Paleo Solution – Episode 77

[00:00:00]

Robb Wolf: Okay! Robb Wolf here. Episode 77, Paleo Solution. Greg Everett, what the heck is going on?

Greg Everett: Getting ready to record Episode 77 of the Paleo Solution.

Robb Wolf: That is a darn fine task. That is a worthy endeavor.

Greg Everett: You would think so?

Robb Wolf: Yeah.

[Laughter]

Robb Wolf: It's just really part of my parole agreement, so that's why I keep doing it. So, what's new? Any new, exciting? Anything folks should know about? How's the DVD coming along?

Greg Everett: Oh, I've made exactly zero progress since the last we spoke.

Robb Wolf: Outstanding.

Greg Everett: Yes. I decided to actually take a day off last week, on Sunday. And, not realizing that this Sunday was Easter and then I would be, actually, obligated to attend some a family-related functions, which means no work.

Robb Wolf: Hmmm. Ah, where's work gonna get you? Pain, suffering, misery.

Greg Everett: Well, the end of a DVD.

Robb Wolf: Oh, that too, that too. A saleable product. Yeah.

Greg Everett: Yeah.

Robb Wolf: Cool.

Greg Everett: Oh, I can't say that if anyone's out there trying to buy my book, and you're in a hurry, do it really quick, 'cause we're about to run out, and we

had a little catastrophe with the printer on this last print-run, which means I've got a couple thousand books in the warehouse here that I can't sell.

[Sniffs]

So, we'll be having that new printing here as soon as possible, but there may be a little gap there when we are out of stock.

Robb Wolf: And so there will be a catalyst-athletics-bonfire in wineries in the interim?

Greg Everett: Yes.

Robb Wolf: Okay. Cool.

Greg Everett: Alright.

Robb Wolf: Cool.

Greg Everett: Not that anyone needs a weightlifting instruction that urgently.

Robb Wolf: They might.

Greg Everett: But people do not--the internet era, people very antsy. I know I can't wait more than 30 seconds to purchase something.

Robb Wolf: It's true. Okay. Cool.

Greg Everett: Alright.

Robb Wolf: So, let's see here. What else is cooking? We've got a Paleo Solutions seminar in Vancouver, BC, July 9th; another one in Boma, Boston, Massachusetts on August 20th. We have Gary Tobs on the podcast next week? We're recording next week.

Greg Everett: Next week. Yeah.

Robb Wolf: So we'll shut down questions following the day after this thing. Posts--

Greg Everett: Ask Tobs will be up on May 2nd.

Robb Wolf: They'll be up on May 2nd. Okay, cool. So that should be a good one. We're getting some really great questions. I have questions of my own

that I wanna throw in there. So people, have questions for Gary basically when this podcast goes up. You're gonna have about 24 hours before I close questions on that.

Just kind of a wacky thing bit after I wrap up this podcast, I'm running out to the Chico Airport, and apparently, there's an outfit called the Happy Hippie Podcast, or something like that. They really liked—I guess they listened to one of the podcasts and read the book and thought it was funny, and they're kind of in the like sustainability and being Hippies.

So, I have not showered today, nor shaved, and I would make my way out there and see what type of shenanigans I can brew up and that folks know when that things roll later. I have no idea what I'm getting into. It may all be a ploy for a bunch of vegans to beat me up, or something like that.

Greg Everett: Well, you should be fine. In no offense.

Robb Wolf: Oh, I'll give my tussle. I'll give my tussle.

Greg Everett: So, where do people sign up for your Paleo Solutions seminar?

Robb Wolf: If you go to the website robbwolf.com and you hit Upcoming Events, you should be able to track them down from there. If you can't, then, well try to offer some other time.

[Laughter]

Greg Everett: You're probably not bright enough to understand if you're not in the seminar.

Robb Wolf: Yeah. That seminar may be a waste of time. Yes. Yeah, possibly.

Greg Everett: Alright.

Robb Wolf: Cool.

Greg Everett: Sweet. Let's do this.

Robb Wolf: Alright.

Greg Everett: Justin, you've got full position here. He says, "Robb, my wife and I have had our—

[Laughter]

Greg Everett: Alright Justin, I apologize. I'm gonna start all over again because I just totally butchered your opening sentence.

Robb Wolf: And it's actually grammatically correct.

Greg Everett: It is. I am just not doing well right now.

Robb Wolf: Okay.

Greg Everett: "My wife and I have had a our [Laughter] first born son Connor. We could go and just found out today that he has a disease known as MCAD that is apparently fairly common. After sufficiently freaking out, we briefly researched it online and from what I gather, it seems to be the most simple terminology 'the fatty acid equivalent to diabetes'.

Other than this my son is perfectly normal, 7.1 pounds, 20 inches, and breastfed. He sleeps and eats with ease contrary to the horror stories we've heard from friends. My wife and I have hold a Paleo lifestyle for several years now, varying anywhere from 50 to 100% strict. She ate about 75% strict throughout her pregnancy, breaking mostly for intense cravings, mainly buffalo sauce and chocolate go-figure."

I'm with you on the buffalo sauce.

Robb Wolf: Serious?

Greg Everett: "I'm a trainer at the local box and she was mildly active up until a day or two before he was born. After reading up on it, I find the irony of the situation almost poetic considering the foods that make up the quarter quo best diet for his disease.

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Greg Everett: Lots of cornstarch, no long or medium chain fatty acids, etcetera. Have you dealt with any athletes who have had this and is there any way you will be able to somewhat live the lifestyle we have adapted? We decided long ago that we will let him choose his own lifestyle with no pushing in one direction but now we are very worried that he may not even have an option."

Robb Wolf: So, they say MCADen—Medium Chain A-ceole co-enzyme AD-hydrogenase Deficiency. So we have short, medium, long and very long chain fatty acids and this happens to be one flavor of a genetic disease which is focused specifically on the medium chain triglycerides, and I believe that that covers links basically from 6 carbons up to 12 carbons, I forget—offhanded exactly what the breakdown is on that.

But, something that you can do—the long and short of it is was one question if I have worked with anybody with this—I have not worked directly with anybody with this so I haven't really tracked or monitored like what type of athletic performance you can get out of somebody with this.

You know, the recommendation for like a starchier type diet now is we're kind of understanding more about gut inflammation and the role of grains, legumes and dairy in gut inflammation, related not only to auto-immune diseases but also to metabolic arrangements. I think that you can find something that looks like a whole lot like a kataf and tight diet, and make that work in this scenario.

So we would be talking about lots of yams, sweet potatoes, tight deals, even white potatoes, just take the peels off, if there's any hint of kind of an auto-immune disease.

For protein sources, you would actually look at things that have a little bit on the longer side of fat. So, butyric acid and maleic acid, things like ribi, fattier cuts of meat, should be okay because the bulk of the fat are actually longer chain.

But this is something where you can get in a look at that USDA Nutrition Dietary Index and look at what the fatty acids are, and so as long as the preponderances of the fats are very heavy on that saturated and monounsaturated longer chains side of the equation, then he should be good, he should have the metabolic machinery to deal with those fats.

Unfortunately, it's gonna be things like monolorg acid, palmitic acid, these things would normally see out of like coconut products that are gonna be a particular problem for him. If you can get a really rich source of butyric acid, then that's kind of option too. But it's hard to track that stuff down. Butter has both the mix of butyric acid and palmitic acid, so kind of a tough thing in that regard.

But, you know, you just kind of look at this basic paleo type idea and then tweak it towards a higher carbohydrate content, more starch based,

although fruit and veggies would obviously be fine also, not doing a whole lot of nuts and seeds again unless they are more rich in a long chain fats.

And then he should be fine off in that stuff. You could always get some help from a dietitian or if you need some help pumping the stuff through a nutrition analyzer and really looking at how much medium chain triglycerides the kid is getting in the diet, and then kind of modify from there.

But otherwise, should be a pretty good go, doing some research on this. It looks like an aggressive carnitine supplementation can help with the body to remove non-metabolized fatty acids.

What happens if folks are eating medium-chain triglycerides, the body lacks metabolic machinery to actually metabolize these fats, to pump these fats through the mitochondrion and use them as fuel and so they have the tendency to accumulate in the body and the analogy with diabetes is kind of what employed.

In the diabetic situation, you have the inability to basically grind glucose in the cells and utilize it as fuel source. In this situation, medium-chain triglycerides are inaccessible as fuel source, so they can accumulate in the body, creating some fatty liver syndrome, creating some kidney problems.

But some pretty aggressive carnitine supplementation--carnetine is a combined to the individual fatty acids and usually it's a co-transport molecule to get the to the mitochondria, but in this case it can make the fatty acids a bit more water-soluble and then the kidney is gonna excrete them. So, that's a supplemental approach that you can do to help an awful scenario.

Greg Everett: So then if he controls the nutrition side of this thing, I mean can he expect to have essentially a symptom free life.

Robb Wolf: It would seem like it. Yeah, I mean yes. Short answer, it's kind of yes.

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Robb Wolf: Longer answer, like to whatever degree we would normally say, like if you're really hard charging endurance athlete--I think endurance athletics would be tough like this kid would actually probably do much better in kind of sprint or short-duration, higher-intensity, just based of the fact

that if you're not able to metabolize a whole swaft of fatty acids, this medium chain triglycerides, these tend to be the faster acting of the fatty acids for a fuel source, I think that endurance athletic would be a real boggier for someone like this.

Could be a possibility that he actually gets an up uptake in his metabolism of longer chain fatty acids, I don't know if that's true or not. I don't know if there would be any type of compensatory adaptation there, but other than that, he should be pretty good to go. I mean the main thing is just avoiding and over accumulation of the MCTs in his body so that he doesn't get the potential damaging affects like liver problems and the kidney problems.

Greg Everett: Sounds good.

Robb Wolf: Yeah.

Greg Everett: Okay. So Gelo says, "Short question. Can lower back pain worsen on a proved with bad or good diet? If so, anything to be particularly careful about? I am not talking about obesity which obviously increases stress on the back, just nutrient effect. Many Thanks."

Robb Wolf: My main thought on this is that any type of pro-inflammatory diet is going to make joints and stuff hurt more. I mean the interesting thing like related to diet though that I would throw in there, when I am chronically sleep deprived, I noticed that my backs starts hurting, and it doesn't matter what else I'm doing, whether I'm like doing dead lifts or crane pulls or whatever.

But I definitely notice life cycle factors like sleep and stress, definitely my back gets way more irritated much more easily than if I'm well rested.

And then nutritionally, it's just that the standard deal again like eating anti-inflammatory diet and then you mitigate or minimize whatever inflammation you might otherwise have gone going on.

Greg Everett: Yeah. That's stress thing is huge. I have seen that on a lot of people, myself included. It sounds a little new-edgy. You know, some people kind of carry their stress in their backs, some people more like in their guts, get a lot of GI, the stress and pain. Anything to, we need to think about t is adequate hydration.

Robb Wolf: Hmm.

Greg Everett: A long time, if those disks get dehydrated, then can be a little bit creaky back there, but…

Robb Wolf: That's a good point. I frequently find myself or I would think that I'm neither hungry nor kind of low blood sugar. Like, I'm not a huge, like hyoer hydrate guy, I'm not like, drink two gallons of water a day or whatever, but I suspect that probably go a little bit too low but you know feel kind of tired, run down, or start getting some spots in front of my eyes, I'll get a glass of water and feel better, get another glass of water and I feel great. I'm like, okay, I'm an idiot. So, yeah, that's actually a good thought of that.

Greg Everett: So two glasses of water make you feel great, wouldn't fourteen gallons make you feel even better?

Robb Wolf: That's the way that I've tackled most of my drinking binges in the past!

[Laughter]

Robb Wolf: Although most of my 20s were a complete blackout blur, I suspect that that's probably not the case that there's probably a lower therapeutic toast of both booze and water.

[Laughter]

Robb Wolf: But I don't remember any. It's really--I can't really say for sure.

Greg Everett: Alright. Well, we'll just have to rely on speculation for that one.

Robb Wolf: That's usually wet. Gets us the firm stand on the road anyway.

Greg Everett: So, basically drink some water and take a nap.

[Laughter]

Greg Everett: Alright. Jonah says, "Dear Robb, this is a quick one. I'm sure we all heard about how sunscreen impedes our ability to synthesize Vitamin D. Is this true? And if so, is this significant? And what is the pathway of Vitamin D synthesis? Thanks.

Robb Wolf: Yeah, You know not super sure about the question on the pathway of Vitamin D synthesis. Look, I don't know.

[Cross tak]

Robb Wolf: It's as if Jonas, wanting me to get in like a diagram and the whole thing and the dermis and all that jag. But you know, this is a really a legit issue we are getting. The problem of photo exposure is historically you are outside most of the time. And so, whether you are light skinned or dark skinned, you had seasonal variances in your photo exposure but in by and large is greater than what we get now. And our bodies would adapt to that, we would ramp up our melanocyte, the melanin production, we would get some protection.

There's a tradeoff between Vitamin D production--the photosynthesis of cholesterol getting converted into Vitamin D in our skin--but there's also a photo degrading—

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Robb Wolf: --effect of ultraviolet radiation breaking down folate in our body. Folate is really important on gene regulation, very important in either anti- or pro-carcinogenic gene regulation within our bodies. But there's this trade off. Our bodies need ultraviolet light to make Vitamin D but too much ultraviolet light degrades folate so that's why we try to mitigate this damage with darkening skin when we get more photo exposure. We kind of bagger that whole thing by being indoors all time. And when we go do outside, we tend to get a blast of sunlight and get burned, so people try to mitigate that whole scene by putting on sunblock, but sunblock doesn't always block the full spectrum of light. Sometimes it will only block UVA or UVB so were still getting some pretty heavy doses of ultraviolet radiation. It's just kind of a mess all around.

Yes , so sunscreen does impede synthesis of Vitamin D. It's definitely significant but, you know the problem here is the way that we just generally live. When we don't get consistent sun exposure, we tend to be like the Seattle Office worker where we don't see the sun for nine months.

The sun comes out we gonna lay outside on the grass with our shirt off and get scorched. It's the burns, the really severe burns, that then interestingly are not exposed to subsequent photo exposure that are the ones that are actually more likely to produce malignant melanoma or some sort of really severe skin change or skin cancer. And it's unlikely that if you have a burn on one area and then it gets mild sun exposure later, your likelihood of actually developing skin cancer tends to be less.

So yeah, there's a lot of stuff in there and then on the synthesis, that if you really want to kick out on it, that's a perfect Wikipedia question there. You can check out the whole vitamin D synthesis or biochemistry online. You can check out all, from cholesterol to the different derivatives of the cecosteroids involved in Vitamin D production.

Greg Everett: I think Approaching Power life plan had a little chapter on sun exposure that was pretty enlightening, no pun intended. It's pretty simple and straightforward, but just kind of talking about real cautious but regular sun exposure, and essentially just your main thing your'e going for is never getting burned.

Robb Wolf: Right. Right.

Greg Everett: And it seems pretty simple and straightforward to me. I mean I instantly feel better if I spend more time outside.

Robb Wolf: Yeah. We've had again a really bad weather in Chico. And I know really bad is relative. People in Edmonton, you guys can go pound sand because it's still been like below zero and stuff but, when the sun was out yesterday and my productivity was great, I felt good, I was pretty spunky, and today it was cloudy again. It just is like taking that air out of the balloon.

It does not work well for me at all. That photo exposure is huge just for like my mental health, for my productivity, I feel better; I have better athletic performance, but the whole ball lacks. So yeah, I guess I should become a gardener or something.

[Laughter]

Greg Everett: Yeah, well. That might tan you a little bit.

[Laughter]

Greg Everett: What about the whole tanning bed thing?

Robb Wolf: You know, I don't know one on that. That's a really good question. There was a point in the winter when we went--I think like almost 60 days with literally not a scrap of sunlight. It was just overcast and cloudy virtually every day, and we went to--we were doing a gig in Hawaii, and so before we went there I ended up doing a twice a week, five minute tanning booth.

Just basically giving a little bit of sun exposure, and a little bit of--I did tan up a little bit, like I'm still Scottish, Swedish and Irish, so like my tan is very very relative, but I do brown up some. It was interesting. Whenever I went up to the tanning booth for five minutes, I felt way better for a couple of days.

But all the literature on tanning is really dodgy with regards to increase skin cancer rates and stuff like that. But then if you end up blowing your brains out because if season defective disorder, you know maybe the tradeoff is worthwhile.

But that's a tough one. I don't know what the right answer is on that. The literature still seem to indicate that virtually, any amount of tanning booth used is a bad idea, but I mean I really feel better and here again, most of the literature that I'm looking at, they're just looking deceits in general, and I'm not seeing any really good quantification of time, like if most people are spending a minimum of like ten minutes in their first shot.

[0:20:00]

But what if you're going like two minutes on the front, two minutes on the back. The jokes response thing there cuz I don't know and if I'm really really white and I haven't been out in the sun at all and I go do a tany boost because I've got a travelling gig where I'm gonna be potentially in the sun a lot my first visit may be a minute to front a minute to back.

Then the next time it's a minute thirty and then two minutes and I really only build to maybe about 6 or 7 minutes total exposure and then that's as far as I go.

Greg Everett: Interesting. I bet you look good.

Robb Wolf: Well I do what I can. There is still the whole back waxing thing that I need to get hammered down but folks probably don't want to know about that.

Greg Everett: You know you what you can do. You need to get a stick and then tape your razor to the end of it. You can shave your own back.

Robb Wolf: In the back of Maxim they always have a rig for sale with that.

Greg Everett: Oh really? I'll have to start reading Maxim more.

Robb Wolf: I read it for the articles completely and for the back shaving do hickey that they sell on the back.

Greg Everett: Oh boy. All right here speaking of other male problems, talk about enlarged prostate.

Robb Wolf: Yeah let's shift from back hair to prostate.

Greg Everett: Well there goes every last female listener you just had.

Okay. Elizabeth says hi Rob. I'm writing because I just got the are you crazy talk from my boyfriend. It won't be the last one. He's been having trouble with his bladder recently and finally went to the doctor. He was experiencing frequent urination and pretty severe stomach cramps and when he went the urine test and blood work came back fine so the doctor recommended that you have an ultrasound and that he go see a urologist.

The results from the ultrasound were that he had an enlarged prostate. They immediately recommended antibiotic which I disliked. He hasn't seen the urologist yet. When we were discussing his issues I suggested that we try an extremely strict Paleo diet for about 30 days to see if it would help with the prostate problem and his over all well being. He looked at me like I had five heads and he said if I think food is what's causing this I'm nuts.

A little background. He's 25, 176 pounds, works out six to seven days alternating days of cardio and lifting weights. He eats a pretty clean diet thanks to me. That includes little to no gluten unless he eats Subway for lunch and mostly meats, veggies and fruits at home. He also takes a prescription drug for hair loss generica Propecia. I'm not sure if this is relevant or not but he was also born with gastroschisis.

I'm probably not pronouncing that correctly but I don't care.

Basically I just want to know if there's anything diet/lifestyle related that he can do to prevent prostate issues. Also could it be something in his diet or the prescription for hair loss that cost the enlarged prostate. One more thing this is a more of a personal question. How in the world do you get along without second-guessing every diagnosis or every piece of advice given by a medical doctor?

Who says she does?

I have found that since I started reading and really believing that Paleo works I question everything perhaps even to the point that I'm rude. Any guidance you can provide would be extremely helpful. Thanks for all that you do.

Robb Wolf: That last part is funny because well my wife just to continue to throw her under the bus here occasionally - she lost her mom a number of years ago and it was complete mess like it was legitimate not just not a singular event of medical malpractice but a chain of malpractice that at any point in this chain if somebody had done things right her mother would still be alive.

So she's kind of have that baggage to deal with and then also just being around me and kind of seeing what the convention wisdom doesn't do for people with regards to health and wellness and then just this basic - I don't want to even call it a challenge because - it's this basic idea of go try changing your food grain, legume, dairy free for 30 days see if you look, fee, perform better, see if vitamin help disease improve and it's just shocking the variety of things that improve. It's kind of remarkable that there's not a lot of downside to it.

You give it a shot from a month and that's it and so there you have it. I guess for me personally I have enough of a background in medicine and physiology, in everything that generally it's like we get a dose of advice. I can just nod at the doctor if I don't like it and then we can dispense with it later and not even make it an issue or if I need to make a point of it then I can.

Nikki was really sick a couple of months ago and I told the doctor that she looked jaundiced and he was like are your medical professional. Well I'm a biochemist but when my wife is yellow I definitely can notice that and sure enough they run blood work and her bilirubin was high

So there are obvious stuff like that but I don't know if that's just a whole other philosophical thing. Generally I think that the doctors are out there to try to do -- I'm kind of sapped like I generally assume better of people than I probably should.

[0:25:06]

And even though I've been cranky on the podcast of late because Greg has been pulling out particularly provocative questions just to get me super spun up. I'm kind of a sapped up like I just assume that people are reasonable and smart and doing good things and all that sort of jive.

So I don't have too much background with that but anyway back to the question at hand. I think that probably what's going on here is largely related to possibly some conversion of testosterone and dihydrotestosterone that is likely at cause to the hair loss and the need for the Propecia and the mal metabolism, the bad metabolism of testosterone and dihydrotestosterone are very very important in prostate health.

We had a pretty big episode on prostate and testosterone metabolism. I don't want to say back around like episode 35 or 40 or something like that so you might do a little digging around back in the archives but we got into this pretty heavy.

Any type of hyperinsulinemic condition though will dramatically worsen the situation because it's prone inflammatory state. So omega 6 fats will make the situation worse, elevated insulin levels can make it worse and so if your boyfriend is doing any type of like post workout recovery shakes and really spiking insulin, having some sleep disturbances, not getting enough sleep -- all of those things absolutely come play into the prostatitis.

So this could be as simple as just having a bacterial infection and antibiotics would be rightly placed in that regards to deal with some sort of bacterial infection in the prostate gland but my gut is into this is probably related to other items and it's related to this testosterone metabolism.

So maybe getting some wacky conversion of testosterone and that the DHTE, may have some detoxification issues in which that stuff is hanging out and over expressing itself on the prostate gland, may have some insulin issues which are also be causing some problems with the prostate gland being hypersensitive to the metabolic effects of either testosterone or DHTE. So that's the place I might look for all of that stuff.

Greg Everett: Okay. All right. Now we get to women problems. Look at that.

[Cross-talk]

I didn't even realize how the proximity of these two questions is perfect.

Robb Wolf: You're the balance here. This was good.

Greg Everett: It seems like there's a plan but there isn't I assure you. All right. Rachel says hola. I'm a fit 27-year-old female whose body within the last 2 to 3 years recently learned how to ovulate somewhat regularly. With that being said I'm still getting used to the common symptoms that accompany by menstrual cycle. I'm sure these symptoms sound pretty normal but here are a few things I experience.

For a few days to a week I feel like a complete pile of pterodactyl poo and can barely move. It doesn't help when I'm at work. I'm actually barely is spelled as barley which is funny to me in a Paleo related podcast. For about a week I have a bottomless stomach and usually gain about 5 pounds by the end of my period. I feel depressed or sad and I have a short fuse when dealing with people especially my boyfriend ☺.

He'll have to get used to it trust me.

My question: can you explain what happens to a woman's body during her menstrual cycle. That just reminded me of like seventh grade health class. What does my body more or less of? What can I do or eat to help alleviate my symptoms so I'm not such a scary monster during this time? Thanks. Your work is much appreciated.

Robb Wolf: Oh man I use to cover the normal versus abnormal menstrual cycle in my nutrition wing day, the nutrition talk but as the material has grown I've had to kind of trim that material out like I used to get into the patophysiology of PMS and PCOS and all of that stuff.

Greg Everett: But then you got to embarrassed?

Robb Wolf: I got a little embarrassed yeah when I brought out the life-size gynecological accurate doll and people were horrified and I had to take that part out of my schtick but under normal circumstances if you imagine kind of a graphic kind of representation and maybe estrogen being graft out in green and progesterone being graft out in red or something like that estrogen and progesterone kind of chase each other throughout the month and under normal circumstances estrogen is usually dominant with regards to concentration and estrogen is more a growth promoter.

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It's released during the luteal phase of the cycle. It stimulates the growth of the uterine lining. At a point in the cycle usually right before or right around ovulation you will have a point in which estrogen dips below

progesterone and it's at that point that if we add a fertilized egg in the uterus that the change in progesterone levels would then allow for the egg to implant in the uterus, the uterine lining is retained and then the woman can get pregnant and then progesterone would then be a kind of a dominant feature throughout the rest of pregnancy.

Under a non-pregnancy related circumstances progesterone goes up, estrogen drops sharply normally and then we have the shedding of the uterine lining - that's the normal menstrual cycle period and then the whole thing kicks over and starts over again.

What you're describing here is very common estrogen dominant problem where if we were to graph this out the estrogen, maybe never get pass by progesterone but it is sluggish to get pass by progesterone and it may take longer than normal. You may have a longer than normal cycle and this is really what's kind of pushing the irregularity.

Doing some liver support like some omega 3s, just a couple of grams a day of omega 3s, something like milk thistle, a standardized sylamarin extract is really helpful for this stuff too, helping to normalize liver function so that you have normalized estrogen progesterone balance.

Looking at any type of xenoestrogens in your environment like soaps and plastics and all that sort of stuff can be helpful also if this stuff doesn't help a ton then calcium deglucarate or dim diindolylmethane. These are things that can help remove or modulate the effects of estrogen in the body then that would probably be helpful.

So that would be the stuff that I would tinker with that. The symptoms are normal because everybody has them but they don't have to be the norm. You can get to a spot where this stuff isn't always going on and certainly where the effects are much much less.

Greg Everett: Yes and your boyfriend will appreciate that.

Robb Wolf: And there will be much rejoicing.

Greg Everett: All right Scott says I have a female friend who is 43 years old, 5'10" and 88 pounds. She has had several small heart attacks and currently eats just about anything and everything including grains, dairy and legumes in order to gain some weight. What would you do for this woman? Is spiking insulin a good idea? Should she be low carbohydrate? Would high fat put her into a heart attack risk again? How would she gain good weight through Paleo?

Robb Wolf: Holy cats. I would really want to know what the heck what's this woman has going on like the title of their question is dangerously low rate which is totally spot on. She weights as much as one one of my legs do.

So 5'10" 88 pounds. She's got several small heart attacks like I would really want to know what the heck she's had going on. Does she have anorexia? Does she have bulimia? Does she have a sort of malabsorption disease or something like these are some of the really serious stuff.

I don't even really comment on it other than I would want to know what the heck she's going on. I think generally eating good food is always a smart idea but if she's had heart attacks because of say like electrolyte disturbances and a lack of blood albumin, a lack of protein such that her blood albumin is getting messed up then she needs to eat anything that she can.

Again with the caveat that healthy is typically better but this is a pretty serious like obviously potentially life-threatening scenario where she's had multiple heart attacks and different things like that. So always the standard refrain of healthy eating is probably best but it'd be nice to know what the heck specifically is going on here before commenting on it too much beyond that.

Greg Everett: Alright I was looking through all of these e-mails to see if I can possibly find if it was impossibly in the subject line but I don't think I'm gonna be able to pull it up here since there's about 50,000 of these things.

Robb Wolf: Or maybe Scott if hears this and it rings a bell for him. You can ping us back and let us know if there are some back story on that.

Greg Everett: Yeah so if I find it while Rob is blabbering away I have another question. Maybe we can touch back on that again.

Robb Wolf: I do blabber.

[0:35:00]

Greg Everett: I don't really listen to him while his talking. I'm just screw him I'm on the internet.

All right rosacea. Ray says hey Rob and Greg going only three months Paleo but having fantastic results with allergies. For the first time in about

20 years I've gone without daily meds through the spring season. I'm sold.

My question concerns rosacea. I've never heard of this affliction until a couple of friends were recently diagnosed with it but as we Googled around it seems to be becoming more and more commonplace.

Can suggesting going Paleo help these folks? So far the fixes are avoidance of extreme temperatures and antibiotics. Also had a side question about grape seed oil. I believe the message from Doctor Cordain's books says to avoid all seed oils. Should I stick with cold pressed olive oil for general cooking needs or get the mega jugs of grape seed oil from Costco. Thank you for all the useful information from the podcast.

Robb Wolf: So the rosacea has some autoimmune and just general inflammatory kind of underpinnings and Paleo fixes this stuff like crazy maybe even a little bit on the low-carbohydrate side and there are some insulin related elements to it some omega six, some translutaminase related gluten intolerance so it's kind of the full baggage right here.

But just tons of good supportive anecdotal stuff and also we can get in and grab a lot of research that shows that a shift away from grains, legumes and dairy are gonna be helpful with the rosacea so I would definitely endorse that.

Grape seed oil I'm not really a fan of. It's relatively high in shorten omega six, some linoleic acid. Truth be told olive oil contains some in linoleic acid too but it tends to contain some anti-oxidant phenolics that I think are pretty beneficial, kind of cool. The mega jugs of grape seed oil I'm imagining being in plastic. I'm not really a fan off buying oil based products out of any type of plastic unless it's something like the tropical traditions where they sell the coconut oil in the really nonreactive, non-estrogenic plasticizer tubs.

In the bulk of my cooking probably 90% of my cooking like I would cook Nikki's scrambled eggs or over medium eggs in some olive oil because she really prefers that flavor but other than that I use coconut oil for like everything I cook because it saturated fat. It tends not to oxidize and then I save olive oil is ore like a flavoring kind of gig and I try to get a really good quality olive oil that is cold pressed and non-filtered so it actually looks like a little bit green ponds sludge kind of stuff. It looks like - what's the movie Green, Megator or whatever. It like that stuff so that's more the direction I steered the boat with all that stuff.

Greg Everett: What do you put in your deep fryer?

Robb Wolf: Coconut oil. Nikki's made some deep-fried plantains and some deep-fried sweet potato chips and they are amazing, amazing.

Greg Everett: I was completely joking. I can't believe you have a deep fryer. I want a deep fryer.

Robb Wolf: We don't really have a deep fryer per se but it's just a pot.

Greg Everett: You want to get your fry buddy?

Robb Wolf: We'll get one. I'm saving up for it.

Greg Everett: Then you can do the Steve Pain and you can get some frozen cinnamon rolls and cut them into small pieces and then deep fry them.

Robb Wolf: Deep fry a cinnamon roll.

[Cross-talk]

Greg Everett: Because putting them in the open takes too long.

Robb Wolf: Oh man. Do the listeners know who Steve Pain is?

Greg Everett: It's probably better that they don't.

Robb Wolf: Okay. Cool. They'll meet him in the the DVDs.

Greg Everett: Just keep in mind that whatever he's doing in terms of nutrition don't.

Robb Wolf: Yeah don't.

Greg Everett: Don't ever.

All right Jason says Rob this question has bugged me for a while. What percentage of the calories that go into my mouth are digested and metabolized by my body? And if that's not the whole story what's the whole story? Thanks.

Robb Wolf: Well maybe the automobile analogy is a good one here where you've got gasoline it just simplifies things. Even though gasoline is a mix of benzene

and different petrochemicals and all that sort of jive that we see as being kind of a uniform fuel substrate I guess we would call it.

But the gasoline gets injected into a cylinder. The cylinder typically compresses and we have a spark plug that ignites and to some degree we get some amount of conversion of that chemical bond energy into mechanical energy by the explosion of this air fuel mixture and I think automobile engines what are they - like about 15% efficient, 20% efficient. I actually -

[Cross-talk]

Greg Everett: It's a very small number.

Robb Wolf: It's pretty small like 15%, 20% efficiency. What you're looking at - this gets into some wacky thermodynamics stuff where you're actually tracking like what we would need to do is track all the way back if we're talking about petrochemicals-based like fuel, all the way back to the ancient plants that photosynthesized carbon molecules into glucose polymers and then the stuff got compacted in the earth and press via heat into this super long chains polymers that go into the petrochemical scene.

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But it's the formation of these chemicals and the chemical bonds they have a potential energy about them and when you combust them with oxygen if there's 100% complete combustion in which say like with glucose molecule you have like C6 H12 O6 molecule, you have a potential of a complete combustion in which you have all the carbon molecules basically associated with oxygen molecules and then we produce some water and that's complete combustion.

Usually you have some incomplete combustion and you get some polycyclic aromatic hydrocarbons produced which is basically soot and that would be kind of incomplete combustion and therefore would be a loss of relative efficiency.

Automobiles have actually gotten to a point where they're pretty darn efficient at converting gasoline fuel or ethanol or whatever the fuel is that's being pumped in there and getting a pretty complete combustion. There's not much like soot or incomplete material that's not combusted.

But the thing is then we have a bunch of inefficiency in that instead of this energy being converted into workable physical energy in this case it would be driving the piston and turning a crane and all that sort of jive - there's a bunch of heat loss or a bunch of energy loss due to heat and this is a huge factor in the inefficiency of an engine.

So now when we look at this stuff happening on a cellular level you've got protein, carbohydrates, your fat that basically gets pumpted into our cellular engines or mitochondria and then they get broken down and this is where you get into basic physiology integrated fuel metabolism in which these nutrients get pumped into the Kreb cycle and then the Kreb cycle these fuel intermediates protein, carbohydrate and fat get pumped into this Kreb cycle and we're making these substrates like a NAD and FAD and producing ATP and it's this production of ATP that drives these things called proton pumps and we store sodium and potassium in either in the inside or the outside of a cell like damming a river and then it's the re release of these electrons through these electron pores that drives all of the machinery in our bodies.

Like everything that we do from nerve impulses to muscular contractions like all these stuff is driven by the formation of ATP and the formation of the electron transport chain and the use of dammed or stored electrons and the potential energy created by storing and moving sodium and potassium gradient this is how everyday in physiology basically works and there are certain efficiencies with all that stuff.

So I think at the end of the day like if you bring a fuel molecule into a cell that it's about 35% or 40% efficient in converting those chemical bonds into usable energy which is basically the formation of ATP and like in the electron transport chain proton pump - all that sort of stuff. If it's about 35% or 40% efficiency if I recall correctly.

But this is completely neglecting how much of that nutrition do we absorb on the front end of this stuff. Like how much food - say like I put 1,000 joules or 4,000 or 1,800, 4,180 kilojoules kcals of energy down my pie hole how much of that do I actually absorb into my body?

And that's completely variable based on the types of foods, based on age, based on digestive physiology and a host of other issues. This is where it starts really getting dodgy to try to track this stuff.

There are certain nutrients like soluble fiber which doesn't really register a caloric load initially because people assume it to be non absorabable which is true but then when it hits the colon it actually creates via

bacterial fermentation these short chain fatty acids which then make their way into our body and can be sterified and used as essentially saturated fats, short chain saturated fats and so they register as a net caloric load even though you're not looking directly at that. There's a lot of changes in the body that make the accounting really difficult.

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So that's an insanely long description of somewhat digestion, somewhat integrated fuel metabolism. Our best case scenario is kind of about a 40% conversion of food energy into usable energy but that's when that's when the fuel molecule is actually in our cell, in our mitochondria but it's much much less than that when you are thinking about calories going in our mouth and then how that manifests out in our body.

So a lot of the accounting that goes into like trying to track or figure out how many calories people expend per day and all that like it's a really rough estimate. If you're trying to track something in like a metabolic word setting then it's helpful.

It gives you a starting point but there's huge amounts of variation depending on how people absorb food, what their metabolic rate is, what their hormonal rate is, whether they have higher or low thyroid levels, there's all kinds of wacky things like funneling energy into brown adipose tissue.

Basically brown adipose tissue, fasting, being cold can stimulate an uncoupling proteins which basically fritter away all that energy, all that ATP that's been made and stored. It just releases it as heat and so then in that regard with regards to efficiency it's not efficient at all unless you want to be a heater or a thermos.

But if you're potentially starving to death or cold and needing to convert large amounts of energy into heat then that's a great thing to have happen and I feel like I'm just jabbering now so I'll just shut up.

Greg Everett: Yeah. I was gonna ask you if you are going to have anything left for the final question.

Robb Wolf: Well it is a different topic so…

Greg Everett: I don't know. You might have used all your words. Oh boy.

Robb Wolf: All six listeners just passed out.

Greg Everett: All right Mike says…

Robb Wolf: This is a good one. Greg actually, we both got cced on this and I have a very very spicy and piffy response to this already but we will revisit this.

Greg Everett: Yeah but we're supposed to be nice now though.

Robb Wolf: That's true. The one that I wrote was not nice at all. But I know Mike so he can take it so…

Greg Everett: All right. Well he says Rob I thought it'd be refreshing to hear your take on the following devil's advocate question without using the words grains, legumes, dairy in your response.

Some say that referring to a Paleo diet is so vague as to be meaningless since the time period is so long in a worldwide geography/weather is so their verse. Can you expound on how the Paleo diet lends itself to a broad variety of specific diets one might eat? Can you opine on whether one's individual heritage can dictate one specific diet or should it largely be left up to a personal preference?

We've been eating grains in progressively processed amounts for about 10,000 years. Couldn't we humans probably complete a genetic adaptation to grains that we reverted back to a modest phase of adaptation in that direction? Thanks.

Robb Wolf: Oh boy. So my original response to Mike and I'll make this one much much less snarky because again I know Mike on kind of a personal level and so I was able to I told him basically take this back to the people to the people who actually use this question and launched in.

But my legit response that I put out there was the first part some say that referring to a Paleo diet is so vague blah, blah, blah and my response to that was who are these people who say that it's vague and inevitably it's people who don't know anything about this.

This is a little bit of my tirade last week about the medical professionals and not really remembering or being accountable for the science which they were exposed to as part of their training and this is a situation which we have people who have no inevitably no steeping in evolutionary biology, no steeping in molecular biology, genetics, human physiology.

They just don't have any background in this stuff but then they throw out these huge statements and so my analogy that I wrote back to Mike was if this question was instead of adopt the Paleo diet was why is this guy blue I would have to get in and start describing this in terms of physics.

I would start talking about like light scattering, chromatic aberrations, blue shift red shift, quantum mechanics because these are the fundamental elements of physics in describing optics and describing light and the interaction of light with matter in the different physical media that brings about what we perceive to be a blue sky.

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But when I start launching into this if people say well we don't really know that much about quantum mechanics or optics or whatever and they believed that that's sure then that's just as far as the conversation goes because essentially what the person is doing is being really damn lazy and putting all the work on me to actually say no kid by the way there is stuff optics and there is this quality of light interacting with matter and different things happen in different circumstances and those situations and then we have light scattering. We have reflection versus refraction and like on and on and on.

So if the person comes and sits down at the table and wants to opine on this stuff which is a great great word to steal out of the question, they want to say an opinion on this stuff they really need to have the cahonies or just be able to sit down at the table and have the conversation which in this situation of the Paleo diet they don't but because people eat or because they've watched the Discovery Channel at some point that they have some level of thought that they have opinions on this stuff.

It's obvious that they don't. That's just kind of this overarching thing and this is something that - I don't know if it's accurate to say it grows weirdy to answer this thing but there's also a new influx of people who or making the same statements, the doubting Thomases and all that.

But I think after you've answered it and keep in mind I've been tinkering with this stuff since 1999 so I've been working on it for a while so I've answered this question a lot and so as time goes on your patience for answering it becomes less and less at some point. So that's just the thing with that.

The other thing I did kind of expound on how the Paleo diet lends itself to a broad variety of specific types that one might eat. The generalized

feature and again is well articulated by Cordain and by Stephan Lindeberg that there's not one Paleo diet. There's not one turn characteristic of it. There's not one macronutrient ratio.

But there features that generally describe a Paleo diet: wild caught fish, grass fed meat, seasonal local nonprocessed carbohydrates sources mainly from fruits, roots, tubers, that sort of thing and a minimal intake of grains, legumes and dairy and those are just kind of the generalized features that we're pulling our orientation from.

And then from there macronutrients and whether you live near the tropics versus the North those things all kinds of play out in the wash and what we find is that people can be quite healthy on quite a wide variety of nutrient intake with that regard.

Now with regards to some of these adaptations that we've seen up until this point the interesting thing and this is I need to do a blog post on this. There's this question that's like - and I guess we kind of pain ourselves into a corner with this to some degree when we bring up -- I'm thinking 50 different things here. You find words Rob. Use your words.

Greg Everett: Take a moment.

Robb Wolf: This is where Matt Malond has been really good at hammering people like me, hammering Prof. Cordain on the logical fallacy side of because the cavemen did it we should do it and so this part of the thing that grains and legumes are evolutionarily noble. They're new foods and so the notion is put forward that because they're new that they're problematic but that's not a guarantee.

Olive oil is new but it's not problemtaic. It's actually quite healthy and so this is where we need to be very clear in the way that we define or describe these things. Grains and legumes are evolutionarily noble foods but that's not the total description of why they're a problem.

The reason that they're a problem is that they have anti cardation characteristics about them for which we are completely maladopted to. Some people seem to do better than others but you don't even need to have some genetic adaptations to that. Simple genetic variety can describe that variance.

If we introduced some new chemical right now and exposed people to it some people are going to do better, some people are going to do worse

when they are exposed to this checmical and that's just based on genetic variation.

And as to whether or not we get some sort of adaptation on that that's a whole other thing. The adaptations that make people susceptible to grain and legumes intolerance particularly gluten intolerance is related almost entirely to these individuals actually being better able to avoid bacterial infection in the gastrointestinal track.

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So part of the reason why they are hyper active to certain grains is because that hyper the activity represents an evolutionarily selective advantage with being able to deal better with bacterial infections.

So part of this question is if we rewind the clock and just expose people at a low-level to grains will they adapt to them over the time yeah they probably will but we're talking about the need for that to happen and people need to be crystal clear on this. You need to expose people to a severity of exposure such that people start dying and stop reproducing and create a selection pressure. Nothing happens unless there is a selection pressure in this regard.

We do see some adaptations like that that happened on a quick time scale like the adaptation to say like lactase maintenance throughout life. You have populations in Mongolia, you have populations in northern Europe, you have populations in Africa that all maintained the use of the lactase enzyme time throughout life and interestingly they are all completely different genetic variants, completely different adaptations to maintain the ability to digest lactose throughout life.

Normally we have lactase expression while we're children and then we wean and then we typically don't consume dairy later on in life but in these areas where people domesticated darying animals the selective advantage for an individual to be able to maintain lactase activity throughout life is huge because that represented a massive increase in caloric intake and so that was selected for a very very powerfully but that that is it's not the addition of a new gene. It is simply turning on an existent gene and what we find is that adaptation becomes less and less important over the course of life with regards to health.

So a lot of the adaptations that we see like in certain Asian populations they have multiple expressions of the amylase enzyme to be able to break down starch and that's a great adaptation but that is a duplication

of an existing feature that has produced a very powerful selective advantage short term but these things are very kind of punctuated.

We're not talking about the type of adaptations that we would need to see like specifically with like grain and legume intolerances to make these things much more digestible. We do a much better job of making these foods more digestible by sprouting and fermenting these foods than what we do via genetic adaptation.

But it still registered as kind of a problematic feature and a lot of what goes on in two we are as humans right now would need to change to really lend itself well to that modified diet not the least of which is like a smaller brain and all kinds of other stuff that I just don't think is really all that good.

So these questions I guess are good. I guess it shows that people are thinking about it but it's kind of tough sometimes too because you're dealing with folks who are coming into the thing with not much skill set, not much background and then you have to explain essentially all of science to be able to build your case.

Frankly it's kind of a shitty disadvantage place to come from because it's like well prove it to me and then if you really care about it then you really literally left with going back and start being at like -- what was the day in the gym when it was like the Big Bang and all that stuff like there was a big bang.

[Cross-talk]

Is that thing still floating around? You still have that?

Greg Everett: Dude I've looked for it. I think it's gone. I wish I had that.

Robb Wolf: Dig around for it but I had this freak out in the gym one day and I was like one day there was a big bang and matter and energy expanded and this is the degree where you need to start with all these stuff to make all the pieces fit together and again this is all related to like we need to start at first order principles and this is where just because the caveman dated is not really explanation.

Evolutionary biology is still the explanation in this stuff but our understanding of that is all growing and quite literally evolving. So Mike hopefully still likes me even after my very snarky e-mail response to him a couple of days ago.

Greg Everett: Ahh he'll be fine.

Robb Wolf: He'll be fine. He'll shake it off.

Greg Everett: That's right.

Robb Wolf: Is that it? Is that the whole thing?

Greg Everett: Yeah I hope so.

Robb Wolf: I don't hear anyone else left too. There are probably two people left listening. They're like F this stuff man. I'm done

Greg Everett: That's why everyone's asking to put the time signatures in there.

Robb Wolf: So they could be real selective.

Greg Everett: Yeah. I know what you guys are doing. All right. Let's quit this while we're ahead.

Robb Wolf: While we're somewhat ahead okay sounds good. All right G. Thanks man. Will talk to you next week. Gary Tobs next week. Getting your final questions the day that you guys listen to this podcast.

Greg Everett: Yeah. All right.

Robb Wolf: Talk to you soon later.

Greg Everett: See you.

[1:01:39] **End of Audio**