20's, would very much appreciate your clarification/assistance to improve or not dis-improve his exercise and/or lifestyle. I have only found my glucose levels to improve or be consistent with regularity in exercise over the years. My trainer is a little henny penny at the moment so I could use some clarification."

Robb Wolf: Whew! Okay. A1Cs in the 6's and 7's are sky high, like really, really high. Not too light a fire under Terry but this is indicative of massively accelerated rate of aging, kidney function, declining potential diabetic

neuropathy, blindness. If that were me, I would want those numbers way lower. I would do everything in my power to try to get those things down under 5.

There's no doubt that to some degree you're getting better blood sugar control from exercise. Exercise provides an alternate path for the body to utilize glucose, to bring glucose into the muscle cells and act as a sync for glucose. That's great.

The problem that we find is that high volume, high intensity work, what I mention and what wasn't clear because of the technical terms, exercise induced glucose release, when we exercise hard and/or long or both, then we release cortisol, and that cortisol causes our liver to release glucose and our blood sugar levels can be as high. And this is where the high blood sugar levels in type 1's come from and we see this particularly high, 2's and 300s in some cases after people have done very high intensity training.

And there was way back when, it was like Theresa and some other guy, they were all over my junk about the type 1 diabetes recommendations, but she was basically bragging about the fact that she was going to motor through multiple marathons and triathlons and everything else and her A1Cs pretty much be damned. She would just control blood sugar levels with her insulin, but she already had signs and symptoms of stuff not going well.

So the basic deal here is that high intensity exercise causes hormonal release of glucose out of the liver. That is independent of diet. A shitty diet on top of that -- oops, sorry. Heather Dalton, I promised her I was going to try not to curse because she tries to let the kids listen to this thing. She gave us a lift from Hoboken to New York, so I'm going to try to clean it up.

A bad diet is a problem in this too obviously, and the oxidative stress that comes out of this, just nothing good comes from this. And what I've recommended is a mapping of what your blood glucose levels are in response to various bouts of exercise, and to do everything you can to keep your blood sugar as low and consistent as you possibly can. A1Cs in the 6's and 7's are horrible in my opinion, like absolutely horrible. So I hope Terry effects some change. I hope that clarifies the topic.

And again, this is just my opinion on it. I could be wrong, but the stuff that we've seen, even the recent -- I think we posted this not too long back. The A1Cs being better predictor of cardiovascular disease, cancer, a

whole host of other problems because it's showing how much glucose is in the system over time, and oxidative stress and all kinds of other problems.

Andy Deas: So maybe just in layman's terms, can you explain a little bit more about the concept with how like Terry would go about mapping his response, the various bouts to exercise, and then what he would do with that information?

Robb Wolf: So let's say you're going to do -- let's compare a couple of different workouts. Let's compare a strength workout versus a mixed modal met-con workout versus like a long, slow distance, low-ish intensity cardio workout, just kind of jogging.

So like on the weight training workout, let's see. It's 8 sets of 3 on back squats, 8 sets of 3 on the standing press. You're taking 2 or 3 minutes rest between each event. This is classic strength training. What the individual should notice off of a training session like that is a very modest if any uptick in their blood glucose from doing that strength workout because there just wasn't that much of a neuroendocrine demand on their body. They weren't using a lot of glucose and so they didn't need to replace a lot of glucose. So there wouldn't be that much of a hormonal stress to release glucose out of the liver to balance out the blood glucose levels.

Now, in the case of a mixed modal CrossFit workout, let's say like a run, kettle bell swing, pull-up, like a classic Helen kind of thing, if you're going after this hard, you are just sending a massive signal to remove glucose out of the blood. And in some ways, that could be really good. You can effect some really great blood glucose level changes if the rest of your endocrine system is normal. A fast run, kettle bell swings with pull-ups, you're working like virtually every muscle group in the body, you're working them at or near exhaustion at least in the short term, and that is exactly what you want to do to decrease muscle glycogen; and when you decrease the muscle glycogen, then you are going to increase the rate of uptake of blood glucose.

When you pull blood glucose into the muscles because of a change in the concentration gradient, when there's less glucose in the muscle than outside the muscle, then it's going to pull or wick glucose into the muscle to say nothing of the improvement in the insulin sensitivity. So there's multiple ways of now pulling glucose into the muscle.

When that blood sugar starts crashing, your body will release cortisol to bring the blood glucose levels back up out of the liver. The problem that

arises for the type 1 diabetic is that the lack of an insulin signal. Normally, you would release a whack of cortisol that would bring blood glucose levels up a little bit and then you would have an immediate little release in insulin, and that insulin actually blunts the release of glucose out of the liver. This is a really important feature of insulin that we haven't really talked about a lot. It makes sense once you wrap your mind around it but it's a little counterintuitive.

In the type 1 diabetic, the biggest problem that they have with blood sugar maintenance is from the lack of glucose or the lack of insulin preventing glucose release out of the liver, and so that becomes really problematic. And because a type 1 diabetic does not have normal insulin signaling, they do not release in response to food, in response to normal blood glucose increases then we have a serious problem set up there.

And so a really hard exercise bout can send blood glucose levels skyrocketing because you get a cortisol signal which is a signal to raise blood glucose levels but no concomitant insulin signal to turn blood glucose production off at the liver, and so that's where you need to map that type of workout to figure out what type of volumes and intensities produce what type of blood glucose levels.

Now, a long, slow distance, jog or a row or something like that like a 60%-70% max heart rate, because that's low intensity, we should be able to shift our body over to predominantly a fat mobilization for that type of work, and so we should see less of a blood glucose uptick but we will typically see some uptick because you're going to again pull some glucose out of the blood, put it in the muscles. The body is going to respond by release of a little bit of cortisol in an attempt to raise blood glucose levels, but it should be less than what we would see in that really hard mixed modal training scenario.

So then with this data, the individual can look at what their blood glucose levels are in response to a given type of exercise, volume of exercise, intensity of exercise, and then they can start making some informed decisions about what their training should look like such that they're healthier.

Andy Deas:

Good! And if that's not enough clarification, Terry, let us know, but I thought it was important just to kind of clarify because I think we have a couple of other questions in the queue kind of similar that they enjoyed the post but there was some confusion I think about some of the technical terms and what exactly it meant to them.

Robb Wolf: Cool! Cool! And, you know, at some point when we get the new site and we start getting some diagrams of this stuff up, it will make a lot more sense because the whole picture, a thousand words kind of thing, like we can animate this stuff, put a diagram up there, and it will clarify all this information a lot.

Andy Deas: Nice! Robb Wolf teasing his new site, uh-oh! Don't worry, folks. I just found out about it yesterday. You almost had me.

Robb Wolf: We got to keep Andy in the dark because without the coffee he just doesn't handle change very well.

Andy Deas: That's right, and I cause trouble. So anyway, moving on, question from Darren. "I'm loving the podcasts and have been following the blog for a long time. The info my buddy brought back to Diablo Crossfit after your first nutrition cert has been life changing for our gym. We have numerous people that have seen huge gains in weight loss and performance on unweighed, unmeasured Paleo.

My question is me and a buddy of mine were thinking about the article that Rip put out called 'The Novice Effect' or "The Novice Effect."

Robb Wolf: Novice.

Andy Deas: I guess would be more appropriate. "And we're wondering if there are any other alternatives to milk as a weight gainer. We both don't do very well with milk and we're wondering if there is a Paleo-ish alternative to milk. Maybe a whey protein and healthy fats? I have heard a dozen eggs can be subbed as well. Any thoughts?"

Robb Wolf: There's two things here. There's total caloric load, which you can get by any means, and coconut milk. Just eating more -- just any type of calorically dense items are helpful.

The deal with dairy is that it's easy to get down a bunch of it. A gallon of it is like 3500 calories. So if you want to take in just disgusting amounts of calories, if you can eat four large meals a day and then somehow fit a gallon of milk in between that, and you could be upwards of 7000-8000 calories a day and really not that hard to do. But there is a reality that dairy has growth potential above and beyond simply its caloric content, and this is both an opportunity and a potential problem.

You have some problems with insulin disregulation. You have some potential in like my opinion and Cordain's opinion potential of

breast/colon/prostate cancer type problems because of the increased epithelial growth factors, endothelial growth factors, like every growth factor in the body is flipped on because normally, the only time that we consume dairy is as a baby, when we're growing.

So it's not just the caloric contents. I mean there's not really like a Paleo alternative per se. it's just figuring out how you want to tackle this thing. If the primary problem that you experience is the lactose, some sort of lactose intolerance, then you may do better with yogurt. You may do just fine with like they said a whey protein shake and then throw in coconut milk to round out the fat and get more caloric content in and all that sort of stuff.

But just keep in mind that any type of dairy derivative, whey protein, cheese, whatever, it's still going to have those insulinogenic elements of the overall dairy. It just may not have the lactose if your main problem is some sort of a GI problem.

Andy Deas: Yeah. And I think this is where I'd give a plug if they haven't played with some goat's milk because I know for you or I, we both don't tolerate cow's milk very well but we generally do pretty good when we do eat goat's milk or drink.

Robb Wolf: Yeah, totally, and it is terrific too.

Andy Deas: Yes. Some people complain about the taste. I don't know what they're talking about. I think it tastes great.

Robb Wolf: Awesome! Yeah, yup.

Andy Deas: Cool! Well, with that, Robb, 55 minutes. That ends Episode 24.

Robb Wolf: Woo-hoo! We survived another. Sweet!

Andy Deas: Another one in the book.

Robb Wolf: The post-caffeine withdrawal episode.

Andy Deas: We'll see next week if my energy levels continue to increase or if I hit a slump. Week 3 we'll see.

Robb Wolf: I'm betting on increased energy levels. I think there's some sun in our future too. So yeah.

Andy Deas: Oh, nice. That would make me happy. It looks nice today. Cool, man!  
Well, thank you, and we will talk to you next week.

Robb Wolf: Awesome, Andy. Thanks.

Andy Deas: All right. See you, Robb.

Robb Wolf: Bye.