

Episode 108

- Robb Wolf: Hey, folks. Robb Wolf here, host, Turkey Day, carb coma. Greg, what's going on? Episode 108. What's crackin'?
- Greg Everett: Just came in here and turned all the lights on in the gym, turned the heater on, and now I am consuming as much caffeine as I can for the next hour or so.
- Robb Wolf: Sweet! That will perk you up.
- Greg Everett: It should. We'll find out.
- Robb Wolf: So what was the Thanksgiving scene for you guys?
- Greg Everett: Just over at a family friend's house which was nice because I pretty much just got to sit there and watched football where everyone else did work and then leave.
- Robb Wolf: Nice, nice.
- Greg Everett: So I can't complain.
- Robb Wolf: Well, we finally made it to Reno although it was one of the most goofy, hellish, moving experiences of my life. I think I'm going to leave and die here and I would never ever move anything again.
- But I finally made it to Reno. I had dinner with Nikki's dad and I was telling Greg before we started rolling that I ate so much food. I literally thought that I was going to have some sort of like internal rupture or hemorrhage or something. There was no comfortable position I could get in. I go sit outside in the cold hoping that I would like ramp up the thermogenesis in my body and just move the food through. I usually don't overeat like that but the chow was really, really good. Oh, my God, I did some damage. I think it took like four years off my life with that meal.
- Greg Everett: It sounds like you have a problem.
- Robb Wolf: Oh, man, I think I might. I'm a binge eater I guess at the holidays. I don't know. That was ugly.
- Greg Everett: I suppose once or twice a year you can get by.

Robb Wolf: Dude, I think had I sneezed, I totally would have like ripped out my innards in some way, like my appendix would have just popped out or something.

Greg Everett: You don't need it anyway.

Robb Wolf: Yeah, yeah. I was super full. So yeah, that's all I've got. It's sunny and nice here today so that's cool.

Greg Everett: Actually, the sun just came out here too. I was going to be bummed if we didn't have sun and you did, but we do.

Robb Wolf: Well, you are in the Bay Area so I'm going to be kicking your ass on that generally.

Greg Everett: Well, yeah, but then you have to also remember that you're in Reno.

Robb Wolf: Yeah, that's true. Well, I have easy access to gambling, prostitution, and all kinds of other fun stuff and you don't, so there.

Greg Everett: We have that too.

Robb Wolf: Oh, well, yeah, but you get arrested for that. I don't.

Greg Everett: Yeah. Well, there's actually gambling spots around here. You just got to know where to go.

Robb Wolf: Oh, okay.

Greg Everett: Usually, there are really weird Korean karaoke bars that still allow you to smoke inside I've heard.

Robb Wolf: Nice. Damn you! You win again, Greg Everett.

Greg Everett: We just have access to more stuff.

Robb Wolf: True.

Greg Everett: That's what it's all about, Robb, in life, more stuff.

Robb Wolf: More stuff. That is true. It's true. Speaking of which, I'm going to do a book review of a book that was sent to me by the good folks -- oh, God, I'm blanking on which affiliate. They're at CrossFit Potomac, Brian Wilson. The book is called "The Rational Optimist" and it is outstanding. If you are

into markets, evolution, just kind of high order thinking, kind of Malcolm Gladwellesque-type stuff, it is a phenomenal book and I'm going to do a review on it pretty soon, but The Rational Optimist. So I've been reading that. It's amazing, just a phenomenal book.

Greg Everett: And what has that taught you how to do?

Robb Wolf: I don't know that it has taught me how to do anything, but the premises of the book is markets and trading and specialization, and this is kind of interesting when you think about the whole specialization is for insects kind of deal generalist gig from CrossFit Land, but it basically makes the argument that what made us human relative to say like Neanderthals and Homo erectus and all that is the beginning of markets and trading and specialization, and to the degree actually that we specialize is a huge indicator of whether or not we're going to be rich or poor like basically a jack of all trades approach to things.

Like imagine a little house on the prairie, living out on the farm, and you are the person who largely does everything, that that is a subsistence-type existence and that you typically barely get by, and that actually to the degree that you specialize and you can trade with somebody else who specializes, both parties are actually going to be enriched from the experience and typically end up having more leisure time, more disposable income. Even if we're talking about income before we had like monetized systems, it's just like bartering and stuff like that.

So I mean it talks about that stuff and kind of some geopolitical considerations of all of this, a lot of environmental stuff, really talking about like intensification of farming, kind of saving the planet in some ways from the inputs of like fossil fuels. It's very kind of counter to a lot of the intuitive elements of what we would classically like the green movement and stuff like that. And so it's got me thinking a lot about my positions on sustainability and what all would go into that jive.

So it's a big, huge book and lots and lots of ideas, but the guy has written a number of -- I think they've all made New York Times Bestseller, but it's science-related books like genomics and evolution and stuff like that, and then this time he kind of weaves all of that stuff together like the evolutionary biology stuff along with markets and trade and kind of in a way that instead of the Malthusian doomsday stuff about population expansion and whatnot, he has a very market-driven solution to the world not just surviving but thriving as we go into the future. So it's a pretty cool read.

Greg Everett: Sweet.

Robb Wolf: Yeah.

Greg Everett: I will look into that if there's nothing good on TV.

Robb Wolf: Well, there usually isn't, so I would give it a crack.

Greg Everett: All right. Okay. Well, let's see if we can plow through these good old questions.

Robb Wolf: Actually do what we came here to do. Wow! Sweet!

Greg Everett: Yeah. I came here just to shoot the shit with you and drink coffee.

Robb Wolf: But I'm stalling to ramp you up on your caffeine. It's now coming out of the hepatic portal vein and spilling into your bloodstream so we're ramping up.

Greg Everett: Yeah. By question 8 it's going to be awesome.

Robb Wolf: Sweet!

Greg Everett: All right. Well, let's start with number one, and I'm going to try to read this without stumbling all over myself because apparently English is not this guy's first language. So forgive me I sound like a moron.

"Never been a fan of the use of antibiotics and have successfully avoided needing any prescription over the past 15 years. Unfortunately, that ended three days ago when I was diagnosed with microplasma and I needed to go on a course of antibiotic called Ciprobay. Now this antibiotic is dealing me with some nasty side effects such as severe nausea, headaches, and dizziness for about three hours after I take a dose, but unfortunately I've been told by doctor I need to go through a course as the only way to get rid of the microplasma. Are there Paleo-friendly foods, herbal solutions, or other supplements that you are aware of would assist with dealing with the side effects of taking antibiotics?"

Robb Wolf: So most folks in the US and I think also Canada would know this stuff. Cipro is the brand name that we would recognize this antibiotic and Cipro is a broad-spectrum antibiotic. It works on some of the DNA replication elements in bacteria.

The interesting thing is that our mitochondria have the same type of DNA machinery as what you find in bacteria, and it's that whole wacky endosymbiotic theory of evolution, but evolution is kind of a crackpot idea so don't put too much credence to that. But this is where antibiotics are absolutely amazing. If you haven't read medical history or pass through medical school, typically you get some medical history and you get an appreciation for how horrible things were without antibiotics.

First, they had the sulfa drugs and then the penicillin-derivative antibiotics and then it's just kind of gone from there. But these things are really, really valuable when used appropriately. We've definitely gone down a road of using them for every sniffle that people get instead of doing some cultures and making sure that people actually need antibiotics and stuff like that, but they definitely can have some downsides.

I personally think that they can probably have some effect on mitochondrial efficiency and that's part of why you feel so fatigued and lethargic. It's a controversial topic. Not a lot of people buy into it but it makes sense to me.

One deal with Cipro and related antibiotics is that you are at extremely high risk for tendon and ligament rupture, particularly tendon rupture. It can destabilize the integrity of the tendon. So if you go on Cipro and related antibiotics, you need to really ramp up your exercise very, very incrementally after you come off of it, and this is for like six or eight weeks afterwards. You can pull the Achilles tendon off of the calcaneus. You can pop your quadricep tendon off of the patella, a host of things like that. So that's one thing that is not on the radar for folks. You need to really ramp up your activity level very slowly and carefully after that.

As to foods and stuff that you can take to assist in all this, just doing some sort of a probiotic taken in between the times that you're taking your antibiotics can definitely help with GI upset. It can help reduce the likelihood of getting some sort of a yeast infection.

There is a product called *Saccharomyces boulardii* which Jarrow Formulas puts that out. It's a beneficial yeast and that's actually something that you could take while you're on antibiotics in lieu of taking bacterial probiotics because the bacterial probiotics are just going to get whacked every time you take the antibiotics. *Saccharomyces boulardii*, since it's a fungus, doesn't respond the same way, but it can help to displace the other negative fungi and bacteria. So I really like the *Saccharomyces boulardii*. That's actually something I recommended in my book if you're

traveling and facing the potential of getting like Montezuma's revenge or something like that.

So antibiotics are good when you need them, not so good if you don't need them. You definitely have some downsides like the tendon rupture issue and the lethargy and all the rest of that stuff, and you just kind of need to work through it because microplasma is nasty stuff. You do not want to run around with that the rest of your life.

Greg Everett: I never knew the whole tendon thing.

Robb Wolf: Yeah. It's a big, big deal.

Greg Everett: So I learned something today.

Robb Wolf: Cool!

Greg Everett: All right.

Robb Wolf: And knowing is half the battle, Greg.

Greg Everett: It is. Hey, that shows where I learned how to not spray paint in a closed garage. So unfortunately, I probably learned that too late in life judging by how many brain cells I have left.

Steve says, "Hi, Robb and Greg! Love the podcast, the book and the website. I admit that sometimes I get lost in the minute scientific details but enjoy these discussions regardless. I always get something out of it (or at least I think I do)." I'm with you, Steve.

Robb Wolf: Greg and I are the same way.

Greg Everett: "As for me, I've been Paleo since July and have seen steady improvements in weight, energy and overall well-being. So much so that my wife decided to join 'the plan' with me at the beginning of the school year along with our two kids.

But my question is sort of a pie-in-the-sky. If you were a billionaire of the Bruce Wayne variety and wanted to fund research into Paleo-related fields, what are the top three studies you would want to see through to completion? Keep up the great work. Thanks."

Robb Wolf: Man! So I think Jimmy Moore, when he had his last podcast of 2010, asked me a similar question. I think like if you could get super deep

pockets and you could fund any study that you wanted that would have some sort of a metabolic ward scenario, and this is basically where people live in an institution so you can weigh and measure all their food, you weigh and measure their feces and their urine and the whole nine yards, like all the inputs, all the outputs are quantified and kept track of, what I would want to do is put this --

You do all the usual epidemiological shifting and shuffling. Like maybe you've got a group of people that have a particular disease state, type 2 diabetes with cardiovascular disease like what Stephan Lindeberg did with his human trial of the Paleo diet although that wasn't a metabolic word; that was a free living study. But you could have some disease states like some autoimmune disease. You could have a healthy population and just see how biomarkers go. There's a bunch of different things that you could do as far as breaking people in different cohorts and then you could stick them on basic Paleo diet, and I would say probably like autoimmune variety of a Paleo diet so no grains, no legumes, no dairy, probably even eliminating tomatoes, potatoes, nightshades, and stuff like that.

So we could run that as kind of like the uber jaggy baseline. I would also want to have people getting some sun every day so that we're getting vitamin D production. They are also doing some exercise every day.

So this thing would be pretty comprehensive, but then what we would do is concurrent with this or parallel to this, we would have people on a standard American diet, we would have people on a vegan diet, we would have people on a Mediterranean diet, and we would run this stuff for about maybe four to six weeks, tracking biomarkers and all that sort of jive, and then we would start crossing over these groups. And so this is where you would have to give some thought about exactly how many parameters you wanted to run because it starts getting really hard to track all the moving pieces.

But the crossover design is pretty cool in that if you see benefits on the Paleo side and then you see those benefits go away on the vegan side and vice versa, if you saw some benefit on the vegan side because we're taking people from a standard American diet into this vegan deal but then you saw deterioration of different biomarkers on the Paleo side, then this would be some pretty interesting stuff.

So I would like to see multiple cohorts so healthy people, unhealthy people, the unhealthy people, a variety of different things, and all those people blocked out into different groups, and then we would run them in

parallel fashion, Paleo, vegan. And even within the vegan deal, you've got some people in that scene who really don't think that you should eat grains or legumes like there's kind of a raw vegan kind of scene where it's almost Paleo other than like the meat and fish kind of gig. So I would even split all that stuff up so that we could have a control variable for the grain and legume kind of gig in a vegan scenario versus the no grain, no legume gig plus meat in the Paleo scenario, ADA diet and Mediterranean diet and all that stuff, and then I would cross all that stuff over.

And it would be massively expensive like you really would need to be a billionaire to fund this thing because it would be horrifically expensive if you had enough people in each cohort and paid them well enough to hang in there to do this gig so that you had really good, robust statistical significance out of that. But that would answer a ton of questions like just straight out of the gig, and literally, a couple of years down the road after all the statistical analysis had been done, you would be able to pinpoint answer a lot of different stuff that we are now mainly speculating about. We would have some really good statistical significance on that stuff and in a gold standard setting of a clinical crossover scenario.

So good question, an interesting gig, not likely to ever happen. I mean it probably would, but it actually costs a billion dollars to run that because we're looking at just massively scaled-down study that involves some crossover and actually small cohorts and only testing a few variables, and we're looking at probably a million dollars to fund this gig. It's a shadow of what we're talking about with that other thing I was just mentioning.

Greg Everett: Well, we'll see if Bruce Wayne steps up.

Robb Wolf: We've had a couple of really wealthy individuals say that when the right study comes along, they will chip in and fund it, and I think also we could do some good social networking like passing around the hat and having people donate to these things. We're looking at some nonprofit 501(3)(c) status so that you get some tax breaks on it and all that.

So we'll see. When these things are ready, we're going to do a rush for more funding because we're not going to get funding out of the standard channels so we're going to have to go alternative means with that.

Greg Everett: I'll chip in like \$3.

Robb Wolf: Sweet! You can forego play the nachos one day.

Greg Everett: Well, let's not get carried away.

Robb Wolf: Okay.

Greg Everett: All right. Anne Marie says, "Hello! I tried doing the Primal diet last year and was successful in it but I had difficulty incorporating it with our lengthy church fast. It seemed like my body was always playing catch up to meat and then no meat, et cetera. I'm Eastern Orthodox Christian. I have a link here if you are unfamiliar with it.

Do you have any helpful tips for religious fasting and regulating the switch that occurs during the periods between fasting and non-fasting to avoid a dip in energy? Thank you so much."

Robb Wolf: Really good question but I mean the tough thing here with any type of fasting protocol, particularly with the kind of like sunset to sunrise kind of stuff where you basically have more than half of the day blocked off, and typically, usually you're fasting during the waking cycle so not only do you have that to contend with but then you have to go to sleep, which is another fasting piece. It's just really hard to get enough calories in during this time, and so I mean it's pretty much when you can eat, eat like crazy.

Then you have the added kind of niggle in this whole scenario that you have periods where you can consume animal protein and you can't consume animal protein, and you're just going to have to roll with that as best you can, but I mean it pretty much boils down to, and I wish I had something more complex than this, like a 40-30-30 ratio too or something like that. But I mean it's basically like when you can eat and whatever you can eat at that time, eat the heck out of it, and then when those items go off the menu, then that's just kind of what's going on, and it's going to be pretty reasonable to expect a dip in energy because it's going to be really hard to get in the caloric level that you would normally see with just day-to-day eating.

But the uptick to all this is in the studies of Ramadan and similar fasting protocols, there are some significant health benefits that people see with this religious fasting. So you may not be as productive, you may not be as active or quite as energetic, but you're also going to have some health benefit over the long haul. So there's a little tradeoff with that and I wouldn't stress out too badly about it. But if you have to be productive, good cognition and all the rest of that, you're just going to have to really put on the feedbag and eat like crazy during the periods when you can.

Greg Everett: All right. Let's see. This one is called the "I, Caveman Home Edition." It sounds like some self-submitted Jackass video or something.

Robb Wolf: I think this thing has that potential when you read through this.

Greg Everett: "Robb, although I expected some Spurlockian B.S. beforehand, I really ended up enjoying the 'I, Caveman' series. Spurlock was humorous and didn't talk about the saturated fat content of that elk, so he and I are square despite the lies in 'Supersize Me.'

Anyway, first off: Elk + Atlatl + Robb Wolf = Most badass thing I've ever seen; awesome job though it was really sobering to see the emotion the kill brought about. Anyway, my question is this: how would you feel about someone trying a smaller-scale form of this experiment on their own?" Oh, shit. I hadn't even read this question and I pretty much nailed it.

"I'm in college and my best friends back home and I have a one to two day hiking/camping trip planned somewhere in the Appalachians. I've wanted to try some form of 'survival' for years now. So seeing you, someone I idolize/respect, do it, I'm now more gung-ho than ever. So what do you think? Can five college kids hope to attempt a three-day survive-athon in the mountains with basic gear and survival training and some research into wild edibles and trapping? If we were to attempt this, how would you go about preparation (i.e. what to bring and what knowledge is essential)? Thanks a lot, wild man."

Robb Wolf: So do we need our lawyer to review this one first?

Greg Everett: Probably.

Robb Wolf: We need some sort of an exculpatory deal here where it's like if you go into the wild and you die, we do not accept responsibility for this activity.

Greg Everett: If one were to do this experiment.

Robb Wolf: Yeah. So in all seriousness, like before I say this, obviously you can go get yourself in serious trouble doing this stuff. Like we had three mountain rescue guys basically onsite at all times. We had a doctor onsite at all times for this gig in addition to the fact that we had a full camera crew there that obviously could provide first aid or help with Medibag or something if something went sideways.

So in all seriousness, if you try something like this, you have to really keep in mind that you can get dead really quickly by bucking something up with this. So just keep that in mind in all seriousness with this.

Beyond that, I think three days of trapping and collecting and all the rest of that is completely reasonable and it all depends on what level of technology you want to bring to the game. I got to tell you, when we did the show, a bunch of the preparation I did like when I was making a fire kit for the hand drills and stuff like that, I made 80% or 90% of them with a pocketknife because it was just so much faster, but I made a couple of them with the stone tools that I knapped and it was so slow going doing that. It was just really hard.

But just a pocketknife in that scenario is a complete game changer. A pocketknife plus machete is a huge game changer. Like when you watch a lot of these survival shows, they are like, "Okay. So we need to build a shelter and the dudes will just like cut tree bows down and they build a shelter." We had to do all of that stuff either breaking the tree branches off by hand or assisting in that activity with a stone axe, and it was fudging miserable doing it that way. I mean like just a large kind of Bowie knife kind of gig, you could use to trim tree branches and the building of a deadfall shelter would be like five or ten times faster than what we were doing doing this stuff by hand.

So when you go into this, I would probably start on the -- bring some technology with you and then focus on like the foraging side. So I would bring a tent and bring sleeping bags and bring stuff to make a fire easily, matches and lighters and flint-type stuff. If you want to play around with making hand drill and a bow drill, I think that's totally cool, but I would honestly go into this with a lot of support gear initially, and then that way you're not as miserable and kind of stressed out on just your basic living side and then you can really put some effort into like the foraging, trapping, and hunting side.

And then over the course of time, if you want to do this in multiple iterations, then you could start getting a little bit more Primal on the technology side of that stuff. So that's the way I would tackle it and I would just have crystal clear knowledge on how to build a fire with anything ranging from a match to a flint to a hand drill or a bow drill. I would be crystal clear about how to avoid hypothermia and all that sort of jive, really, really clear about poisonous plants in the area and any type of potential poisonous insects or reptiles, and then just go from there.

Three days, if everything goes terrible, then you're just going to be hungry and you'll have some fun, and that's it so long as you're safe. But I guess it's pretty reasonable. I would go in with a fair amount of

technology to be able to focus on the funner elements of the trapping and hunting and all that.

And if you do any type of stuff like that, also really make sure that the land that you're on is kosher for the stuff that you're up to because sometimes collecting wild edibles, hunting unless it's non-game animals like coyotes or rabbits or something like that, make sure that all your I's are dotted and T's are crossed with that too so that you don't end up in a federal penitentiary for playing "I, Caveman" in your back forty. That would suck.

Greg Everett: Or out in that area in someone else's back forty, which would make me a little more nervous.

Robb Wolf: Yeah. The obvious banjo Deliverance kind of scenario is concerning, but yeah.

Greg Everett: Yes. All right.

Robb Wolf: So if you do that, let us know how you do it and please don't die.

Greg Everett: Yeah. Okay. This next subject line is "WTF? Sharks with Lasers for Fat Loss?" That's a long one. All right.

Andrew says, "Okay. So there are no sharks with lasers on their head but I thought it would get your attention. This is not really a Paleo-related question but I have been Paleo for four months now (great results) and I listen to the podcast often and know you to be a smart, fair, and scientific individual. I would appreciate your insight on this, so here goes.

I live out on the east coast of Canada in Fredericton (I believe you know some CrossFit folks out this way) and recently a company has opened up shop in our area promising that they can use laser technology to 'melt your fat' away and make your skinnier and healthier. When I heard this I just shrugged it off and assumed it was more of the common quackery that is the 'quick weight loss' industry. If people wanted to waste their money on this, so be it.

However, recently they have started a very aggressive advertising campaign on a popular local radio station. The radio station personalities involved are extremely popular and influential in the community as well as on social media. From the sounds of it at least one of the hosts seems to be giving the impression that his new found health is directly

attributable to this procedure. He is also very big on nutrition and exercise, and this is being overshadowed by the advert campaign.

Now, I could care less really what the general public wants to do with this as I am all for personal accountability. However, with this aggressive campaign I worry about people that I am close to actually trying this thing out. Luckily, they actually post a bit of background and clinical trial information on their website so I took a read.

Essentially, they are claiming to liquefy the fat and it escapes the cells through a small hole made by the laser. I'm sure there is more to it but my background is in IT, not biochemistry. I read through a few others and they also claim it reduces leptin levels (is this even a good idea?) as well as LDL cholesterol levels (no mention of what type of LDL is reduced). There is also some mention of increased levels of oxidation that I was not sure on since it seemed to me that they were trying to portray this as a good thing.

The most damning seems to be that most of this is non-randomized, non-blind trials. The one clinical trial they did was short-term and the notes on it even say that they had not done any long-term analysis on what the effects of this could be. Do you mind taking a look at this and letting me know what you think? Maybe release the Kraken on it? The procedure is apparently approved by the FDA and Health Canada." Well, that's reassuring.

Robb Wolf: Yes, so was fen-phen and a bunch of other things that kill people.

Greg Everett: You can find more here and there's a link in there that we'll post on the site. "If it is relatively harmless and the only danger is a drain on the bank account, I'm all for just letting fools be fools. If this is potentially dangerous I'd like enough ammo to try and dissuade anybody I care about from signing up. Thanks and keep up the great work."

Robb Wolf: I had heard about this a couple of years ago. I had not really checked it out. In researching this, it does in fact look like whatever the wavelength of this laser is that it kind of liquefies the triglycerides within fat cells, pops the fat cells open, and then these triglycerides can leak out and then they move via the lymphatic system through circulation and get reabsorbed.

The interesting thing with this, I don't really get how this is beneficial over the long haul because you're basically rupturing a fat cell, releasing the fat into circulation, and then it's getting redeposited in the liver

downstream and reposition. So in a way, it's a spot reducing fat say like out of your butt or your stomach or something, but it's going somewhere and like those calories are going somewhere. So in total, it's not just making them go away.

And when I was reading the literature on this, there is some significant oxidative damage that goes along with this. So we are basically dumping some lipids into circulation with oxidative stress, and this just seems like a horrible idea from like a cardiovascular disease standpoint.

Greg Everett: It sounds like you're just having a grease fire inside your guts.

Robb Wolf: Yeah, yeah. It's not far off of that. You don't have a box of baking soda to throw on top of it. So if you're super vain, honestly, I would almost be more inclined to do like liposuction or something like that. If I were ponying up to this thing, I would almost be more inclined to do liposuction over this gig. And I could be totally wrong. There's all kinds of problems associated with that. But to make an incision, suck the fat out, done almost makes more sense to me versus barbecuing the adipocytes, releasing these potentially oxidized lipid species into the system and then they get reabsorbed downstream by the liver and God knows what else.

And there's nothing that's been done on like what amount of oxidative stress is coming about here. Maybe it's not that much. Maybe it's a whole lot. Maybe there is some vascular endothelial damage because of the oxidative stress in these free triglycerides floating around and all that. As with all this jive, it would be nice if you could just get people to eat better and sleep and take some vitamin D, and I think that they're probably going to get within striking distance with the type of physique that they want.

I guess this thing could be something that you could use. Like if you're a figure competitor or something, you really want to do some kind of spot reduction-type stuff. It seems to legitimately work in that regard. But man, from like a fat loss in totality kind of thing, it doesn't make sense again because you're just dumping the fat out of the adipocytes to be reabsorbed downstream at some other point and then potentially with the collateral damage of the oxidative stress.

So I don't know. I mean it does seem to work up to a point, but then what the long-term side effects and all that jive, I just don't know. It is concerning though.

Greg Everett: It sounds like a bad idea.

Robb Wolf: It sounds like probably a bad idea. Yeah.

Greg Everett: Speaking of weird diet-related fats, David has a question on the HCG diet.

Robb Wolf: Sweet!

Greg Everett: David says, "Hey, Robb and Greg. My boss was talking to me about going on the IHCG (I believe that is Human Chorionic Gonadotropin) diet. Apparently it involves taking IHCG every day and dropping down to 500 calories a day. I am adamantly against it, especially since he is planning to run a marathon this spring.

Do you know about this diet? Is there any semblance of sanity to the idea of 'resetting your metabolism' by starving yourself and taking a hormone? Would you also be able to compare it to Cordain's Paleo for Athletes? I claimed that he can 'reset his metabolism' by continuing to exercise and following the Paleo for Athletes protocol. But he's my boss, so what do I know?

Thanks for all the help in the past. Love what you guys do."

Robb Wolf: Cool! So the HCG thing, HCG has some really interesting effects. It works similarly to luteinizing hormone even in men. Normally, HCG is released during pregnancy and it kind of sets the stage for uterine growth and all kinds of good stuff for growing babies and that sort of jive. But HCG is structurally very, very similar to luteinizing hormone so men can actually take HCG and get a boost in testosterone production because it looks like luteinizing hormone.

HCG has an interesting cell differentiation effect, some actually apoptotic effects so it will stimulate the program cell death of abnormal cells. It has some almost kind of hormetic features that we would see with like fasting or exercise. So it's got some legit benefit. There's no doubt about that. And then we know that fasting, we know that calorie restriction has some legit benefit for people particularly if they're significantly overweight.

The combination can be really, really beneficial for people. Here is the problem though. The reason why people are sick and fat and broken is because of some elements of their diet and lifestyle that are just at odds with their genetics.

So I think several podcasts back about Chris Kresser and Mat Lalonde and I talking about like protein-sparing modified fasts and that there may be appropriate scenarios for that even though I have resisted the heck out of that stuff. But you know, Chris Kresser deals with some really kind of metabolically broken folks that standard Paleo, standard exercise and stuff just doesn't seem to be cracking the nut with them although you always wonder about compliance and whether or not people are being honest with what they are up to and everything, but he has commented to me that he feels like these people are being honest in both their attempts at eating well and exercising and everything and their leptin signaling is broken and all the rest of it and so maybe some sort of a protein-sparing modified fast would be appropriate.

If you were to take people and use some HCG plus a calorie-restricted diet, I think that you could probably produce some really remarkable changes in their metabolism. The problem is that it's not going to fix everything if you just go back to doing the same damn stuff that you typically do.

So it's like will it work? Possibly yes. Is it dangerous in and of itself? I would say probably not. Is it going to affect any type of long-term change? Not unless you change the factors that actually got you to that spot in the first place, and what I noticed is that the personality of the people who tend to gravitate towards this stuff, they typically don't change things.

So I don't know. I mean if they've got money to burn and they just want to be skinny for a while and then have recidivism and go back to being fat and broken, then I guess that that's their prerogative and maybe they could go on some sort of a revolving door with this and drop in on the HCG plus starvation deal every two or three years after they've fudged themselves up again.

I think some really fastidious efforts at sleep and exercise and Paleo eating, maybe low carb, maybe some calorie restriction, I think you can get most of the benefits out of that for most people. Again, maybe some people are so broken that it's not going to work for them and you legitimately need some sort of a more burly intervention to get them some sort of legitimate progress.

But then they have to change things. Like going right back to skinny sleep, going to bed too late, bad food, drinking soda, bad vitamin D levels, it's just going to undo whatever progress that you had with this. So could the HCG deal work? Yes. Is it going to undo bad general lifestyle? No. Could

you use Paleo plus exercise plus smart lifestyle to get probably most of the results that you would get of all this stuff? Yeah, I think so, but there again, where is the compliance with folks?

Greg Everett: One of my all-time favorite TV commercials is for some weight loss drug which I don't remember the name of it, but in their kind of like introductory spiel, it's like, "Fat gain comes from stress at work, lack of sleep, poor nutrition and failing to exercise," or something like that where they literally give you the formula for getting fat which then of course in reverse is the formula for getting unfat and then go on to tell you that people lost all of those weight without changing any of their lifestyle factors.

Robb Wolf: Right.

Greg Everett: Well, you've got to be kidding me. I mean it's not even trying to hide the facts. It's just like, "Hey, we know you're a bunch of lazy assholes so here's a pill for you."

Robb Wolf: We had an idea for a product that was basically like a placebo, just cornstarch or tapioca starch so that it's Paleo starch or whatever, but we would have this massive disclaimer on it. I shouldn't even say this because somebody is probably going to scoop me on this and actually do it. You know what, actually, I'm not going to say it because we might actually crack this thing out.

Greg Everett: Yes.

Robb Wolf: We might do it someday. It will be an off brand and we'll get some crazy dude who is all hyped up on cocaine, kind of Robin Williams Mork and Mindy style to pimp the deal. Yeah. I'm not actually going to say what it is.

Greg Everett: Yeah. You can't be giving away all your goodies and ideas.

Robb Wolf: Yeah.

Greg Everett: Okay. Well, speaking of that whole thing, Tom says, "Robb and Greg, over the past year, the subject of performance-enhancing drug use among athletes seems to have become a popular topic in the media. Whether it be growth hormones, steroids, et cetera, there seems to be a weekly story regarding one of these substances. Coming from your background of biochemistry as well as Greg's in weightlifting, from a research review

or anecdotal standpoint, what would you say are the true risks associated with taking such substances?

The media seems to play it off as one of the most deadly substances on the planet, yet more people die from Tylenol overdose each year. In contrast, documentaries like 'Bigger, Faster, Stronger' depict a much brighter picture supporting the efficacy of their use. Obviously I'm not asking either of you to endorse them, but it'd certainly be nice to get the opinion of an unbiased source.

Thanks for everything, and keep the podcasts coming because they're literally the only thing keeping me sane during long drives!"

Robb Wolf: Gosh, man!

Greg Everett: This is a hell of a question.

Robb Wolf: That's a great question. And as with everything, the poison is in the dose. So if you go completely nuts on almost anything and that you can get yourself in deep water. The interesting deal, let's even look at professional bodybuilding which is fucking crazy with this stuff.

Greg Everett: Oh, you mean lifestyle chemistry?

Robb Wolf: Oh, dude, the amounts of drugs that these people take is just staggering, but even within that scene, every once in a while though, they'll have somebody die in professional bodybuilding or fitness or something like that. Inevitably, it's related to a diuretic so these people are trying to get super, super dried out so that they look real lean and vascular. It's not the thyroid medication. It's not the growth hormone. It's not the testosterone. It's basically tweaking with your electrolyte levels and using essentially heart medications that these people end up dying.

So if you exclude that, when you look at the pharmacology of this stuff, when you look at the epidemiology of people that have used this stuff over the long term, the handwringing and the vilification of it is just stupid and there's lots of examples like I think even in that movie, the Bigger, Faster, Stronger, they talk about people with HIV-AIDS using anabolics as a way to avoid.

A really interesting feature of the difference between HIV and AIDS, HIV is just being infected with the HIV virus. AIDS is this whole syndrome that occurs. The interesting element between the difference is that it's actually a breakdown in intestinal barrier function and then a breakdown

in the ability to absorb nutrients and then also damage to the immune system that really distinguishes the two scenarios, one of them being a situation HIV in which you could live indefinitely with AIDS. It's probably going to kill you.

And the really interesting thing is that anabolics largely offset this whole process entirely. It doesn't rid you of HIV but it seems to forestall the development of AIDS and most of the people that have tinkered with this and at a fraction of the cost of the antiretrovirals that are usually prescribed to people with HIV. It's been a long time since I've really researched that stuff so I'd have to look at the pharmacology and the toxicology on the antiretrovirals but they're not benign substances. They're really expensive. They're proprietary and all the rest of that. So you've got kind of a scenario there where you could use these things therapeutically, probably cheaper and probably safer.

In Europe, this stuff isn't as emotionally charged. A lot of the places around the world, it's not as emotionally charged. The US is really weird in that we are so puritanical about stuff. We don't want anybody to like take something that's going to make them feel good unless it's caffeine, nicotine, or booze, and it's basically like some uppers that are kind of marginal uppers, a downer that has horrible side effects, and that's it, and it's basically keep the worker bees productive, let them numb themselves around the weekends to the degree that you don't have a peasant uprising in that and call it good.

But there's all of this stuff about let's just say I want to go to my doctor and say, "Hey, doc. I'm kind of a skinny twerp. I'd like to go on some sort of anabolics so that I can be a little bit more lean and jacked." Well, do you compete in any sports? "No." Well, okay, let's do it then.

And you can't do that. Instead, I have to go to my doctor and the day or two before, I need to stay up until 4 in the morning and drink myself into a stupor and get myself a total testosterone level of 150 and make myself look like a 12-year-old girl, and then I can go on a super modest dose of hormone replacement therapy and that's about as good as it's going to get.

And I just for the life of me can't figure out why there's some sort of litigiousness about just trying to optimize your health and performance. I mean I've been rattling on. I want to hear Greg's thoughts on this deal.

But as far as the health risks, they are minimal. Like it's less than drinking booze as far as like liver function and all the rest of that. There are well-

established protocols so that you don't downregulate neurological elements of luteinizing hormone. There are all kinds of other herbal and pharmaceutical interventions that you can use to help augment this stuff so that you could make things work better.

We know for a fact that like even I think I mentioned this a podcast or two ago, reading some studies on type 2 diabetic men that they did nothing other than put them on hormone replacement and it normalized their blood glucose disposal. So why aren't we more liberal in using this stuff? Because we're puritanical and we want to pull people under our thumb and don't want them to live a better life? It's just ridiculous. And there's really no scientific justification for this. This is a total morality kind of gig.

And the interesting thing is even when we start talking about competitive athletics, when you create arbitrary standards of testosterone levels or EPO levels or whatever, then what you create is a situation in which the smartest, most well-funded people will find ways to game the system, and so you're a lot of better off just Saturday Night Live all drug Olympics style where it's like just do what you're going to do and you understand that people are going to use the best of pharmacology and genomics and all the rest of it so try to win things.

Very, very soon, we're going to have genetic manipulation that you won't be able to track by any type of blood work in which you can turn on growth hormone production, testosterone production. You can downregulate myostatin gene expression. So people are going to get big, strong and jacked from a genetic level. You're not going to be able to regulate that. You might be able to see gene doping on some sort of a genetic test but then the thing is that you have certain people in the population that have that normal genetic profile. So then are you going to discriminate against people that are naturally born with that then people who are born naturally with this advantageous genetic profile are no longer able to compete?

And I actually saw a piece on it was like 60 Minutes or something like that, and one of these researchers in the anti-doping scene was basically saying that genetically talented people should not be allowed to compete, that you should basically screen for the genetically average and then let all of these puds duke it out and that this is somehow going to be interesting, beneficial, or fair.

Greg Everett:

Oh, Jesus! That's the whole everybody gets a medal sort of thing.

Robb Wolf: Yeah. Everybody gets a medal. Everything's going to have equal pudding. And I know some people get spun on the kind of political side, but this is just this like weird kind of liberal touchy-feely weirdness, man. It's like some people are better than other people. It sucks. Suck it up.

Greg Everett: It's true. The whole thing, and I'm going to try not to go on like a 50-minute rambling discourse on this because it gets me a little wild up, but it's just flat out absurd from start to finish and I kind of have to wonder; and I don't really remember that movie, the Bigger, Stronger, Faster movie, but I think they kind of touched on the whole Cold War competition thing where it was like US versus the Soviet Union and our whole moral victory was blaming their athletic prowess and success in the Olympics and whatever on drug use and all that stuff, which was of course complete bullshit.

Robb Wolf: Ken Patera was competing against Vasily Alekseyev, and Ken Patera, there's a great quote there where he was like at the next competition, we'll see who has better drubs.

Greg Everett: It's just silly to think that at that level, I think there's a real huge misconception publicly that the very few people who actually test positive and whose positive tests are made public are the only ones using. Like we've got some kind of 90% to 100% success rate in catching the offenders, which is just nonsense.

But more directly to the point of the question because that's just going way off the reservation, I think it's crazy like Robb said that this whole anabolic thing is kind of pushed into the broscience arena, and so now there are people who are going to use this no matter what. It doesn't matter if it's illegal, whether in terms of actual law or just the rules of a game. They're going to use it.

But now, they're forced to go and rely on information from people who may or may not know what they're talking about instead of being able to go to a doctor who can actually prescribe them the medicine, monitor them, make sure it's done safely, make sure they're not doing anything that's contraindicated, and have them do this in a healthy, safe way, like it's just stupid.

Robb Wolf: So do you go to a Harvard or Stanford graduate or do you go to Vinnie?

Greg Everett: Right. Exactly. And the interesting thing is that a lot of these guys who have no education have become actually extremely well-educated on this stuff and they can do a good job; but for every one of them, there's got

to be a thousand guys who are complete knuckleheads and good luck with that.

But I mean the actual drugs, I don't know how they've gotten so vilified and how it's become this thing that is so scary and so threatening to the safety of our nation's youth, like it's crazy to me. These kids are out there taking Ketamine and Ecstasy every weekend, but God forbid Little Johnny injects 400 milligrams of testosterone a week so he can play football better in college. It's just ridiculous. I don't even know what to tell you other than it's illegal, don't do it. If you're a competitive athlete, don't do it.

Robb Wolf: It's just ridiculous.

Greg Everett: I feel like that question just didn't play out very well, but there's too much to say on it. It's just such a huge issue and it's so just rife with stupidity and frustration that it's hard to really provide at all useful answer.

Robb Wolf: And really, just for me, it boils down to that same deal. Whenever you have prohibition on something and people want it, then you're going to have worse problems with the prohibition enactment than you are with just trying to figure out, "Okay. How are we going to regulate it and make the usage of this item reasonable and aboveboard?" And holy cats! Maybe we'll tax this stuff and actually generate some income for the government and stuff like that. Instead, Vinnie makes the money it. So it's that same deal.

Greg Everett: Well, and I think the other thing to keep in mind is that I kind of alluded to this earlier where people a lot of times are under the impression that the people who get caught aren't the only people using when that couldn't be further from the truth. And so what that leaves you with then is the fact that there are hundreds of thousands of athletes who have used this stuff, are using this stuff who have no health problems. But it's the select few people who die or who get sick who somehow decide that they are going to blame steroids for it even though there's no legitimate scientific connection there, but they have decided that that's the problem and like the media will just clamp on to that and will not let it go.

It's usually the fact that these guys, they were doing a shitload of cocaine, like all kinds of crazy other stuff, the diuretics. They were injecting insulin, just wacky stuff, but it was the steroids that caused the problem or killed them, and I don't know why is it that that's so fun for people to just blame steroids for everything.

Robb Wolf: It just seems scary and I mean it goes on a lot of levels because like even to some degree if you get in certain circles like anything masculine, testosterone, chest beating, bad, bad. Little boys wrestling, bad! It's like all of that.

So you've kind of got that one quasi-feminist side that doesn't like any of this stuff and you've got this kind of weird, moralist religious side where it's like people shouldn't take drugs. They shouldn't this. They shouldn't that. And so we start moralizing all this and we end up pinning ourselves into a corner where it's like, okay, we'll moralize it, litigiousize it, and then we'll turn it into a black market scenario that we have no control over, and then legitimate bad stuff can happen. Versus like we regulate it, make it an open market, allow scrutiny and regulation on the thing to occur, and then we've got some way to control the beast.

Greg Everett: Yeah, that's the other issue is now that it is illegal, you basically just guaranteed that you can't do any legitimate studies on it because now it's unethical to administer the stuff to people because it's so dangerous. So now, you've just guaranteed that you cannot actually get answers on this stuff. You're going to have to rely on pure anecdotal evidence and that's extremely difficult to get from the people who actually know it because the people who actually know are the people who actually use it who can't openly admit using it because it's fucking illegal. You know what I mean?

Or they're actively competitive athletes. They can't go out there and be like, "Yeah, I'm taking this, this, this. Here is my regimen. Here is the blood test I get every six months to make sure I'm not dying." Whatever the case is, they can't be open about that, and so again you have these people who they're going to do it no matter what, and so now they have to go through and figure it all out on their own again and try to reinvent the wheel when there is a perfectly good wheel over there in some other guy's freaking garage. So it's just so stupid. It drives me nuts. But kids, don't do steroids.

Robb Wolf: Exactly. Just become libertarians so that we can change the policies and then you can do what you want to do and not go to jail for it.

Greg Everett: But weightlifting specifically, European coaches, Asian coaches, they literally just laugh at us like, "Why do you guys even bother with this sport without drugs?" Like it's just absurd to them. There's just no point.

Like for example, I'm not going to name names or even the country, but a story told to me just recently, which is a perfect example of it. A certain European team came over to train at a certain US gym, and during the day, one of them was asking one of our US lifters like, "Hey, where can I go buy protein powder?" And she says, "Okay. Well, I'll take you to GNC, whatever." He says, "Okay. Well, where do I get natural testosterone?" And she is like, "What? What do you mean? You can't just go buy that here."

Like that's how normal it is. That was just the next normal question that came after "Where do I get my protein powder?" "Okay. Now, where do I get my testosterone?" It wasn't some weird under-the-table like hush-hush thing. It's just the way it is. So like that is just such a crystal clear example of how different our view on the whole matter is here versus the rest of the world. Who incidentally beats the shit out of us in weightlifting?

Robb Wolf: Well, in virtually all strength athletics that have any type of type regulation in that regard.

Greg Everett: Yeah.

Robb Wolf: Yeah.

Greg Everett: So anyway, it's interesting that this question came up because I'm actually in the middle reading that book "Game of Shadows" which it's two reporter guys who it's talking about the whole Victor Conte, BALCO, Barry Bonds, Marion Jones, like all these guys. It's actually pretty interesting, and another good one for you is Speed Trap by Charlie Francis who was Ben Johnson's coach.

Robb Wolf: Right.

Greg Everett: The more of that stuff you read, the more clear it becomes at it's not just a select few people who are doing this shit.

Robb Wolf: It's just pretty much who they want to get caught.

Greg Everett: Basically.

Robb Wolf: Yeah.

Greg Everett: It's a conspiracy.

Robb Wolf: Or somebody who just makes a goof.

Greg Everett: All right.

Robb Wolf: Okay. Should we wrap this up with a fiber question?

Greg Everett: Probably since we just wasted like 30 minutes there.

Okay. Duncan says, "Hi, guys. I have a question about a product I saw on TV a few days back called Kfibre. It's basically the fibrous pulp left over from sugar cane milling, dried and ground to a fine powder which apparently performs like wheat flour but has practically no energy as it is mostly just insoluble fibre.

Have you heard of this stuff, and do you think it has any place in a low carb/Paleo diet? I like the idea of being able to eat pie and pizza again on occasion, but isn't this basically like eating sawdust? And if so, does it really matter?

Thanks for the podcast, a great resource and very entertaining. Going Paleo has helped lower my blood pressure, reduce my waist line and has eased the aching, arthritis like pain from several old injuries which I used to suffer in cold weather. Still hurts, but nowhere near as much. Cheers!"

Robb Wolf: This was new to me and so I read up on this and all I could say is give it a shot. I don't have enough information on it to know whether or not you would have any potential gut irritants in this. Too much fiber can in and of itself be a gut irritant. But shocks, I don't know if it goes together like wheat flour and you can make some sort of wacky pizza crust out of it and it tastes okay, go for it.

I don't have enough information on it to unequivocally say yeah, it's good or no, it's bad, but it looks kind of interesting and maybe it could be useful in some ways. I think it's probably doing smarter doing that than trying to, I don't know, do something else with it. So I would give it a shot and see. That's about all I could say on it. It looks fairly benign. It's hard for me for me that it doesn't in fact taste like sawdust. But I don't know. Give it a whirl.

Greg Everett: I don't know.

Robb Wolf: Let us know.

Greg Everett: Using a wheat substitute is immoral in my opinion. It's an unfair advantage over your celiac competitors.

Robb Wolf: That's true. I don't know and I'm imagining though if this stuff is like 100% fiber, it reminds me of the old Saturday Night Live Colon Blow commercial. "It's like 10,000 bowls of fiber!"

Greg Everett: Oh, man.

Robb Wolf: It's like barbed wire for your colon.

Greg Everett: I just love the shape of the cereal. It's just like these weird like stalactite-looking clumps of fiber.

Robb Wolf: Right.

Greg Everett: Oh, boy! All right. Well, let's get out of here. I'm going to go lift some weights.

Robb Wolf: Okay, dude. All right, man. So anything new? Anything you need to tell folks about?

Greg Everett: Weightlifting seminar, Fairfield, Connecticut, February 20-something. That's my first nonlocal one in like two years. So if you're on the East Coast, I'm looking to do a weightlifting seminar. Then check into that because I probably won't be doing another one anytime soon.

Robb Wolf: Cool! Sweet! Right on, man. All right. Will talk to you soon.

Greg Everett: All right. See you.

Robb Wolf: Later, G.