The Paleo Solution
Episode 23

Andy Deas: Robb Wolf, Andy Deas is back with episode 23. And I'm day two without caffeine and it shows according to Robb.

Robb Wolf: It's a couple of days after Andy's birthday. He's had no caffeine for a few days and Andy is hurting bad.

Andy Deas: I'm a little worse for wear. I got a wicked headache last night about eight o'clock that carried me through the evening and just finished a little workout and it did not perk me up so… Here we are.

Robb Wolf: So we'd better sprint through this thing otherwise Andy is just going to fall asleep. We'll just hear the keyboard repeating as his forehead like crashes onto the spacebar or something.

Andy Deas: I'm going to make it Robb, it's sunny. It's sunny. Although you can tell if the caffeine is affecting me, the lack of, because I really have no interest in the sun, which normally it really picks me up so…

Robb Wolf: Yeah. And when you stood in the shadows and hissed at the sun this morning that was a little disturbing. It frightened a few of the clients so… I just know when I went off of coffee for that chunk, I had been doing about 30 to 35 shots of espresso a day which is absolutely mind boggling how much caffeine I was taking in then I went cold turkey, and day three through five, I was having visual and auditory hallucinations. I would hear things, I would see things. It was really, really odd so… I've subsequently kept my caffeine pretty low, about 4 shots of espresso a day is my max right now so… I didn't want the monkey to get on my back that bad. It's rough! It's no joke man. It is no joke.

Andy Deas: Mat Lalonde might be right again, damn it.

Robb Wolf: Yup, yup. Mat's opinion, don't do any coffee. More Cortisol, more stress, it's not worth it.

Andy Deas: It's a sad state of affairs. I have so little left Robb, so little left!

Robb Wolf: You have the gato Andy, you have the gato.

Andy Deas: That's true. I will always have the gato. All right good. Well, we got a group of questions. Nothing too controversial I think, although people like the angry Robb so we'll have to bring him back from time to time.

Robb Wolf: Yeah, it's kind of like the black album that was the angry edition, so this one is the not caffeinated edition so it'll probably suck miserably, but we'll do it anyway.

Andy Deas: We're going to do the best. We're trying to catch up on some blog questions. We are way behind on the blog questions, so we're slowly going to make a dent in those. So we got our first question from Thomas, "Robb and Andy, I'm really getting a ton of great stuff from the podcasts and website. It's a really a tremendous resource, totally improved the way I train and live in a really short time. My fiancée is really struggling with some GI problems. She had been diagnosed with a hiatal hernia by naturopaths, chiropractors and other quacks for quite some time." I don't know if he's including naturopaths and chiropractors in the quack bucket.

Robb Wolf: It's a broad net he has thrown there.

Andy Deas: Anyway, "Yesterday she was scoped and the doctor said he couldn't find the problem. We had hoped doing the hiatal operation would fix it, but that's not an option now. The doctor's solution was some pill that evidently can cause permanent Parkinson's disease. Joy! I guess she's stuck with the GERD diagnosis for now. Stress, wine, sweets, spicy food set her off pretty bad for a few days where she experiences pressure and burning just below the sternum. Her diet is close to Paleo, probably could use more protein and less dairy. She uses kefir and Bio-K to remedy GERD symptoms, and I wonder if that's putting a band-aid on the problem. So, have you had any experience with relief or a cure from the GERD due to the Paleo diet?"

Robb Wolf: Yeah man, and usually folks need to go a little on the low-carb side for this to really get the big effect. Some of what's going on when we consume food, we release cholecystokinin which is a neurotransmitter, gut hormone, that signals -- it basically it gets triggered when food enters the stomach and it stimulates downstream signaling in things like the gall bladder, it will stimulate the release of bile salt. It will stimulate the release of pancreatic enzymes, and all that sort of jive.

So it's important as a precursor for digestion but it also feeds into releasing stomach acid as parietal cells. And you -- in a hyperinsulinemic state -- in a high insulin state, then you can have some serious problems with the GERD, Gastroesophageal Reflux Disease. Some of the peripheral

things that can cause problem is diary because of the insulin kind of insulinogenic nature. Lifestyle stuff would be stress, high cortisol levels -- cortisol causing problems with insulin sensitivity directly, also causing high blood glucose levels because of releasing glucose out of the liver.

Just insulin resistance because of sleep lack and stuff like that, so you have to start getting a little bit crafty in what you're tracking down. When you see the whole thing -- you know, close to Paleo and you know there's such a spectrum of good eats and what will be good enough for one person versus another person. Gluten is a really gnarly confounder in this. It ends up really buggering cholecystokinin, CCK signaling in the gut, and so just a small amount of gluten, irrespective of the amount of carbohydrate that's taken in, in total can cause some serous GERD problems.

So, it's just something that -- if she really wants it to go away, she needs to get really fastidious about all these stuff. Pull out -- I would recommend pulling out all the diary, all the grains, all the legumes, make sure the sleep is solid. I would keep going with the Bio-K, the Acidophilus and if that doesn't resolve in like a month, then I would do -- try to track down a doctor that would do what's called an O&P, an Ova and Parasite, and also an analysis of her gut flora to see if she has a parasite or something funky going on.

But I would be about a 95-98% bet that simply removing these final little niggling problems and making sure the sleep hygiene is good -- you know that she's actually sleeping well, taking magnesium, all that sort of stuff, I bet that would fix it. I would be surprised if it didn't.

Andy Deas: Nice. There you go. Same answer, Paleo diet.

Robb Wolf: Shocker, and probably a little on the low-carb with this. And then when she gets a handle on this, well what you find is that wine isn't really going to be a problem, sweets won't be too much of a problem, spicy food won't be too much of a problem, other than cereal exposures in which you get it day after day or three, or four, or five days in a row. But this is all that interesting stuff too, where you know folks will find "Oh man, I really don't tolerate much carbs."

You know like for me, I don't tolerate like a bean and rice meal sequentially -- you know I can't do them back to back two days in a row. Like I'll start getting some GERD from that, unless I'm on vacation, like when we were in Nicaragua, I had rice almost every day, just because it was -- you know, the main thing to eat down there, and I was being polite

with the folks that we were staying at, and she was very accommodating and cooking stuff that didn't contain gluten, but it was interesting, the amount that I could tolerate was way more than what I could tolerate at home.

But I was sleeping like 10 or 11 hours at night. I had absolutely no stress, I was out in the sun like all these little factors come in and it influences what you can tolerate then.

Andy Deas: All right. Moving on, next we got a question from Listener 8 Robb now.

Robb Wolf: Sweet! We're growing man! Market share baby, market share!

Andy Deas: "Hey Robb, a friend of mine was diagnosed with a kind of thyroid cancer last year and has been following the 'Gerson Method' to fight it. She claims her tumor has shrunk from a golf ball to about the size of a marble. I don't believe there have been any actual studies on the Gerson Method, and it seems to involve some weird things like coffee enemas and a lot of juicing, but it does promote fruits and veggies and a more natural diet for the most part. What's your take on this and how it relates to the Paleo diet? Could drinking a ton of juice really concentrate the vitamins to help fight the cancer? Here's a one link for reference."

Robb Wolf: Yeah, you know the juicing thing is interesting. There's no doubt that plant constituent -- different constituents out of plants have both an anti oxidant and a pro-oxidative kind of capacity. I think a couple of podcasts back I mentioned these stuff and there are products that have a hormetic effect. It's that -- you know brief exposure of something that causes like oxidative stress, or challenges, a detoxification pathway in the liver and that actually causes an adaptation and then there are other constituents in plants that may stimulate apoptosis, the program cell death in abnormal cells then obviously there's just the antioxidants themselves.

But there's a ton of like kind of anti-cancer material in plants if you -- you know the theory is that -- you know if you were to concentrate to all that stuff down, would it be potentially be beneficial? And I think that there's -- the potential for that -- the problem that I see with these stuff from that whole cancer and glucose standpoint, is that unless you're sticking with just only green or low carbohydrate yield vegetable matter, you're going to end up with a ton of sugar out of this gig, which I just don't -- man, there's just no -- it seems to be no good reason to hammer your system with a bunch of sugar. And even then it -- you know, you're taking say like pounds of broccoli and kale and spinach and all that and juicing it

down, even with that stuff, you can end with a pretty good dose of carbohydrate out of the whole mix.

Is that amount of carbohydrate not as important as the potential, like anti-cancer benefits you're going to get out of the juicing and like the alcoholizing thing, I don't know -- like I don't know. Like I still tend to kind of throw my hat more in with the ketogenic side of things and get as much vegetable matter as you can from you know standard dietary source.

There are all kinds of wacky stuff, I mean there's a bunch of anecdotal testimonials about people doing grape juice and putting cancer in remission. There's a ton of anecdotal stuff out there, but you know do the mechanisms really make sense? Does it make sense from kind of a holistic standpoint? I'm not sure what more to say in that regard I mean, when you're facing cancer, it becomes a pretty big deal -- you know, I mean it's kind of a life or death gig and the decisions that you make are pretty heavy, so it's hard to not -- to make a light of that in any way, you know? It's a big, big decision.

But for myself most situations, like if I found myself in a situation of any type of cancer I think I'm going to be relying pretty heavily on kind of a ketogenic state. Maybe some interment fasting, and then I might still augment that with some conventional therapies, you know some standard chemotherapeutic, some standard radiation, because Ketosis makes cancer cells in general, much less likely to survive chemotherapeutics, radiation but it tends to augment the ability for normal cells to survive that stuff, so it kind of makes normal cells heartier, makes abnormal cells less hearty, and so it's kind of a selection process.

The juicing thing, just -- you know, intellectually doesn't make a whole lot of -- it doesn't appeal to me as much, but it's not to say that there's not something there. It's kind of a wishy-washy answer, but it's not really the direction I would personally go.

Andy Deas: Good question though.

Robb Wolf: Yeah, a really good question.

Andy Deas: Good. All right, next we got a question from Jared. "Robb, I was wondering if there was a way to measure if a certain meal spiked insulin? Maybe using the meters that diabetics use like measuring your blood sugar after a meal, for example if someone was trying to figure out if fruit

in a meal was giving too much of an insulin response and was preventing fat loss. So basically, rather than following a diet for a period of time, and then making the discovery that the fruit in your meals is preventing fat loss you could possibly measure your insulin response to various meals. I hope this makes sense." Thoughts on that Robb.

Robb Wolf: It sounds -- I mean, it's interesting. There are some pretty well-established insulin indexes of food, but the interesting thing with that and like this is something that Mat Lalonde really took me the task on my first run through the insulin chapter in my book. I kind of defaulted to the standard old line of, you know glycemic index, glycemic load, insulin load, and hanging all of that, that story on high glycemic load carbohydrate, but then there's a reality that there are a bunch of proteins out there beef, fish, chicken.

A bunch of these proteins also release a lot of insulin. Now the other side to that is if that they release glucagon, which has some balancing action to that, but then also the problem with hyperinsulinism, the problem with fat loss, with regards to insulin, also relates back to what substrate we're pumping into the body. When we pump carbohydrate into the body with insulin, then we are shutting down fat burning, not just because of the insulin that's being released, but also because the carbohydrate becomes kind of a preferential fuel to be used at that time, like alcohol is similar if you were in a fat burning mode and you take in some alcohol or carbohydrate, then you tend to curtail the amount of fat that you're burning.

So simply looking at the insulin released isn't really going to tell you all that much. So, you know you could do this thing that it seems like a ridiculous amount of effort trying to track this stuff down to figure out if it's, you know going to -- the insulin release is going to end up blocking fat loss overall. So then that would beg the question "Well, what exactly would you want to do to know what's going on with this?" And I think it's -- you know you end up discovering what's working pretty quickly. You need a little bit of -- ideally kind of a little bit of a caloric deficit, and some insulin management and then you've got a really good situation for fat loss, and depending on who you are and what the situation is, then you are -- you know we've talked about this a bunch, you're going to be able to tolerate more or less carbohydrate under a particular situation.

Most people find that they have much better hunger suppression when their carbohydrate intake is relatively low. The amount of glucose versus fructose, so like if you're -- you know if you're -- Mat made a really good point to me which was, you could get away with comparatively more

glucose in your diet say like yam, sweet potatoes or even something like rice, then you could -- various types of fruit because when you start getting a high fructose and glucose content, then we end up topping liver glycogen rather quickly, and once liver glycogen is full, then we start producing -- we convert any excess carbohydrate we consume gets converted into palmitic acid, and palmitic acid in a pulsatile fashion, when it's released out of the liver in response to a carbohydrate meal, that goes to the brain and it blunts the brain's ability to sense leptin.

And leptin is kind of the main mediator of whether or not we feel hungry, whether or not we respond to a meal with a raised or a suppressed metabolic rate, so we want to be leptin sensitive and leptin ties very, very tightly to insulin, but the -- one of the things that can influence leptin sensitivity -- several things can, cortisol can impact it -- and not surprisingly sleep, cortisol, lectins from grains and legumes, and high carbohydrate load can all impact leptin sensitivity. So it's really kind of depends on what type of situation in which the person is eating.

You could be caloric restricted, and eat more carbohydrate and not suffer deleterious effects. You could be isocaloric, in which you're taking in -- or not isocaloric but -- yeah, isocaloric where you're taking as much calories as you're expending which is really, really hard to do. It doesn't really work out that way, but let's just assume you're kind of in a stable state. When you're at that point, then you can tolerate less fructose before you start suffering problems. And then if you are hypercaloric, say like you're in a mass-gain phase, you can tolerate comparatively little fructose, before you start suffering metabolic derangement, before you start getting liver-induced problems from high fructose intake. And that's why -- you know along a sliding spectrum, depending on what your total caloric intake is, you can tolerate more or less carbohydrate in general, but then also fructose has a sub-fraction of that.

So, I would be more concerned about like where's your overall carbohydrate intake? What's your relative amount of fructose in that whole gig? And then again it goes back to what the heck are your goals? You know, is leaning out your primary focus here? Do you have some performance goals? Like all of this stuff is so much better served for figuring out what your goals are. So like if Jared had said -- you know, let's think about this from the context of "I've got 10 pounds to lose." Or you know, "I'm at 12% body fat and I want to get to 8% body fat, while maintaining as much performance as I can maintain and I do jujitsu and CrossFit," then that gives us much better parameters to type -- to peg this stuff down.

And Andy's probably falling asleep and all 6 of the listeners have fallen asleep too at this point but -- you know it becomes very, very situationally dependant as to how we want to tackle this stuff. And that's all I have to say on that. Andy's all "Thank God! I just want the hurting to end! Please let me go lay down."

Andy Deas: Oh, Robb. There are no simple questions in Robb's world. We're moving on man.

Robb Wolf: I wish I could just say broad time modal domain. But I just can't!

Andy Deas: Like that little cartoon --

Robb Wolf: You know I wish I could blow it all down to black hats and white hats, but there's just this huge spectrum of gray, and that all depends to what the heck you're up too.

Andy Deas: Robb if you don't know the answer, just say broad time and modal domains!

Robb Wolf: Broad time! Modal domains!

Andy Deas: All right, next we got a question --

Robb Wolf: Moving on!

Andy Deas: We got a question from Dhani, "In your podcast and subsequent posting, you outlined an approach whereby one consumes 1 gram of protein for every pound of body weight and 13 to 21 calories total per pound of body weight filled in with calories from fat sources, with the total caloric intake range being determined by what phase of loss, gain or maintenance you are in." Okay. "Based on this I have a couple of questions. I am 160 lbs and in a leaning out phase of a completely Paleo, Ketogenic diet that consists of grass-fed beef, other pasture raised meat, loads of greens and that's about it, and taking 30 to 45 grams of Carlson's Cod Liver Oil a day. Do you count the calories fat in fish oil towards daily intake?" So I thought we'd hit the Cod liver issue Robb and then we can hit the second part.

Robb Wolf: Yeah. You know the cod liver oil, I love this stuff, but you know, Cordain pinned my ears back publicly when I was sitting down with a well born and a couple of other folks at the first Paleo brands seminar that we did, and he was like "Oh, you've got to ditch the cod liver oil." The vitamin A in cod liver oil inhibits the uptake of vitamin D out of the cod liver oil. And

so it ends up blocking that. And if he's -- and also as a sideline with this, if Dhani is at a point where it's getting all of his, you know protein sources from grass-fed beef for the most part, probably does not need that much fish oil, at all. Probably more along like four -- two to four grams of fish oil max, you know that's total EPA DHA.

Even if it's not 100% grass-fed beef, I doubt if he needs that much. Like that large dose of fish oil again is for folks who are sick, who have been generally eating a poor diet. They've had a lot of corn oil, they've been eating you know fried foods and stuff like that. They're carrying around a bunch of body fat, and in that body fat that they're carrying around, there's literally, you know pounds of excess Omega-6 in that mix, particularly short chain Omega-6's. And so we're trying to affect some change with that, but then the maintenance dose, ends up being fractional what the original dose is. So that's some stuff that I would definitely address. And then from there, no you don't really count your calories in the -- form the fish oil for sure.

Andy Deas: All right. And second question, "Next question is based on a piece of information I received regarding Coconut Oil and more specifically Medium Chain Triglycerides. It was suggested that since MCTs are prioritized as fuel over stored fat then they are ideally to be avoided in a leaning out, Ketogenic phase. I found this hard to swallow because I have long been advised of the great benefits of coconut oil for cooking, thyroid regulation and seemingly every other desirable health benefit. So I was wondering if you could help clarify this issue for me; is coconut oil better suited for a maintenance gain phase, or is it ideal in any phase based on the net balance of metabolic regulating properties it seems to contain?"

Robb Wolf: You know the deal with the MCTs and it was a Mario D. Pascual who I think really made this point originally and it's not surprising since he's kind of like the grandfather of Ketogenic diet, Cyclic Ketogenic diet and he's done just a ton of work on this stuff. His thought that MCTs, Medium Chain Triglycerides, could compromise normal fat mobilization during a Ketogenic diet or a low-carb diet, because Medium Chain Triglycerides do not need a -- what's the -- amino acid that shuttles it in? Starts with a C -- I'm blinking on it. It'll come to me here in a little bit. But there's a shuttle -- an amino acid shuttle that moves fats into the mitochondria to be used as fuel, to go through beta-oxidation of fatty acids, and so -- Carnitine-- Carnitine, the amino acid that's used in that.

And so, since MCTs do not require that -- and you know, I'm trying to remember, I think MCTs may also associate just with the albumin in the blood -- and I could be wrong on this, I forget. Most fats need to be

transported either in -- these things called either Chilomicrons or VLDLs, or they can be transported as free fatty acids in the body, and usually though they're packaged up in these protein fat kind of globules. The protein allow us to the fatty portion of the fatty acids to associate in an area that is in an interaction with the aqueous part of the -- you know, our blood, and then the protein part is kind of the portion that allows this -- imagine like a soccer ball that is carrying around basically fat globules.

You know the soccer ball is like floating in a pool or something like. That's kind of the way that fats are usually distributed and if that soccer ball were to then interact with a receptor site, it would open up the soccer ball and allow the fats inside to be released with the protein lipase being the main thing with that. I think MCTs bypass all that, and they actually associate with the albumin in the blood and I'll double check on that, or maybe somebody else can double check me and either be like "Yeah, that's correct." Or "No, that's wrong." But, fundamental thing is that MCT'S do not require Carnitine to entire the mitochondria so there's a thought that those things will burn preferentially and then shut down ketosis or you know normal fat mobilization and you wouldn't be able to use that fat that you would store -- you know your body fat for fuel.

I just don't -- I've never seen that playing out, and part of this is that even when we take in MCTs for fuel, our body then converts them into -- you know this short lauric acid, and palmitic acid, and neurostearic acid, all of those fats end up getting converted into longer fats like oleic acid, like what we would find in Omega-9 fats, like in olive oil and whatnot, like they go through elongates and desaturates, and they get converted into other fats. And so, it's not like these fats are uniformly hanging around in our body just as MCTs. They get converted into other fats too, and I just don't think it's as big a problem as what it's been made out to be. I just don't see it stalling fat loss in folks.

So the take on thing with that is, eat your coconut, it's good to go and more and more I'm finding that -- you know coconut as an option is so much better than most other nuts and seeds, because of the -- essentially zero short chain Omega-6 content, and another point there that --you know I was talking to Mat Lalonde about was -- I've historically like, in my nutrition tox, told folks to just take a lot of fish oil to balance out dietary Omega-6s and it's not enough. Like we need to really make an active attempt at removing sources of Omega-6 and definitely most nuts and seeds are way high on that list.

Andy Deas: Man, I love nuts and seeds Robb.

Robb Wolf: Indeed, especially when you can't drink coffee 'cause what else have you got?

Andy Deas: I got so little -- I got veggies. I got olive oil.

Robb Wolf: You got veggies. Yeah.

Andy Deas: I got coconut.

Robb Wolf: That's a lot man.

Andy Deas: I got grass-fed butter which is legit.

Robb Wolf: That's good to go.

Andy Deas: All right. Next, we got a question from Andy -- not me, 'cause I would ask it off the air of course, and harass Robb. "I have a question. Sorry if it's already been asked. You mentioned the higher amounts of lysozymes in egg whites and how an excess can be potentially harmful. Wouldn't the HCL in the stomach denature it enough to be handled like almost every other protein?"

Robb Wolf: No, and that's the problem. There's a ton of proteins out there that -- lysozyme -- there's some other stuff in milk which I'm -- oh man, I'm having complete brain fade today. Maybe it's Andy's lack of caffeine is affecting me too.

Andy Deas: Dude I think it is, through the internet. Really.

Robb Wolf: Yeah, yeah. Totally. There's a ton of proteins that do not get broken down. High proline content, proteins like in gluten, some other gut-irritating proteins like in the diary -- God, I can't remember the name of the stuff. But there's a bunch of stuff that are not denatured or inactivated by the stomach acid, and that's the very -- that's the very problem, like these things are made to avoid being denatured by high acid environments. They tend to resist proteases and pepsinogen and stuff like that that would normally break down proteins.

Andy Deas: All right. And --

Robb Wolf: And there lies the problem.

Andy Deas: Part two, "I have a client who is hypoglycemic and wanted to see if you could mention the condition and your recommendations on nutrition to

that crowd. My client claims a need for carbs which I can understand. I'm working on getting her off gluten and rice products, and on to yams potatoes and squashes. Any other advice would be appreciated! Thank you. Your biggest fan in Texas!"

Robb Wolf: Woo-hoo! You know, hypoglycemia is just a -- it's a reactive state. It's like -- you know if we change this parameter around and we said, "I have a client who complains of sunburn. What do you recommend?" And then the -- you know hopefully the answer becomes completely obvious. It's like, "Okay you're getting too much sun exposure." But for some reason there's this whole like hand wringing, "Gee whiz I'm hypoglycemic, I need barbs." But you know it's a -- the person is having rebound hypoglycemia, you take in too many carbs particularly if there is still gluten and there's other grain products in there.

Because not only are we having a problem of insulin resistance that is being caused by high insulin levels, leptin resistance is being caused by palmitic acid production. We take in a lot of carbohydrate. The liver glycogen gets topped off and then we start converting that glycogen into palmitic acid which feeds into leptin resistance, grains and legumes cause leptin resistance because of the lectins that interact directly with the leptin receptor site, and that causes localized insulin resistance at the liver which then starts driving up blood glucose levels and this is the whole song and dance.

It's the mechanistic propagation of hyperinsulinism in the whole metabolic derangement deal. When we start getting high insulin levels, and we start getting high cortisol levels -- and so these folks end up having -- you know, it's just a perfect storm of problems and they just have to bite the bullet and start eating fewer carbs. And you know, shifting towards the yam and sweet potato and squash is probably a good thing, but if you really want to turn this stuff around, if you really want to switch the boat around, there's going to be a couple of days of suffering. Very much like what Andy's going through right now with the coffee -- you know it's like you either keep peeling the band-aid off over the course of weeks and months or you rip it off and get it dealt with.

And so it -- you know, this client could go either way with this but they'll likely have some sleep disturbance. There's probably some cortisol management issues. It all becomes very synergistic but in a bad way. It's a feed forward mechanism but not in a good way.

Andy Deas: Nice. Well said Robb. I love coffee, just so we're clear on that. I had to hold someone's coffee this morning and it was brutal 'cause I couldn't drink it. I could just smell it.

Robb Wolf: I have a lot of commentary I could go with that, but I'll just leave it for now.

Andy Deas: Thank you. The listeners appreciate that.

Robb Wolf: Yeah, yeah.

Andy Deas: All right. Next, we have a question from Joe. It's fairly lengthy but I'm going zip through this. "Hey Robb, love the podcasts. In one of them you mentioned that eating Paleo will reduce the amount of calories you need due to all the vitamins, minerals, and nutrients gained through eating this way. I've been Paleo since October 2007, but have not really plugged a day of eating into fitday until this past fall, when I was trying to gain weight (did Starting Strength with it.) For the past two weeks I've been plugging what I eat in the fitday and found that I've been eating around 1,600 max calories per day, sometimes lower, and this just seems like a low amount of calories for me."

"I'm 20 years old 5'10", 150 pounds and I workout three to four days a week. I also walk a fair amount due to being on a college campus, no less than 3 miles a day. I have not had the chance to weigh myself in around three weeks due to my class schedule but I will be able to this weekend. Any thoughts as to why this is happening? When I lift heavy I am hungry, and I can turn the switch on to eat 3,000 calories per day when I do Starting Strength, but doing CrossFit stuff I just don't get as hungry regardless of exercise, shouldn't my BMR be higher than what I am eating? I feel like it is, but I do not know, and I don't trust online calculators."

And he sent us a little follow-up saying, "Macronutrient breakdown is about 50-60% fat, 30-40% protein, 10% carbs. I used to have a cheat meal every week or two. Since then I've been strict Paleo and haven't felt the need to eat any kind of junk food. Generally I'm not hungry in the morning. Either my energy levels suck from not eating enough, or when I do eat around 2,000 to 2,500 calories I feel bloated and heavy, like I ate way too much food, when in reality I should be eating around that normally."

Robb Wolf: Wowzers!

Andy Deas: That was a mouthful.

Robb Wolf: That is a mouthful. I'm still not -- out of all this super clear -- again, like mentioning some goals or -- you know he gave a little bit of background. Joe, you gave some background here. But I'm still not real clear what he's trying to address, or like what the issue is. I guess he's feeling lethargic, like he's low energy and lethargic. 5'10" 150-152, I would definitely like to put a little bit of grizzle on him. Andy, what's your take here? Like what's the take home? Why don't we find an answer out of this? Andy is like, "I don't know man. I haven't had coffee in two days and I hate everybody and everything!"

Andy Deas: So, well I feel like for some reason, he feels like he's not eating enough, but when he's doing the CrossFit type training -- but when he eats more during that, he kind of feels bloated and heavy like he ate too much, but when he was doing kind of the more heavy lifting starting strength style stuff, he was able to eat 3,000 calories a day, no problem. So I don't know what he's trying to get to, but I feel like he's feeling like, "I'm not eating enough." And that's impacting his energy levels or we can skip it and have him send a follow up note as well. I mean, we could -- well, this is performance art Robb, we can really go either way with this. There's so many variables right now.

Robb Wolf: Kelly Starrett can call his stuff performance art. Ours is just a train wreck that keeps happening again and again. We'll take a stab on this and then if Joe wants to fill in some stuff, we can do a little follow up on it. I would take a stab that -- you know the starting strength type stuff is probably sending a little bit more of an anabolic signal, and the CrossFit type stuff might be sending a little bit more of a catabolic signal, like you may be getting some high cortisol levels out of that. And interestingly long term high cortisol can start making you hungrier because it will make you leptin resistant and it's leptin that is the main thing that sends the signal to our brain that we've had enough food.

Initially that high cortisol though can -- it raises blood glucose levels and so you can have kind of a sense of satiety, so you just go and go and go and you don't feel that you need to eat, but over in -- overtime that becomes really problematic because the elevated cortisol combine -- you know will drive gluconeogenesis will turn our body's protein into glucose because we have some kind of mis-signaling going on, whereas with the starting strength stuff, you might have a little bit more of an anabolic kind of signal. We have a transient spike in cortisol but then it goes back down, and we're getting some legitimate signaling with regards to like, how much calories Joe actually needs.

I do find -- you know for myself because, I was always in his mode of trying to get bigger that I would just -- as a matter of state, like I would just add a ton of fat to all my meals like it was -- you know, lots and lots of olive oil, lots and lots of coconut milk and all that sort of stuff. And since I've been writing the book and just generally, I've been really focusing trying to match my caloric intake to what my legitimate hunger and activity levels are. And so like I usually workout three, four days a week, I've been doing more Wendler type stuff, but I've found that when I'm not force feeding myself and I actually just eat to satiety, like I choose my meals, I've just been eating mainly grass-fed meat, like we've been kind of a terror with that, Cosco and Trader Joe's, both have had some grass-fed ground beef, so we've been doing a lot of that.

And I find I eat a pretty good whack at that, maybe like eight, nine ounces of meat at a sitting and then a ton of vegetables, but I'm not really adding any fat. And lo and behold, I'm leaning out. I'm generally feeling better and my energy levels are good. But interestingly my body weight is kind of maintaining but it's -- I'm just kind of eating what I need. And so for Joe, he may currently be eating what he needs unless he sends a growth signal, all that Starting Strength, in which his body kind of knows that he's being hit with a stress that is demanding some adaptation towards growth, whereas the CrossFit stuff is an endurance stimulus. I mean there's no doubt about it.

And so, endurance stimuli generally are not going to send a signal that you're going to need bigger muscle mass, regardless of the supposed spectrum of, you know body building on steroids, and CrossFit on steroids, and all that sort of stuff then -- you know, I think in general folks find that they're not going to gain as much muscle mass doing an endurance oriented -- even a strength endurance oriented program versus a lift heavy weights type program. It's not to say that you couldn't construct something that looks an awful lot like CrossFit and you know kind of a density training kind of format and add more weight, more volume over time and get a similar stimulus, but you've got to actually steer the boat that direction.

So I'm guessing this is a little bit of a response to hormonal signaling from the workout, and one of them is kind of a catabolic orientation and one of them is an anabolic orientation, and based on what Joe wants to do, that would kind of drive the boat where he wants to go.

Andy Deas: Yup. So if we didn't answer your question Joe, post a response.

Robb Wolf: And then we'll make something completely different up next time 'cause this is all pseudoscience anyway so…

Andy Deas: It's all made up. It's all made up. It's only in our minds. Next, we've got a question from Steven, "Robb, could you go into some further detail in a podcast or on the board here and define insulin resistance? I have picked up a lot of peripheral information in what you have presented in the podcasts so far as well as some research I have been doing on my own but would like to get you to flesh it out."

Robb Wolf: Oh man!

Andy Deas: Look, be relatively simple Robb. Don't go off the reservation here.

Robb Wolf: The simple deal is, you know if you are insulin sensitive -- insulin does a lot of different stuff, and I've always focused on the primary thing being insulin helps us to store nutrients, primarily glucose. It does a bunch of other stuff too, but we'll focus mainly on that storage element. If we respond favorably to insulin, we ingest some food whether it's protein, carbohydrate or fat. Fat doesn't really release much insulin. Protein and carbohydrate tend to release a good amount of insulin.

But if we're insulin sensitive, a small amount of insulin will allow as us to clear those nutrients out of the blood stream, and keep a normal low-ish blood glucose level. We can access body fat for energy and all that sort of stuff. When we start becoming insulin resistant, we can't access body fat for energy. We start ending up with chronically, consistently high blood glucose levels, and this is the road that we start heading down towards metabolic derangement.

Insulin resistance, it appears -- starts getting set up first in the liver and I mentioned earlier in the podcast, this appears to be a response to too much carbohydrate particularly fructose, glucose kind of interaction or too much carbohydrate in general, which then sets up a pulse to the brain of palmitic acid that instills leptin resistance in the brain, which then messes with signaling, starting at the liver, and when the liver ceases to process glucose properly, then we start getting chronically high blood glucose levels systemically, which leads into higher blood insulin levels systemically and then that sets us up for insulin resistance on a full body systemic level.

So it -- as an overview, that's kind of what's going on with it, I go on to pretty gnarly details on the book on the mechanism with this. And again, I just cannot say enough good stuff about Mat Lalonde. He really helped

me smooth out the flow of how I presented this information. The way that I presented it originally was somewhat piece meal and I got in and really, really built it up from basically like a bite of food, and then tracking it forward from digestion into the endocrinology and to the pathology of either too much carbohydrate, too much calories and trace all that stuff forward in the mechanistic level. So the book will be a really, really solid resource for that.

Andy Deas: Good. Well done Robb. That was short and sweet. I like it.

Robb Wolf: Perfect!

Andy Deas: All right, so we're going to skip the next one Robb and can come back to that next week.

Robb Wolf: Okay.

Andy Deas: We're running out of time brother.

Robb Wolf: No worries.

Andy Deas: Question from Gerry, "Hey Robb and Andy, great show as always! I'm actually a listener who has no athletic background, I don't ever go to the gym, and my main exercise consists of hiking and long walks. Even so, I find your podcast to jive with my intuition about nutrition, and I find it extraordinarily informative. I have a question about gum disease. I've had a hunch for a while now that inflamed gums are caused by the same sorts of things that cause inflammation elsewhere in the body. In Gary Taubes' book, he mentions briefly one experiment where researchers eating low-carb for a year wound up curing their gum disease. After eliminating grains, gluten, legumes, and dairy, is there anything else that you think might cause irritated gums/inflammation? Can mildly inflamed gums be a symptom of something larger? I feel great otherwise."

Robb Wolf: Yeah, it's really interesting. It's definitely a sign typically of hyperinsulinism, and here again like you can find different routes to this, you know? It could be dietarily, you know too many carbohydrates, too frequent of eating can be a problem there on the insulin access too. But then some lifestyle stuff sleep, stress, high cortisol can lead into all this jive. I definitely notice that when I go to the dentist, like I have -- they measure pockets in the teeth and mine are in the ones, which is just like, essentially nothing like they're stunned by like how good my teeth are, but I've definitely noticed that if I'm not flossing as frequently, then I'll have a little bit of problem and I tend to eat pretty damn low carb.

So like a little bit of flossing, a little bit of the -- you know standard dental hygiene kind of things will help that a bunch, like if you mainly brush your teeth, but don't floss, that's going to be a factor but then, looking at other sources of potentially too high of insulin load, too high of carbohydrate load, and one other thing, like if you have receding gums, I would look at dropping in of 100 milligrams of lyfolized, like a fat solubilized CoQ10, Coenzyme Q10. The Jarrow brand is a really, really good one. Jarrow Q-Sorb is a fantastic brand, and I would drop that in with the fatty meal once a day and you'd probably see some good benefit with the gums. But the periodontal disease definitely is a big factor in insulin -- hyperinsulinism.

Andy Deas: Good. And last question from Kmar, "Never heard of Rollerboys but the fact you admit to watching it means that you are a much stronger man than I." That is a classic movie. "I had a question on some of the older podcasts. Cheat meals seems to have come up a few times and your take has been that there might be some benefit, there might not, use it if it works for you."

"My question is though, if you have a cheat meal once a week are you stopping yourself from ever healing your gut? I'm thinking of the military guys you mentioned keeping crap in their diet every now and then so that they can eat the MRE's when deployed without significant issues. Seems like one cheat meal a week wouldn't throw off insulin sensitivity if you were good the rest of the time but is there enough of an irritant to keep your gut chronically inflamed?"

Robb Wolf: Yeah, I mean if it's a -- if you have a gluten intolerance which -- you know I think pretty much everybody does. If you have some other kind of grain, dairy intolerances, it can be like a very, very infrequent exposure, can be enough to keep the gut continually and pretty significantly inflamed. And so it just depends on what type of stuff you're going after, so cheat meal can mean a lot of different stuff. You can have a pretty damn nice cheat meal with like ice cream, tequila, corn tortillas, dark chocolate covered almonds. I mean that's pretty freaking good bender, but there's not gluten in it and you may feel a little carb headed after that.

But I think generally you're going to feel a lot better doing that than -- you know like grilled cheese sandwiches, French toast, cookie -- you know standard kind of gluten bender, real rich dark beer which -- I love dark beer, but it would destroy me to have it at this point. So there's just two routes to a cheat meal. One of them being kind of gluten free, one of

them not. You can kick up your heels pretty good, but avoid the things that would otherwise cause you problems.

Andy Deas: Good question. And Robb that is it!

Robb Wolf: A good question, yeah. That's it!

Andy Deas We have survived the episode without Andy having caffeine and next week, hopefully, I will be in a better place.

Robb Wolf: So episode 23, the non-caffeine episode.

Andy Deas: Yes, well I'll make a note of that. The non-caffeine episode Robb. Although, you know still no caffeine next week, but hopefully I will have adapted.

Robb Wolf: Yup, yup. I'm just hoping we don't have a murder or suicide in the gym, you and Natalie kill everybody and then off each other from going caffeine free. That would suck.

Andy Deas: If Chrissy makes me hold her coffee in the morning, again, there could be a serious situation.

Robb Wolf: Serious problems.

Andy Deas: So with that Robb, I'll let you get back to the book and --

Robb Wolf: Cool.

Andy Deas: -- we're recording this before you head to New Jersey, New York this weekend, so good luck with all that.

Robb Wolf: Yeah, Hoboken and Brooklyn this weekend so I cannot wait to hang out with those hooligans. That's going to be a good time.

Andy Deas: Awesome! Well, I'll talk to you next week. Thanks Robb!

Robb Wolf: All right, Andy thanks.

Andy Deas: Okay.

Robb Wolf: Bye-bye.