

## Paleo Solution – Episode 143

[0:00:00]

Robb Wolf: Hey folks, Robb Wolf here, Greg Everett. All I can say is this has all happened before and it will all happen again.

Greg Everett: We had quite the productive dress rehearsal yesterday but thanks to my brilliance we're gonna go ahead and do this again. I just mentioned definitely this is now one time that I know what's coming with the questions so I have new excuse at all for reading it like an idiot.

Robb Wolf: I don't know what it is but we had the near miss of doing this particular episode two weeks or three weeks ago and then the recording didn't work and now we're here today like you get something of a governmental or HQ plot to prevent this information from getting out?

Greg Everett: I don't know. I think it was just my cosmic penance for skipping over this episode three times.

Robb Wolf: It was such a good episode that we had to pay some karma back.

Greg Everett: Yeah exactly. All right.

Robb Wolf: So I think we've had all kinds of light hearted banter yesterday about what we had going on.

Greg Everett: It was definitely the best episode ever. I'm sorry you guys would never get to hear that.

Robb Wolf: All that we had was my side of it so we could've just played it. I've listened to it once without Greg's other side and it sounds damn creepy. It probably sounds the way I will sound once I've fully lost my mind and Nikki has institutionalized me at some point.

Greg Everett: Yeah really what we need to do is just get one of those robot voices just to have an automatic reading of the questions and then you can follow with up with your answers.

Robb Wolf: That can work.

Greg Everett: You really don't need me for this.

Robb Wolf: But it's more fun with you.

Greg Everett: For whom?

Robb Wolf: The listeners?

Greg Everett: All right. Fair enough then. I have fun but I'm not the one paying for it.

Robb Wolf: I don't know who's paying for it so -

Greg Everett: Okay. Before I forget again which I almost forget the first time we did this episode we need to thank Lee Gamble and Fed Detas for being kind enough to give us some intro music which will make its premier on this episode.

So let's see thevendettas.com.au I believe is their website. Let me double check that. Yes. So if you're on the bottom of the earth and you want to see these guys play they're in Melbourne and the website will have their booking stuff and then they have an album called burn on iTunes.

So go check that out and make sure you say thank you for making this podcast sound so much better.

Robb Wolf: Because it covered up a chunk of time in which we were not talking which improved it dramatically.

Greg Everett: There you go. Maybe I'll just put it on loop in the background faintly so all the awkward silences don't seem so awkward anymore.

Robb Wolf: Perfect.

Greg Everett: All right. Well so what do you need to tell people? What do they need to know?

Robb Wolf: I guess I mentioned that I was on the Joe Rogan gig which I think a lot of people checked that out and that was super fun, did not get to do the sensory deprivation tank, did talk about drinking urine, did ingest multiple toxicants during the course of the show.

Greg Everett: How could you not?

Robb Wolf: Yeah how could you not? It's like so do you smoke? When I'm with Joe Rogan I do. Then proceed to drinking a 16 oz glass of vodka. So that was a good time.

Greg Everett: Well you know it just smooths out the rough edges.

Robb Wolf: Yeah. I had no rough edges because I had been poured into from a vase into a bowl into that chair.

Greg Everett: It was pretty impressive. The range of topics that you guys managed to discuss.

Robb Wolf: That dude's brain is so random access but he is totally able to stay on point with a particular idea and it was hilarious. He had his laptop set up. He's right on the microphone and then the way the laptop was set up from his nose down which is gone.

So it was just like these huge Joe Rogan eyes just like so what do you think about bacon? It was pretty epic. It was cool. Then I did a talk. Then after the talk I got to go jump out of a plane and that was kind of cool and I survived.

Greg Everett: Which was awesome. Well I mean as long as it's intentional.

Robb Wolf: It was intentional. So that was cool. It was a good trip, a long trip. I missed my family. I'm not as fired up being on the road these days, definitely not for 4 days straight, 5 days straight.

**[00:05:15]**

Greg Everett: I'm being hammered lately with people like when are you gonna come out on the road and you need to come to Europe. And I'm like that's far away. I'm comfortable here.

Robb Wolf: We should just go to Corsica or something and the do like a one month retreat there and do O lifting, nutrition, strength and conditioning shenanigans and booze.

Greg Everett: I will certify people in shenanigans.

Robb Wolf: And booze.

Greg Everett: I have no objection to that. The other stuff - maybe not. We'll see.

Robb Wolf: We'll throw it out there and see if folks want to do that. That seems cool.

Greg Everett: No one wants to do a retreat in Sunnyville California?

Robb Wolf: I think that that's called dooms day bunker in sunny California. It's not so much retreat. It's when the apocalypse happens.

Greg Everett: Damn it. Okay well should we give this another run and expecting that our answers will be so much better with the practice?

Robb Wolf: Well it would have been cool to have kept my side I guess at least of the other thing and then over lay them and see how different from one thing to the next. We'll give that a shot.

Greg Everett: I don't know if we want people to hear that.

Robb Wolf: It's like wow he really does make all that stuff.

Greg Everett: Okay. Well the first one is subject Aunt Jemima pee. So this is not related to drinking your own urine while on mushrooms as was discussed on the Joe Rogan experience.

Robb Wolf: That would be stoning meet stoner pee.

Greg Everett: That was the point at which I decided it was probably wise to turn that feed off that was going on to the gym floor, people were watching and put weightlifting back on the TV. We're getting far upfield at this point. All right not to say that I wasn't interested.

Robb Wolf: Oh thanks for running that though. I feel honored. Thank you.

Greg Everett: No problem. Phil says Robb and Greg. My friend's 2 year old daughter was just diagnosed with MSUD, Maple Syrup Urine Disease. Yeah, that's a real thing, I checked to make sure it was not a joke. MSUD is a branched chain amino acid disease that can be serious and is usually managed by avoiding leucine, isoleucine, and valine according to Dr. Wikipedia. Who as I mentioned last time is a colleague of Dr. Google.

Robb Wolf: They're pals.

Greg Everett: They share an office.

Robb Wolf: And actually yesterday at this point. It's kind of funny. It's a little bit of a déjà vu kind of gig but I did recently donate \$100 to Wikipedia. I think it's an amazing resource. It's literally the greatest repository of human knowledge ever. Collected most of it's pretty good, some of it is bullocks but whatever. It's free.

It definitely makes my life easier just being able to get a first pass when I'm trying to research a particular topic like maple syrup urine.

Greg Everett: And for those of you who complain about its inaccuracy remember it's open source so if it's inaccurate it's your fault.

Robb Wolf: You can fix it.

Greg Everett: Because of this, I am almost sure the dietician is going to recommend limited meat and plenty of grains. Is there any experiences you've had with this somewhat rare disease, and is a paleo diet still something that should be done for this child? Thank you.

Robb Wolf: And similar to yesterday I think the previous podcast or maybe one back before it I talked about another metabolic condition and what's happening in these situations is that an individual can lack an enzyme to degrade a particular chemical substrate in PKU phenylketonuria you have a situation in which phenylalanine cannot be broken down.

This is similar in that these branched chain amino acids cannot be normally metabolized so they accumulate, get pumped through some other pathways and accumulates in toxic byproducts and the way that I would tackle this is you could easily do some sort of a Kitavan-esque diet where it's significantly higher carb, moderate fat and then low protein.

And then do some looking around like on the USDA Nutrient Database. You could probably get some help from a dietician, maybe even Steph or Aimee in this regard to figure out what are those foods that are just naturally comparatively low in branched chain amino acids.

I don't know if halibut relative to salmon would be significantly low in branched chain amino acids. I don't know that stuff off the top of my head.

Greg Everett:

You don't?

**[00:10:03]**

Robb Wolf:

Well I will. I'll fix that hole in my game because it will be super important for the rest of my life. So that's a way to go with it. I do know that there are some kind of engineered foods that are given to folks with this condition that are low in branched chain amino acids.

Greg yesterday you asked branched chain amino acids are essential. We have essential amino acids, conditionally essential amino acids and these guys fall under the essential category and I know that there's a threshold at which beyond that level then these amino acids start becoming toxic.

So there's a baseline where you still need the branched chain amino acids and I'm not sure if that's one gram of branched chain amino acids, the whole mix of them per 5 lbs of body weight or what that is but again a dietician or a genetic counsellor should be able to dial that stuff in.

But as a big picture deal you don't obviously we've talked about this a bunch, paleo doesn't need to be a high protein affair. It can be totally macronutrient agnostic. We still get the benefit of reduced gut inflammation and systemic inflammation by avoiding grains, legumes and dairy for the most part.

And then if you need some sort of an engineered food that is low in branched chain amino acids then that could be helpful and then also whatever protein sources you are eating if you get educated on which ones are comparatively lower in branched chain amino acids then that seems like a good way to round out the solid food.

And it could be a higher carb kind of thing like a Kitavan deal. It could be a lower carb deal more ketogenic but the basic deal is that you're keeping protein intake low and keeping branched chain amino acid intake low.

Greg Everett:

Cool.

Robb Wolf: And that's all I've got to say about that on the second or third go around.

Greg Everett: That sounds about right based on what I heard yesterday. All right. Can you develop lactose intolerance on the Paleo diet. Tiffany says Hi Robb I am a CrossFit athlete who has been living the Paleo lifestyle since April. I love how eating clean has made me look and feel!

I casually mentioned to our sports nutritionist at school that I was doing the Paleo thing and she said something that bothered me a little bit. She said that even though I have no food allergies or any digestive - lactose or gluten disorders, there's a slight chance that eliminating dairy from my diet completely could make me develop a lactose intolerance.

Is there any truth to this statement? I started Paleo because I wanted to get stronger in the gym and feel better about my body and let me tell you. It's been working phenomenally. Truly. But her comment scared me a little though, and I figured what person better to ask than you.

I look forward to hearing back from you. Thanks so much!

Robb Wolf: I killed this answer yesterday and I'm having anxiety about it.

Greg Everett: Straight up murdered it.

Robb Wolf: What did I say?

Greg Everett: I can summarize for you.

Robb Wolf: Go for it.

Greg Everett: Yes. It's possible. Most people in the world become lactose intolerant. The exception is people who are not lactose intolerant but if you're not going to commit to eating Paleo you probably need to keep a little bit of dairy in your diet. If you are gonna commit then it doesn't matter anyway cuz you won't be eating dairy.

Robb Wolf: Dude. I like it.

Greg Everett: But you should probably expand on that though cuz then we'll get some nasty comment in the show thing about - you skip this question over and I'm pissed off. I expected more.

Robb Wolf: You're not getting your nickels worth.

The dietician or the sports nutritionist is accurate. If you pull lactose out of your diet completely, pull all dairy products out of the diet, if you are northern European or some other heritage where you maintain lactase production throughout your life most people produce lactase as a baby.

And then that drops off as they wean and if you consume dairy products that has lactose in them then it makes you farty and shardy and all kinds of fun stuff.

So let's say you're Northern European in heritage and you've been keeping some dairy in the mix even some yogurt or something which still has a little bit of lactose in it you maintain or have a tendency to maintain that lactase activity.

If you pull the lactose completely out then you can down regulate that activity and it may not come back online and so there is a possibility of that but my deal with this has been that it's still befuddles me like what exactly are you getting out of these dairy products and even somebody with really low lactase activity or no lactase activity yogurt usually is pretty doable particularly some of these better quality yogurts that have been really thoroughly digested by bacteria.

**[00:15:20]**

If you are really pining for some extra protein then you can go with weight protein and it's not gonna have any lactose in it. If you want to keep some dairy in the mix so that you theoretically maintain your lactase activity then go for it.

Obviously I'm not a huge dairy fan. I'm pretty cool with butter for most people for cooking and some cream in their coffee if they want to do that but it's just one of those things in the bigger picture I just don't know that it really matters all that much unless you are consistently eating dairy but then if you are consistently eating dairy it's almost a moot point.



Greg Everett: Just to reiterate what I said a minute ago which reiterating what I said yesterday like Rob said that you didn't hear so it doesn't really matter. If you're going 100% Paleo then this shouldn't concern you.

If you feel so great and you love it, it's working for you then I just don't see a reason to freak out about not being able to eat dairy without pooping your self on the occasions that you do if you do turn out to develop some intolerance throw a little lactase in the mix. It's a super cheap very very accessible supplement. It's not a huge deal.

Robb Wolf: If you're gonna kick your heels once a month and have some ice cream or something you could get a bottle of that stuff. Gosh I don't know. It's much to do about nothing Greg.

Greg Everett: Indeed.

Robb Wolf: But it's a good question. At some point down the road I'm gonna talk - I may need to do a blog post on this topic but talking about - one of the common counterparts about eating Paleo is eating Paleo will make you gluten intolerant because then you get sick when you eat gluten.

And it's like no. Your gut lining is actually healthy and it responds to the way it's supposed to respond to this because it's interpreting this toxicant as like a parasite or something. I need to do a thorough treatment of that but there are some important points to be made exposure to these things and what the significance is and in this case you legitimately could be down regulating an enzyme that deals with lactase.

And the gluten and grain intolerance deal. What we're looking at is actually that your gut gets healthy and then you can have a more pronounced response which reminds me of the married with children episode when Jupiter came to live with them and then he ended up dying.

Greg Everett: Cuz he was eating bon bons all day.

Robb Wolf: Cuz he was eating the way that they were and Albundy was like well we're like the equivalent of the human cockroach.

Greg Everett: Good show.

Robb Wolf: Ed O'Neil, brown belt or black belt in jits

Greg Everett: No way.

Robb Wolf: Yeah.

Greg Everett: See that guy's huge now. He's on the Modern Family show. He's jacked. Pretty awesome. All right. Of plants and toxicity. Guillermo says dear Zorg Council. I've been listening to the podcast for a while, and I remember Robb saying that the toxic part of tobacco is the plant, not the nicotine.

Recently Robb has mentioned using nicotine to help with fat reduction (estrogen receptors) and to help with histamine reduction (who knows how). Other than giving you a wicked buzz and being awesome, what other cool things can nicotine be used for? Who should avoid it?

Robb keeps suggesting nicotine gum, what about vaporizers? You know those cigarettes from the future. You might look like a douche with an e-cig but, man they are tasty. Thanks guys and keep learning me much. Guillermo.

Hopefully Greg is gonna loose it with that last sentence and I said last time Guillermo no. I'm not gonna loose it because it was very clearly and intentional - well not mistake. It was intentionally written like that.

Robb Wolf: An intentional grammatical -

Greg Everett: And as Robb said it's only a problem when I'm trying to read it and I can't figure out what the hell you guys are trying to say.

Robb Wolf: Yes and we missed mom's air freshener obsession so we need to go back to that.

Greg Everett: Son of a gun.

Robb Wolf: So what's the main question on this like the other -

To clarify this it's not to say that nicotine is not toxic but it functions more as a neurotoxin like if you chewed up 4 or 5 pieces

of 4 mg nicotine gum you're going to purge out of every orifice you have and maybe a couple of you didn't even know you had -

Greg Everett: So you're saying it's a weight loss supplement.

Robb Wolf: It'd be a wicked weight loss supplement yeah and I think I told the story of my first exposure to chewing my one and only exposure as a kid when I was a -

Greg Everett: Although for you it was not chewing, it was more swallowing.

**[00:20:14]**

Robb Wolf: Yeah. I didn't know that when you put in a dip that you were supposed to spit that stuff all out and you were just supposed to very passively let the nicotine percolate through your mucosal membrane in your mouth.

So a guy asked we were in a foot ball game. This probably like 9<sup>th</sup> grade, 10<sup>th</sup> grade something like that and the guy was like you want a dip and I'm like sure, whatever. And so maybe 5 minutes in I started feeling really really bad and the people around me were like dude you're turning green.

I eventually ended up outside the entrance gate to the football game where there was a long line of people coming in. I was so sick that my chin was literally on my nipple. I was just so lax and my feet are like all akimbo out in front of me and I apparently was like incredible hulk green.

And what's interesting is nobody did anything and as we discussed yesterday I don't know if it's because I still had a low grade moan occurring and so they're like ah, he's still alive or I was so green that they're like oh that guy's so fucked, don't even worry about -

[Cross-talk]

Greg Everett: Move on to the next person.

Robb Wolf: I doubt we can even use him for organ donation at this point. So just to clarify -nicotine does have a toxic level for it. Back in the day it was used as an insecticide. I don't know like a gram per

kilogram or it would be more toxic than it is for us but definitely toxic for bugs.

That's part of the reasons that's why it's in plants, same deal with caffeine and ephedrine and all kinds of other alkaloids. They actually have a toxic effect and also have the metapharmacological effect. Plants, spirit and medicine would say that that stuff is air because it's to be helpful for us for the great spirit of the universe or it just happens that different molecules have similar shapes and so dopamine agonists and stuff do dopamine agonist type things in addition to potentially killing cockroaches if they consume a lot of it.

So that's all that stuff -

Greg Everett: That was remarkably Joe Rogan podcast-esque right there.

Robb Wolf: And I've had no hemp products or alcohol today too. So go figure that one.

Greg Everett: That's no fun.

Robb Wolf: So my point before was that the main really nasty elements of nicotine consumption is typically the tobacco product which if you smoke it there's just a zillion in very precise terms -

Greg Everett: The metric zillion.

Robb Wolf: There's a lot of different stuff in there - polycyclic aromatic hydrocarbons, all kinds of different chemicals that are produced and these are the things that cause emphysema and lung cancer and that you there are mutagenic and carcinogenic substances.

So if you pull the tobacco element out and just have pristine nicotine then you've got something that for me has a high therapeutic potential. It's been studied and is being more studied like in Parkinson's and Alzheimer scenarios because of the dopamine production element.

It's relatively safe and it is interesting like on the potential for over doing nicotine you get wickedly sick way before it's gonna kill you and so it's got a really gnarly like do not go there kind of line in the sand as far as injection so I think it's pretty darn safe as far as all that stuff goes.

As to these e cig things, yeah you do look like a douche with those. I don't know what other stuff is in that. I actually did not do my doctor Google diligence on this. I just really like my lungs and so if you've got a chewing gum option - what did I say yesterday?

It brightens your teeth, freshens your breath and enlivens your step so that seems good. Don't mess with it. Don't go Jersey Shore on that thing and do an e cig.

Greg Everett: You take something like smoking that genuinely makes you look awesome and you ruin it with an e cigarette. Don't do it.

**[00:25:04]**

Robb Wolf: It's funny. Out of the Joe Rogan gig I think the biggest things that came up were bacon and eggs. Like Joe fucking lost his mind - bacon and then the kale shake deal like there are a bunch of kale shake nut swingers out there.

I had a couple of guys like kale shakes are the bomb. I don't care what Robb Wolf says. And I was like you go girl.

[Cross-talk]

Greg Everett: - sound more disgusting to me.

Robb Wolf: I told them you go girl and I'm like you can have your kale shake. I'll have bacon and eggs and coffee. Go go go champion. Those were really the biggest - it's like bacon and eggs, caffeine and the nicotine gum got a little bit of a response but those were consistently the most revelled upon things. It was pretty funny.

Greg Everett: Well I do think it's funny how intense people get about one specific thing like that. This right here is what I'm all about - kale shakes. Wow. If you like them cool but I wouldn't base your whole life philosophy around them.

Robb Wolf: I think I sat on the show like 50 times. It was like try it for 30 days, see if you like it, let me know how it goes and it's just funny man. People are funny. It's hilarious.

Greg Everett: All right well speaking of funny. Let's go back to the question I skipped in my enthusiasm here.

Robb Wolf: It's a good question too. There's some good stuff in here.

Greg Everett: My mother's air freshener obsession affecting my health. James says hi Robb and Greg. My brother and I are sitting at a computer in his room, where my mother has an exceptionally potent air freshener plugged in. It is supposed to cover up the stench of his football pads.

As Paleo adherents, we were wondering if the fumes from such air fresheners had adverse health consequences. Should we consider alternative "Paleo air fresheners" with scents such as "dung", "rotting animal carcass", or even "unwashed genitalia"? We are just kidding about the "Paleo scents", of course, but we would love your input about prolonged exposure to air fresheners.

Robb Wolf: You know how there's all those Paleo bread and everything popping up and I would so love to reallocate some resources to Paleo air fresheners and it would be completely unconnected with me and I'd be like no, no, no. Those things are terrible but I'm actually making a ton of money on the back end and the one that you would launch it would definitely unwashed genitalia.

That would be -

[Cross-talk]

I wish we could leave with that.

When you look at all the xenoestrogens in the environment which we mentioned this yesterday. I'm really pissed that there are a ubiquity of xenotestosterone emetics in the environment. Why do we have to be crushed under an estrogenic load. I don't really understand but there are a lot of things out there like that.

I would not be surprised if you dug around in a Glade air freshener or something that it's probably got some reasonably nasty estrogenic products in there. I would not be super fired up about that. Our starry eyed hippy on the street friend Yael - I'm sure that she could hook you up with some nug chompers or something like that.

That would be probably a way better option or washing your football pads. I'll go out on a limb with that. But these things make me a little nervous. With the house that we moved into I just left the carpets at is where though they're pretty reasonably hammered but I was like okay.

We're gonna have at least one kid, possibly two, replace the carpets and they will be annihilated in 5 years or wait for the kids to quit pooping everywhere and then replace them but when I do I'm definitely gonna go more towards the natural fiber kind of scene because you get a huge surface area of some of the synthetic fibers and I'm a little nervous about the outgassing and some of the stuff in there.

Greg Everett: That kind of stuff me personally it gives me a serious headache. I hate that stuff and if anything gives me a headache like that I'm just gonna assume conservatively that it's probably not good for me. So generally I avoid that although I don't particularly like smelling other people's football pads either so it's a toss up.

I think I will probably just not put my football pads or as Robb suggested wash them maybe with 6 lbs of baking soda and vinegar.

**[00:30:12]**

Robb Wolf: Some Oxy clean.

Greg Everett: There you go. All right. Testosterone gauge error statistics. This is the science question of the day.

John says Robb I'm hoping you can help me out with some statistical questions regarding some "self experimentation" I did using Cold Therapy inspired by Dr. Jack Kruse. I saw him talk at Paleo F(x) and was compelled to have my testosterone tested after listening to several of the speakers at the conference.

Some personal info: I'm a 30 year old male, athletic build, eat paleo, crossfit 2-3 times per week; but do no more than 2 Metcons per week. I have a relatively low stress job, and allow 8 hours for sleep every night.

Basically, here's what I did. I had my Testosterone level measured at 9am in the morning.

Oh man I forgot about that one.

Robb Wolf: It's still redundant today.

Greg Everett: The results came back a few days later lower than I had hoped for (577 ng/dL). Over the next three weeks I took ice baths 2-3 times per week, for a duration of 20 minutes per bath, at a water temperature in the low 50's. At the end of the third week I had my Testosterone tested again at 9am; this time it came back at 707 ng/dL.

I'm very happy with the results but being an engineer with some training in statistics I'm not so sure the change has any meaning. I'm wondering if the change that I observed is statistically significant. What is the gauge error of the testosterone test itself? Also, what is the process error, or said another way, how much does the testosterone level in my blood vary from day to day?

I understand that testosterone fluctuates within each day, but I have hopefully eliminated that variable by having both blood samples drawn at the same time, 9am. One more, assuming that the increase is statistically significant do you think the ice baths had anything to do with it? Or is it more likely that I got a testosterone boost from having a conversation with a pretty girl that morning, or perhaps just getting a great night's sleep?

Robb Wolf: Dude this one hurt because we've talked about icing your junk and all kinds of stuff.

Greg Everett: Pretty epic. Just have to rely on your innate brilliance Robb. If you could do it the first time you can do it again.

Robb Wolf: I think that this is the way when life physicians patent do their medical boards or whatever whew done with that. Don't need to remember that anymore.

So I did a lot of poking around on this. I talked to a couple of my buddies who are anti aging doc and so pretty well steeped in the whole hormonal tracking and regulation and what not and there's not really good data on what the process there I guess.



How much is it reasonable to expect testosterone to vary from Monday versus Tuesday versus Wednesday at the same time of day. Definitely taking the testosterone levels at the same time is really important. Some hormones don't change a lot throughout the day.

Testosterone definitely does, definitely higher in the mornings and what not so there's not really good data on what the fluctuation is from day to day and actually one of these guys is going to do clinical study on this he's like well I've got a bunch of patients. I'm gonna get a bunch of them on some of these finger prick test tubes deal that they send and basically just give them two or three weeks batched up, do this thing and it'll be a small study but it'll be something to talk about.

And so when that gets done I'll let you know what happens and then on the gauger of this stuff - it's really hard to know. You would have to look at what is the margin of error or the anticipated error of the collection tube because you have different matrices that are used when you collect blood and those things would have different variability based on the temperature.

Is the blood tested in the house? Is it shipped out so you've got a degradation problem, maybe that influences the test, maybe it doesn't. I don't know how that stuff's been studied. Then when you actually get into the lab what specific process are they using or they do a unilizer test or are they using mass spectrometry and there's gonna be some sort of a margin error associated with that.

And then what type of QA, QC, quality control, quality assurance are they applying to that process and so with all of that stuff considered it was the opinion of the people that it bounces of this difference between 577 and 707 could easily fall within normal variation in just tests.

**[00:35:06]**

As to whether or not the cold plunges had anything to do with this still unknown. It's an intriguing change. If I recall from yesterday what I recommended and the more important piece to this - so these numbers are total testosterone.

What we're really concerned is free testosterone. So if you have the numbers on free testosterone and that changed significantly

that's really the more important feature for biological activity and if we see a trend between elevated total testosterone, elevated free testosterone, suppressed sex hormone binding protein then we could probably sink our teeth into that.

We've got more chunks of information and all of them are moving in a trend that is consistent whereas like if you see total testosterone go up, free testosterone go down, sex hormone binding protein go down then we've got something that doesn't make sense.

So we need to start looking a little bit of trends on this stuff. So I think my recommendation yesterday was to go back and look at these other chunks of data if you have them or as you track this over time just consider free testosterone and also sex hormone binding protein and see what's going on with them and then I think that that was the point where you Greg started mentioning icing one's junk. Go.

Greg Everett:

I was gonna say this is my completely non scientific addition to this very scientific question and that is it's kind of anecdotally considered true that cold temperatures on your gonads increase testosterone levels and so it's considered fairly common knowledge at least in the weight lifting world that ice baths will help raise testosterone levels.

And my point with that was even if that is not entirely true or is an insignificant amount you're still getting a benefit from an ice bath in terms of anti inflammation and that sort of thing so if you're gonna do it then you might as well do it and just cross your fingers on the testosterone thing, enjoy the other benefits of the ice bath.

What else did I say? It's apparently fairly common with Chinese weight lifters to literally just ice their nuts and for that very reason and in the fertility world and trying to choose having a boy or a girl. Apparently there's an association with higher testosterone levels in fathers with having boys so that the recommendation is to essentially try to keep your testicles cool by icing once a day, by wearing boxers - all these things to make sure that the ambient temperature around your nuts is not too high.

So it makes sense that if you try to cool them down you should be raising testosterone levels and again how much it actually raises it

or if at all I can't tell you but it's really not that unpleasant on an experience I can tell you and if it's gonna raise my testosterone at all now that I'm on the wrong side of 30 I'm all for it.

So I say do it up.

Robb Wolf: Ice away. Just do it tastefully.

Greg Everett: Yes. I think also we went out talking about a product with a liquid nitrogen circulation system attached to some kind of neoprene jock strap just to make this whole process much easier.

Robb Wolf: It seemed like amazing idea to me and then Greg pointed out that if you had a system failure in that liquid nitrogen would to spill on to your junk that it would basically freeze and fall off.

Greg Everett: It seems like a high price to pay for a few points of testosterone elevation.

Robb Wolf: Versus a zip lock bag with some ice from the refrigerator.

Greg Everett: There you go. If you had your old jock strap lying around you just stuff the ice pack in there and you can sit there and if you're Robb you can watch Fashion Police although those two things might cancel out the testosterone effect. So who knows?

Robb Wolf: That show is my reason for living other than my wife and my daughter. In third place is just Fashion Police yes.

Greg Everett: Awesome. You know what other show you've got to check out is the world's worst tenants.

Robb Wolf: Oh I haven't seen that. Oh I've seen an ad for it.

[Cross-talk]

Greg Everett: - and it's one of the funniest shows I've ever seen in my life. It was incredible. Okay training for hypertrophy versus strength.

**[00:40:00]**

Max says Hi Robb. Training for strength versus training for hypertrophy — does one have to come at the expense of the other? Ever since adopting the ancestral health lifestyle in

September of 2010, I've made substantial strength gains and put on a good 20 pounds of lean muscle mass — from 5-foot-10, 155 pounds to 175 pounds.

My delts, upper back and chest have responded favorably to the compound movements I've adopted into my training routine — bench press, overhead press, deadlift, weighted pull-ups, weighted dips. In other words, none of that sissy isolation stuff that seemingly every gym-goer prefers. I'm a fan of the Stronglifts 5X5 protocol. That is, five sets of five reps with the heaviest load I can lift. I eat tons of yummy animals and hit my 1g/pound-body-mass number almost every day.

The squat rack at my local (insert big-name gym franchise here) is hardly ever used. Very rarely does anyone attempt to bench press more than 185 pounds. The bros tend to congregate around the EZ Curl Bar rack, performing triceps extensions and bicep curls to their hearts' content.

What troubles me is that while I'm pound-for-pound stronger than any other gym-goer I've encountered, most of the regulars are, to put it one way, far more jacked. Their arms are flat-out bigger. Yet they throw around a lot less weight, preferring higher reps and a lighter load.

Could there be some truth to the widely-held Brosience notions that favor volume lifting for muscle-building? Does that even make sense from an evolutionary perspective? Or am I just doing something wrong?

This was a pretty good answer too. Damn it.

Robb Wolf:

We did a pretty good job on this. I'm like oh we're gonna cover all the points that I had.

I think one of the points that I led on with this is when you're doing good strength training we tend to - if you're doing it well - you tend to train the body to recruit - this is one of the things that I actually like about CrossFit a ton is talking about quarter extremity stuff.

If we're doing pulling movements for example we tend to recruit, the lats, the rhomboids, the traps as the primary movers versus curling a movement into our body and stuff and I know for me I

don't look particularly big in a tshirt but when I go to jits and I pull my shirt off the guys are like holy cats.

My back is really big, my traps are big, my lats are big, my arms aren't particularly big. If I do a really heavy dip work out, pull up work out if I'm sore it is never ever in triceps or biceps. I'm always sore in my lats, in my traps, in these bigger prime movers so I think one piece of this is if you're doing good strength training, you're building those bigger, more core centrally located muscles preferentially and then you may not develop really big arms and forearms and stuff.

I think that that's a piece of it. I think a piece of this definitely is that a variety of volumes - there's just no doubt that switching that stuff up - the classic muscle fiction stuff is hit a variety of rep ranges. That totally makes sense because everybody is typically gonna have a spectrum of fibre types.

Some people are gonna more fast switch and will benefit from higher loading, lower reps kind of a Charles Pollockin, John Welbournian kind of gig where these dudes grow really big from relatively low rep ranges. Other people more human less cyborg, they tend to do better in a mix rep range kind of gig.

And then Greg you made a really good point yesterday too just on the relative selection bias which dudes who get big or are gonna get big almost regardless of what they do.

Greg Everett:

Yeah I mean the bros that you see in the gym who are big tend to respond to just about any kind of training and I guarantee that you've met a couple of people who are big and jacked as you put it who don't do much of anything.

So you have to accept that there is definitely a genetic component to it and so I think one of the big mistakes that people make is trying to mimic the training of people that they just see as being what they want to look like and you can't necessarily rely on that to work for you because you're not that person.

With that being said again of course as always I agree with Mr. Wolf that you have your foundation of your big compound more strength oriented movements - the things that will both provide you with a better strength response, provides you better motor

learning stuff, to use a more horribly trite word functional strength.

[00:45:05]

And then you if you're looking to generally get bigger you've definitely got to add some accessory work in there. And a lot of accessory work is probably gonna be isolation stuff.

There's nothing wrong with that. It is really not a big deal like you shouldn't be embarrassed to go do curls. You look at some of the biggest and strongest person in the world like throwers or Heilen gain guys. They curl their faces off and one because it is functional for what they do but two because why not, like suns out guns out. You know what I mean?

There's nothing wrong with that. I like curls. They do not do anything for me personally cause I'm just a little wiener but I like curls; I like shrugs; I like calf raises. I don't have big calves, big traps or big biceps but it doesn't mean I'm gonna keep trying and I think Robb made a good point too that you've got to have a variety of volume and rep ranges.

And so the way I look at it is that you have your foundation stuff with your big compound, your basic strength movements, hopefully some Olympic lifting related movements and that's your one to five rep or one to six rep maybe range there where you're moving heavier weights or you're moving more than explosively .

And then you have your accessory stuff which tends to be 8 to 15 rep range. But I think the variety of the reps, the variety of total volume and the variety of exercises is going to encourage a lot more growth than just having these heavier full body strength movements. And I think I mentioned yesterday that's something that you can do if you just absolutely refuse to do isolation on yourself because you feel like a dork.

Do your big stuff at the lower rep ranges and then finish with a few sets of higher reps with that same exercises. For example after you do your five by five squats, strip the weight down a little bit and do 3-5 sets of 8-12 squats and if that doesn't make your legs grow then you'll probably just gonna be out of luck.

That should do something for you. And the thing too is that you've got to understand that body builders whether or not you agree with what they do or like it or think they're goof balls, they know what they are doing.

Robb Wolf: They really are good at what they're doing.

Greg Everett: They are very good at what they do. And so I would say yes. It is not a myth that high reps and low weight makes big muscles. It absolutely does and that's one of the misconceptions about weight training that drives me up the freaking wall. That typically comes from women like I don't want to look big so I'm going to lift lighter weights more times. That's exactly what these gigantic guys that you don't want to look like do so stop talking about that.

But again, body building tends to work primarily for people who genetically respond well to making muscles bigger. I mean it's just how it is and it also responds even better to those who are supplementing that kind of naturally good hormonal environment for muscular growth. You have to take that all into account before you start freaking out too much.

Robb Wolf: Yeah.

Greg Everett: Maybe that was not any less coherent than last time but it feels like it might have been.

Robb Wolf: We had some good stuff on that yesterday. It was pretty good today but we covered all the basis. It was smooth and natural yesterday so. It was like a shampoo commercial.

Greg Everett: Pressure cooking and steam. Matt says Robb and Greg thank you for your diligence and perspicacity in developing the podcast.

Robb Wolf: I love that word. It brings back so many fun memories.

Greg Everett: Yes. Here goes for a topic I suspect you haven't covered. I am about to finish an Amazon order for a Kuhn Rikon 3344 7.4 quart pressure cooker.

Robb Wolf: It sounds like a gun.

Greg Everett: It does. When I was at first reading this I was like it is either a camera lens or some kinda weapon but it turns out it's just a

pressure cooker which as Robb alluded to last time could be a weapon.

This type of pressure cooker or PC in culinary lingo retains flavour possibly due to the fact that it does not vent steam. And then there's a link here. Pressure cooking may not be Paleo but it is sure is faster. Since my primary use of the PC is to make bone stock and broth for my joint health as a factor in attempting to gain strength in the Olympic lifting, via (via Mehdi's Stronglifts) could you comment on why vented pressure cookers could lose flavor or nutrients versus non-venting.

I guess I always believed that steam couldn't take away anything other than vaporized water i.e. in distillation. Can flavour and nutrients be vaporized and eliminated at super boiling temperatures or what not? I'm just going on a gut instinct that retaining flavour is somehow relate pertaining nutrients.

**[0:50:00]**

Also if Greg could plug his book regarding how military service members, police, and fire people can benefit I think he would intrigue a demographic most interested in how basal strength development improves respective career performance measures. I did not do that yesterday so here's my second chance.

Let's talk about pressure cookers first.

Robb Wolf: I'm gonna rally this one. It's gonna be better today than it was yesterday's which yesterday was pretty good.

Robb Wolf: So there is this process in chemistry, in manufacture of natural products called steam distillation where say you want to make some lavender oil, you take bunch of lavender and you put it in a water solution. You put a lid on the whole thing. You get it boiling and then that steam and the volatile oils from that lavender are going to exit that container.

And then you concentrate that stuff down much like a still and then you would do some sort of a extraction of the aqueous portion, the water portion away from the lipid portion and then you can steam, distill and remove volatile oils from things like lavender, thyme or whatever. That's the basically the way that



most of the some petulia oil and shit like that are made so you can remove flavors from a solution via this method.

Now there's a link that we've got here: the cooking issues, pressure cookers. It's like the super geek out, high end cooking website and they actually go through and compare what they call non-venting pressure cookers versus a venting pressure cookers. The reality is all of these vent. It's just orders of magnitude.

If you have a non-venting pressure cooker you have what is called a bomb so it's a little bit a misnomers. It's just the way that the regulator works on this other one it's a much lower venting and therefore lower rate of exiting products out of this thing so I would not have thought that much in the way of flavor would have exited out of a pressure cooker just because you lose such tiny amounts of water out of it.

Like you can cook something for 20 minutes, 45 minutes and you're really seeing a very tiny amount of water exiting out of the container relative to say having an open stock pot that's boiling so I would have been really surprised that there was a difference in the flavour but these guys at this really high level cooking scenario, they swore up and down that the non-venting pressure cooker worked better and so I've default to that like intuitively it does not make sense but sometimes the empirical findings Greg are where start and stop our discussion?

Greg Everett:

And I'm read a whole box of mails.

Robb Wolf:

So I have a default on that. The flavour portion, I guess I would say okay there's a mechanism for why this would be different.

As to nutrients - when we say nutrients, we've got vitamins, minerals, anti-oxidants, protein, carbs, fat and within protein we've got amino acids ultimately when it gets broken down. I mean we don't even need to discuss them getting broken down. It's just that can protein, carbs or fat exit via the steam? You can leave a little bit of fat. You can extract a little bit of fat. That's what I was talking about with the steam distillation of volatile oils.

I again would think that this would be like sparingly tiny amount so I can't really see much going out the vent with that. You're not gonna exit protein and carbs via the steam. Vitamins, minerals and anti-oxidants, some vitamins you may destroy with heating.

Other vitamins like beta-carotene, you enhance the absorption with heating and cooking so I think that's kinda awash minerals.

That's not gonna go anywhere so I guess to wrap this thing up you do have a potential mechanism whereby a vented pressure cooker could reduce the flavour content because you are extracting some of the fat soluble constituents. It seems like it would be really really small but these guys on this cooking deals say that it's a real deal issue and then as far as the nutrients I just don't see where that would go anywhere.

So interesting question, lots of chemistry and physics are covered in the answering of that question. Hopefully accurately.

Greg Everett:

Well, close enough I'm sure.

**[0:55:00]**

Well regarding the book, just say very quickly that the benefit for the folks that you point out like the militaries and fire persons. The big thing is that it is really simplified so they don't have to study it like they're in college.

They can go and put these things into practice very quickly and I mean generally the benefit of the Olympic lifts for folks like this is you've got obviously development of strength and explosiveness. You have the development of just general motor ability which seems to help people learn other motor skills well. And then of course you have the development of the ability to absorb force and obviously those things are pretty helpful for anyone who does anything physical in their lives or careers.

So I'm all for the Olympic lifts and I'm a big fan of getting other people to do them so I guess it's a \$20 book. It's not like I'm selling one of those \$100 DVDs that has 4 exercises in it and so far people have found it really really helpful and so maybe you can check it out.

And if you like it you can do a little space face review or something and kinda explain better to those people why you think it's beneficial for them since you have that perspective apparently. And I think that it would be mean a lot more than me telling them because obviously I like it.

Robb Wolf: Me, too.

Greg Everett: It's like Robb telling people why soup is good. He just love soup.

Robb Wolf: Everybody knows why soup is awesome.

Greg Everett: Or as Matt Foreman says it's like trying to explain to someone why a cool breeze feels good. It just does. And we are talking more on this one cause we've already gone over the time it took us to get it done first. It's just more in-depth.

Red meat is tasting gross. Lindsey says: "Hey Robb and Greg, long have I longed to ask a question on a podcast. God, that went through me off this time. But now that I have a problem I am less enthusiastic. Funny how that works. For the past month or so, red meat has been really grossing me out.

I get this delicious grass fed steaks from my CSA cook them perfectly and then ick. Basically all I want eat is fucking fruit like some god damn vegan. What the hell! Wondering if this is some weird hormonal thing or maybe because its nine million degrees here in Georgia or maybe I have a parasite for God knows what.

This has also happened to my mom in the past for what it's worth. Do you know of any reason why a ravenous, bloodthirsty honey badger would suddenly have a visceral negative reaction to delicious beef. The badger is a 28 year old female who is fair to bad across fit if that is at all relevant.

Anyway, thanks dudes. Keep up the awesome podcast. Blah blah blah. And Robb, I look forward to heckling you next month at Ancestral Health Symposium 2012. Stay golden pony boy. Well she didn't say pony boy but I added it.

Robb Wolf: It is implied but you've got add it. And like we said yesterday, it sounds like it would be ton of fun to hang out and drink with Lindsey so.

Greg Everett: Aas long as they're not beef-based beverages.

Robb Wolf: A little bit of beef stock and a Bloody Mary would be probably be pretty good.

Greg Everett:

True enough.

Robb Wolf:

For the salty factor. So I think what we kinda brought this thing down to yesterday was definitely when it is hot, I think that the folks can have an aversion towards eating heavy calorie dense foods because it elevates your body temperature and you just feel uncomfortable.

I do see also a lot of people when they report some sort of a protein aversion they usually seem to have hypochloridia, they don't produce enough stomach acid so they've got a little bit of problems breaking it down and it just doesn't seem appealing. We've talked about the bethane-hydrochloride protocol where you take one capsule with a meal.

See if you get some warmth in your epigastric region, where the sternum and the ribs come together. You do that for one day. If no heat then you go 2 capsules for a day per meal, no heat you keep stepping that up to until you get about 5 capsules and if you still aren't producing any type of warmth then we're pretty sure we've got some significant hypochloridia, probably some stomach acid signalling issues.

And that's just gonna take a while to resolve and we just kinda write it out at about 5 caps and when you start feeling warmth after taking those then you dial it down by one capsule and that whole thing. I think we've talked about that about 55 times on the podcast so I would give that - approximately. I've also historically recommended the NAL foods super enzymes which I like those if you can find the capsules.

**[01:00:00]**

But the capsules are a bugger to find and so I've been recommending instead Solaray bethane hydrochloride which Solaray is just another national brand. You can get it from bodybuilding.com, Amazon. Everybody seems to carry it. They have really large bottles and it's very inexpensive and seems to be good quality and it actually works.

The tablets of the NEL foods super enzymes do not work really at all like I just see no benefit from them so. The capsules are good but they're hard to find.

Greg Everett: Last question, squash strength. Mike says: Dear Greg and Robb gnarly podcast. I am a 27 year old man child and a keen amateur squash player for the last 7 years. My conditioning for that sport is pretty good but I think my strength could be a lot better.

Squash involves a lot of lunging and explosive movements. The racket ain't all that heavy so it requires more core and lower body strength, speed, power, and endurance. Movement should be as smooth and economical as possible but the need for explosion is ever present.

What approach would you recommend to develop this strength and power? I'm thinking back squats and barbell lunges for strength first then plyometric squat jumps for power. Can too much focus on strength over time reduce power or speed? Thanks much. Mike. P.S. Here's a video of professional players that shows what I'm aiming for.

Robb Wolf: And with again, I think we kinda nailed this one yesterday. We'll see what we'll get on this one now but I think fundamentally it's like the recommendation of back squats and barbell lunges were good. I think yesterday Greg you pointed out that for the lateral elements of the game doing some loaded lateral lunges would probably be smart kinda work that piece.

There's a question here focus on strength over time reduced power or speed. In the literature that's accurate. That's the part of the difference between power lifting as kinda of a peer sport versus Olympic lifting or say just athletic training. That really high load grinding low velocity type stuff can decrease the ability to generate power, force per unit time.

So I think that there's some truth to that. With the back squats and stuff I would run this thing a little bit more along the lines of an Olympic lifting protocol and even when you're doing say front squats and back squats the bar speed should be significant.

Say you're testing at 3 rep max or something each one of those reps should be relatively fast like they should move in maybe less than a second, right around the second. There shouldn't be low slow grind to it. And you can still get much much stronger under that protocol but it's going to tend to goose the speed and power side of the equation. Hopefully avoiding the potential slowdown

and I think the potential for neurological over training and burn out.

Greg Everett: Indeed. Just something else to add there you can like Robb said try to maintain your bar speed and then also just actively trying to always accelerate through the concentric movement is a good practice if you don't want to be a slow poke. And so that won't always translated into literal speed of the bar but that attempt to accelerate is gonna do some good, too.

And then also combining your plyo stuff with your strength stuff I think is a good idea for example after a set of back squats and immediately going into a set of box jumps something like that. I think to me just anecdotally is a good way to maintain that speed production quality and it just keeps you focused on speed rather than kinda getting lazy and just slowing down with the basic strength stuff.

[crosstalk]

Oh you know what I said that you need to look up Furner Guntler on YouTube

Robb Wolf: Oh that's right!

Greg Everett: Yeah. Because if for no other reason it's very entertaining, there's a couple of really great training videos of him that are pretty awesome. They have some good combos of strength and explosive barbell work with some plyometric stuff so.

Robb Wolf: Definitely some really cool highly athletic strength and conditioning.

[Crosstalk]

Greg Everett: All combined with one of the most incredible moles you'll ever seen in life.

[Both laughs]

Robb Wolf: Indeed. Alright. Well, we did it! Wooh! It looks like it may have actually worked too!

Greg Everett: Right on! Mine is still recording. Sweet!

Robb Wolf: Thank God!

Greg Everett: Alright. Well, guys thank you for bearing with us.

Robb Wolf: Sorry folks we're a little late on this but we had a really busy week last week and then the podcast gods were not with us on this one. Maybe they were or maybe this one is even better than yesterday was.

Greg Everett: It's gonna have to be.

Robb Wolf: Yeah. We're just gonna say this.

Greg Everett: Alright. Well, next time maybe we'll just do it live.

Robb Wolf: Yeah. A live show would be cool.

Greg Everett: Maybe. Maybe. It could be bad.

Robb Wolf: Yeah

Greg Everett: We'll see.

Robb Wolf: Wooh. Thanks for the multiple efforts on this particular podcast. We finally put the maple syrup urine podcast to bed.

Greg Everett: Thank goodness.

Robb Wolf: We're almost there. Cool. All right man. Well thanks for everything. Will talk to you soon.

Greg Everett: All right. See you.

Robb Wolf: Okay. Bye.

**[1:05:56] End of Audio**