The Paleo Solution – Episode 68

[0:00:00]

Andy: Six listeners can't be wrong.

Robb: Yes, six listeners cannot be wrong. Robb Wolf.

Andy: Andy Deas. The Paleo Solution.

Robb: Holy Cats. Egads

Andy: Yes.

Robb: Robb Wolf.

Andy: Andy Deas back with Episode 68, The Paleo Solution. And today, we are finally joined by Matt Lalonde.

Robb: Unleash the Kraken. I had to do it, man. I had to do it. Matt, welcome. How you doing?

Matt: Doing good, having some electrolyte enhanced water until noon time comes around so I can actually eat.

Robb: So is that code for what Andy is also drinking which is some sort of a warm somewhat flavored liquid which were – I'm guessing, both of these are urine in both your bottles?

Matt: No.

Robb: No.

Matt: Mine – mine would be at room temperature and uncolored and unflavored.

Robb: Okay. And, Andy, you're doing decaf tea?

Andy: It's amazing.

Robb: Very aggressive. Very, very aggressive.

Andy: It's what my life has come to.

Robb: Wow.

Matt: Robb, if you want aggressive, just go to Epic Meal Time and look at their Tequila Night.

Robb: Oh, I go to Epic Meal Time all the time. Those guys are my heroes.

Matt: Now, that's aggressive.

Robb: That is super aggressive. Those guys are great. Now, they're bringing in girls, too.

Matt: Robb Wolf, what do you know about health?

Robb: Salad? Carrots, for ugly people.

Andy: I've not even been there. I'm going to have to go.

Matt: You haven't checked this out? Are you serious?

Andy: No, no.

Matt: Stop the recording. I think we should take him out. And then we'll…

Robb: We have done you so wrong.

Andy: Well…

Robb: I feel like I've been unfaithful to you or something.

Andy: I feel like there's a number of messages related to that in my Facebook queue, but I tried to avoid Facebook right now, so, I'm a little behind.

Matt: An?

Andy: I know.

Matt: I never went to my Facebook, too. I have to apologize to the people that send me questions on there. I'm just – I don't have enough time to get to them. So, yeah, that's a horrible way to get – if they had to reach me.

Andy: I also noticed, you untag things that people tag you on a funny little pictures, Matt.

Matt: Yeah, yeah. I just – I'm really paranoid about all that stuff and the information that you can get on people. So, that page, I was forced to start because all of my friends just kept annoying me with the – the, you know, typical message of like, "You need to start a Facebook page," and I eventually gave in.

But now that page is full of strangers and people that I – I don't know that I've never met, so I just – I keep the minimal amount of information on it.

Robb: Do you still have the – the photo tag where Welbourne has pancakes on you?

Matt: No, that's – that's untagged.

Robb: Dude, it was – that was some of my best work. I'm hurt. I'm hurt.

Andy: Little did you know, Matt, you're going to be on the Internet with pancakes on you.

Matt: Man.

Andy: Well, we have, like 7,000 questions for Matt so we're going to try our best to get through a big chunk of them and – before I have to bring Matt back, assuming Robb and I still have a job after this episode.

Robb: The FCC will step in at some point, so.

Andy: Okay. So, unless you guys have anything else – what you guys want to about it, so let's just get started. Anything else you want to talk about, Robb, or Matt?

Matt: Well…

Robb: No, no.

Matt: …just before we get started, I want to mention, at the end before we start, you have to remind me, Andy, I have three questions for Robb just to make sure he doesn't get left out in all of this.

Andy: Ooh.

Matt: And he has to answer each question correctly. And I'd like to come up with the consequences of him getting these wrong.

Robb: Oh, Jesus.

Andy: Oh, Jesus. Wow.

Robb: Awesome, awesome. I'm warming up here. I'm doing my – I'm stretching as you're – as you're talking, I'll be stretching and getting warmed up for my – for my challenge here.

Andy: And just so the listeners know, Robb and I are recording this at 6:00 AM, so we're not as show-ready as normal, so bear with us. Matt is going to, you know, save the day for us.

Robb: No excuses, Deas. I'm ready to – to take my punishment. I command. So…

Andy: I know you're getting warmed up right now. I like it.

Robb: Well, it's just so that the impact isn't this bad, so.

Andy: All right. So I will – some of these questions are rather lengthy so I'm going to do my best to kind of skirt through some of the details, but obviously, they'll all be in the show notes so the listeners can read them.

But first, we're going to read this from our friend, John, from podcast 57, my friend, John, who also made comment on my blog which were very interesting.

So John says, I think a discussion on what the re-introduction of foods and the subsequent reactions to them means and why would be very interesting as a podcast topic. The Paleo concept has expanded a lot from the original, cavemen did this so you should to, logic of guys like Cordain.

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Another thing mentioned recently on the show, how Robb has become more science-orientated because of Matt Lalonde. But I still think at times, Robb reverts back to the, re- introduce it and see how you feel, logical fallacy too often, because I bet almost any food completely eliminated for 30 days and then re-introduced would have negative effects and may take a few months to re-sensitive yourself to.

So a talk on why this matters, scientifically preferable rather than anecdotally, would be important. It needs to be more than just, gluten makes my joints achy. I'm very surprised that some of your clients eat

gluten. Robb seems to think 100% of people should avoid it 100% of the time.

Another thing is the constant reference to autoimmunity. I get that anecdotally people with these problems see benefits from Paleo, but what relevance is this to people without autoimmune conditions? If dairy aggravates autoimmune stuff, what does this mean?

Sometimes it seems like Robb is implying that because people with crohns, rheumatoid arthritis, coeliac, Hashimoto, et cetera, get messed up eating a certain food that the food is bad for everyone, but they are a special population, and that's like comparing the carb needs of a type 2 diabetic to that of an athlete.

Again, I recognize this is a problem of the very broad audience of the podcast, but I think some more clarity on the real underlying WHYs need to be answered. For example the, these foods have only been around for 10000 years, line, this is assuming a linear evolution, which many experts suggest is not the case, so maybe Robb could discuss why we did or did not evolve more quickly after the invention of agriculture.

Man, I missed this question. I totally forgot about this.

Matt: So there is – there is a lot going on here. And I wanted to readdress this. I think, you know, Robb took it part of the way and I just like to finish it because there's – it's important. There's a lot of confusion here and there are stuff that's near and dear to my heart in this question.

So, John is pointing out things that are correct and other things that I completely disagree with.

So the logic employed by many people in the Paleosphere and by many researchers is a huge pet peeve of mine. And John is right for crying foul on that and – and Robb is very aware of my disagreement there.

So given the best available data, we pieced together our best predictions as to what are Paleolithic ancestors and modern-hunter gatherer refused to eat. Now, the biomarkers could be measured and the remains of Paleolithic ancestors and they indicated that they did not suffer from diseases of modern civilization, but that's still limited information.

I'm not questioning the science. It's just limited because it's not direct observation of the actual population.

Robb: And there's no mechanism there.

Matt: It's…

Robb: We're not dealing with mechanisms.

Matt: Right.

Robb: We have a selection bias. We don't know what people got lost in the mix.

Matt: Yeah. Huge selection bias especially for modern hunter-gatherer observations today. So they have also been observed to be mostly free of disease or modern civilizations. You know, but the whole thing in the end is just an observation.

And what, you know, baffles me is that the Paleosphere is really good at the on observational studies, but then uses this logic and I just – I justify it. You know, these observational studies do not establish cause and effect.

So it really drives me nuts when people justify what I'll call the Paleo lifestyle or way eating by saying that, you know, cavemen and modern hunter-gatherers ate meat, vegetables, fruits, nuts, and seeds, and they do not suffer from the diseases of modern civilization. So you must eat this way, too, if you want to avoid these diseases.

That is, indeed, a logical fallacy and John is a 100% correct on that. It can be used to generate hypotheses that should then be tested, but it does not establish cause and effect.

One argument I should be guessing even more worked in the previous one is, our Paleolithic ancestors evolved over millions of years while not consuming grains, legumes, or dairy. So we should not consume these foods because we are not adapted to them.

That is an assumption and it is completely incorrect. The assumption that a species is not adapted to a food because it never consumed that food is completely false. There are plenty of examples throughout evolution where a species finds a new source of food and thrives on it.

In fact, if you look at the expensive tissue hypothesis, it makes an argument along those lines with respect to human beings and meat consumption, saying that we evolved into the species we are now today

because our ancestors began eating meat, you know, actually, animal products, mainly bone marrow and brains.

So I think a better and more accurate statement would be that human beings are not well-adapted to grain and legume consumption, and that is a very different statement and as far as I can tell given the research that I've analyzed, that statement is correct.

So that being said, there's nothing wrong with Robb's suggestion of using elimination diet to test whether or not people are allergic to certain foods.

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He is merely asking for people to conduct an experiment of N equals 1.

Sure, it's not statistically significant, but it is a case study and is not a logic fallacy, so John is wrong here, like you can run experiments on yourself. Yes, you are the experimenter and the observer is not the best science. You can't publish that but you can get some information from that if you're careful from it. So that's not a logical fallacy.

Robb: Hey, Matt, you know, I was talking with Loren Cordaine the other day and – and they are doing some interesting statistical analysis of the nutrient content of – of food just like everything under the sun, you know, like, how much B12, B1, zinc, magnesium.

And they're creating this giant matrix of the stuff and then correlating, you know, one nutrient with another and getting out into like kind of 10 factorial type – type analysis. One thing that they're finding is that there's definitely like a normal distribution.

You know, you're not finding – what – really not finding a supraphysiological levels of different nutrients which you and I have talked about this and this is part of our renaissance to recommend nutritional supplements to folks.

And, you know, where can you apply this idea of evolutionary biology as a framework to – to look at this stuff, you know. I mean, you know, when is that that statement of like this is evolutionarily novel. This is what we, you know, using evolutionary biology to form our – our questions, like, when or how do we use this to ask a good question and then follow up with some – some mechanistic research then?

Matt: I think that, you know, all of it can be used to generate hypothesis and test them. You know, but just acknowledge the limitation of the data. And don't say it has to be right because it was always done that way.

Robb: Got you.

Matt: You know, it's just like I'm generating my hypothesis based on this. Now, I'm going to go out and test it. Another problem that I'll see actually with a lot researchers in this field, is a huge bias. They are very unscientific in the way that they go about this.

They will actually look at either evolution, modern hunter-gatherers, or our Paleolithic ancestors assume that what they were doing was correct, and then go find literature to support their – their contention. And that's just its biased research, it's unscientific, and it's incorrect.

And when it comes to the world of nutrition, guess what? You can find just about any literature to support any point, so it's – it's a moved exercise, you know, it's just – it's not very worthwhile in my opinion.

Robb: And we see this a little bit just with the understanding that transition from probably more like big-game hunter to a really foraging-centric hunter-gatherer as they – that was my hunter – Neanderthal A-Go-Go post, you know, that the diversified food may not even be all that adaptive, that maybe – or a sign of a beneficial situation.

It actually is a sign that we've – we've over-hunted an area and now needing to get craftier with the type of food we were eating.

Matt: Yeah, and ate the food that was available and if they starved, they would just know they would go for stuff that was, you know, low on the food chain, like, you know, seeds and…

Robb: Cool. And did you – did you dissect this one to your – to your satisfaction? Do you have anything else you want to…

Matt: Well, I was not done.

Robb: I was just – okay. Just check – I'm checking. I'm making sure. I'm making sure.

Matt: Yeah. So, I mean, Robb, you know, you and I have been friends for – for years now. You call me regularly to ask what I'm reading, what I'm

thinking about, and I think one of the reasons why we became good friends is because Robb behaves very much like a responsible scientist.

He doesn't do any do of the things that I just described. He's constantly looking to improve his knowledge and think about nutrition. Most importantly, he'll change his mind when he's faced with legitimate contradictory evidence. And I see too many people in the Paleosphere just stick to their guns and – and not move in any direction when faced with contradictory evidence.

So let me discuss an example of that where, you know, Robb has changed his mind. So Robb used to be highly pro low-carb and mostly for using carb sparingly post workout. But, you know, Robb and I talked extensively while he was proofreading – while I was proofreading the book and I mentioned to him that I wasn't convince glucose from starch as problematic.

There was some confounding factors with low-carb diets and that eliminating carbohydrates also minimizes the amount of fructose, grains, legumes that you get exposed to. And then there's a bunch of overfeeding studies that have shown that fructose is far more problematic than glucose.

And I can give this references to – to Andy and he can put them in the show notes, but I have a bunch of references here and, yes, I know that they are short – short-term studies with large doses of fructose, but researchers were limited because they know that fructose is harmful so they can't run a long-term analysis of these effects and completely destroy people.

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But long-term analysis have been of moderate fructose doses have been done in rats and they're also detrimental.

Anyways, after a long back and forth, Robb and I eventually – Robb eventually changed his stands on carbohydrate and I think he agrees with me now that, you know, starch is okay and that fructose is a dose-dependent hepatoxin that doesn't necessarily need to be included in the diet.

There's no such thing as an essential carbohydrate. Your brain does need some glucose, but your body can make it from amino acids and glycerol, so why not just consume the one carb that your cells can actually burn

which is glucose and then minimize the other one that's – that can't be burned, so.

Like I said, I see too many people in the Paleosphere stick to basic prescription of if it wasn't consumed before the dawn of agriculture, you can't eat it. So – and Robb is far more balanced in his approach, so that's another area where I disagree with John.

Now, I want to adjust the gluten bit and the autoimmune disease. So I view the gluten argument as a poor justification for the avoidance of grains, very much in the same way as the cavemen argument. It's just like it's an incomplete lazy argument, that it's a one-liner. Gluten is death. It's stupid. It's not true. But you can throw it out there and will scare people and they'll believe you and you'll get them to avoid gluten.

So here's what's going on. It is true that gliadin-derived peptides make their way to the gut incompletely digested. But there is a lot of digestion that occurs in the gut itself so it's unreasonable to expect that everything in there is going to be fully digested.

It has been shown that in individuals without celiac disease – in individuals without celiac disease, the gliadin-derived peptides are absorbed at the surface of the enterocytes and then fully digested. However, in patients with celiac disease, the peptides are not fully digested and they stimulate the release of zonulin by binding to a receptor called CXCR3.

Zonulin then dissolves the tight junctions between the enterocytes and that increases intestinal permeability. There's an ensuing cascade of events that results in the formation of a chimera between gliadin-derived peptides and an enzyme called transglutaminase that was released to help repair the enterocytes and then that chimera is recognized as foreign by the immune system and it sets off an autoimmune disease.

And the immune system mounts a response against the enterocytes because they're the source of that transglutaminase.

So the picture is not complete by far, but I have already gone under too many details in that.

So gluten is part of a family of proteins called prolamines. They're found in all grains. And the autoimmune diseases that have been tested for the presence of the leaky gut all present with a leaky gut. So not all autoimmune diseases have been tested for the presence of leaky gut, but

the ones that have tested – been tested, all show that the leaky gut is there. So the avoidance of all grains is a good advice for people with autoimmune disease, but why should normal people care?

Well, it turns out that there's a confounding factor here. People are looking at this from a nutritionism standpoint. Gluten is just not something that you absorb in itself unless you are eating like seitan, for example. When you eat grains, you're getting gluten, you're getting a variety of other antinutrients that are going to cause some gut dysfunction and compromise intestinal permeability and they are not population-specific. So they affect everyone, but it turns out that some individuals with autoimmune diseases are going to be hyper-responders.

So those antinutrients are lectins. In the lectin family you've got wheat germ agglutinin, phytohemagglutinin, soybean agglutinin, peanut lectin, and concanavalin A that are the most studied. Then you have phytic acids and phytates which inhibit digestive enzymes and impair mineral absorption.

And then you have saponins, which also contribute to the leaky gut. None of those are population-specific. Like I said, there might be hyper-responders in people with autoimmune disease, but they're not population-specific. Gut dysfunction is going to impair digestion and absorption of nutrients which is going to cause low level systemic inflammation by allowing gram-negative bacteria into the bloodstream. That's another precipitating factor for other autoimmune diseases in fact.

Interestingly, the leaky gut is now being linked to various aspects of the metabolic syndrome. So we've got non-alcoholic fatty liver disease that is directly linked to endotoxin translocation. That's lipopolysaccharides from the gram-negative bacteria that are making their way to the liver and causing liver damage.

And you also have hypercholesterolemia, because LDL particles can bind and neutralize the lipopolysaccharides. Lipopolysaccharide is something that is included in the membrane of gram-negative bacteria.

Robb: And we then kind of a wacky adaptation with that in acute sepsis where we see like a crashing…

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Matt: That's right.

Robb: …cholesterol levels, but over chronic exposure, we see the cholesterol levels pushed up from that. It was kind of a – kind of an interesting thing that we tracked down on that.

Matt: Yeah. So if that's not enough, then add to that the fact that grains and legumes have poor nutrient density. You know, I just cannot think of a good reason to eat these foods, but I can imagine many mechanisms by which the avoidance of grains and legumes would improve health and performance in almost everyone, but a select few genetically gifted individuals.

And the term, you know, genetically gifted is debatable here because I'm not convinced that tolerance of grains is a good thing given that grain agriculture is not sustainable so there's another factor for you.

So I'm going to – you know, I'm done at this point. I'm going to end this whole thing with a quick note on dairy because you, you know, mentions dairy. And there was this one question at podcast that someone asked me to – to mention where I disagreed with like the typical Paleo formula and – and dairy is one of them.

So milk causes a substantial insulin spike. The insulin index for whole milk is 140 and for skim milk is 148 – actually, no it's 148 for whole milk, sorry, and 140 for skim milk, and that's because of a specific combination of carbohydrates and proteins that are in there, not because of the fat.

But when you look at cheese and non-sweetened yogurts, you get much lower insulin indices. So for cheese, you're getting something that's about 45, which is very reasonable and would be lower than, say, white fish, that's 51. So I think that some fermented dairy, where the lactose has been eliminated is okay for people who do not have autoimmune diseases.

I would not make it the majority of my calories. There are other problems there and I'm not sure fermentation eliminates them but I think that they are okay for people who do not have autoimmune diseases. I'm not sure what Robb wants to weigh-in on that.

Robb: You know, I've been talking with Chris Kresser and he – he's been paying me on this also and his deal was basically that so long as we've got intact gut health that grass-fed dairy is probably a benefit and not a problem.

Matt: Yeah, the grass-fed, the key here because, you know, that don't get low-fat dairy that, you know, one of the benefits of full-fat dairy is that you're

getting quality fats especially if it comes from grass-fed animals, so don't get that low-fat stuff.

Robb: Get a CLA, you know, all kind of carotenoids associated with the lipids and all that.

This is, you know, and Chris pulled in some – not epidemiological but, you know, some kind of an anthropological observational type of stuff similar to like the, you know, the argument, well, meat causes cancer and then just observationally, when you look at the Inuit and it's like, well, they're suspiciously skinny on cancer and, again, very observational but just kind of one of those point-counterpoint kind of gigs.

And Chris made the point that you see some really very healthy populations that have some, you know, heavy dairying practices and a suspicious lack of cardiovascular disease, cancer, you know, all the – all the standard kind of stuff.

For me what we've seen with the folks that I've worked with, and I don't know that if it's a difference in the type of grass-fed dairy that folks can get or what the story is, I still seem to see some inflammation. I still seem to see some allergy type stuff. But again, are these folks completely healthy with their gut integrity? Do they still have some dysbiosis? Is the base level of stress that they experience a problem?

There's still something a little bit odd there more often than not, but this has always been my point with dairy which is eliminate it initially, get healthy, particularly if you have any types of signs and symptoms and inflammation, reintroduce and see what the heck happens, which again is an N equal 1, but that's where dairy has been in my gray area.

Between talking with Matt, between talking with Chris, I'll put it into a lighter shade of gray. But again, with the caveat that trying to find those grass-fed sources, sounds like fermented is probably better than non and…

Matt: Yeah, with just milk and even grass-fed animal.

Robb: Yeah.

Matt: Absolutely not. And then I also put it in a gray area. I was talking to you the other day and mentioning that beta and gamma casein have a really high proline content.

Robb: Uh-hmm.

Matt: And may be difficult to digest in the same way the prolamine proteins such gliadin are difficult to digest. So that's why we say for people with autoimmune disease, it's a no-no. And then there's a lot of histamine released, too, in response to casein ingestion in certain folks that may explain some of the inflammation that you're seeing. You know, so there are other problems with it. But like I said, fermented dairy is a lesser of the evils there. Yeah.

[0:25:03]

Robb: Andy Deas, thoughts or are you in shock and awe?

Andy: I'm not even going to add anything because that is the longest answer to a question I ever had, and I thought that was excellent. But we got to keep the train moving.

Robb: That maybe the show. That's almost like…

Andy: That's a show.

Robb: It is good.

Andy: No, that's like…

Robb: This is going to be a 15-part Matt Lalonde piece.

Andy: Matt, it will be like 52, and we'll still be working on this. All right. So we move on. We got a question from our friend, Ben. He says, Matt, I've been looking forward to seeing you on the show for some time now, a few questions from a fellow Canadian.

So number 1, could you please explain the difference between physiological insulin resistance and pathological insulin resistance? I think this is something that gets very mixed up not only in the mainstream, but also in the low-carb Paleo community.

Robb: Yes, that's a goody.

Matt: Yeah. Ben must be a CFer who – who likes to rain down the pain or have pain rain down on him because this is going to be painful. So we might lose some listeners there, and some of you might fall asleep. But yeah, I'll address this. So here's a question, would a low carbohydrate, high fat diet induce insulin resistance in a human being?

Robb: Yes.

Matt: Yes, it would. Is it pathogenic? No, it's not. And I'll try to get that point across. A good paper to look at is one called defective short-term starvation versus high-fat diet on intramyocellular triglyceride accumulation and insulin resistance in physically fit men. It was published in Exp. Physiol 2006 Volume 91 number 4, page 693 to 703.

The study compared the effect of short-term starvation and a high-fat diet on insulin resistance and the accumulation of IMTGs. They are also known as intramuscular triglycerides, not just intramyocellular triglycerides.

So it turns out that both diets had similar effects, and the only common denominator was carbohydrates scarcity. So they starved people. They put people on a high-fat diet. And they measured the level of insulin resistance, and they were the same, low and behold. So what's going on here? Well, the authors in the paper discussed this at length, and they're like, you know, "This has to be a normal physiological adaptation to carbohydrate restriction. So why would the body do that?"

Well, it turns out that – I mean there are a lot of misconceptions here, but the brain does need carbohydrate. It doesn't only consume carbohydrate. That's not true. But it does need carbohydrate. The brain can survive on a mixture that is as low as 25% glucose and about 75% ketone bodies. So when ketone is in short supply, the body is going to turn on insulin resistance in the muscles to make sure that they don't take up any of the carbohydrate, any of the glucose and to make sure that the brain gets all of it.

So it's just a spare glucose for the brain. The muscles are going to then accumulate lipid stores in a similar way to what they do when glucose is around and they store of glycogen. It's just this time they are accumulating lipids so you're going to see intramyocellular triglycerides.

What's interesting is that you also see IMTGs and insulin resistance in type 2 diabetes, but it's in a different context. And I'll get to that a little later. So insulin resistance alone does not define type 2 diabetes, right? Insulin resistance in type 2 diabetes is accompanied by hyperglycemia, by hyperinsulinemia and then a host of other factors.

So the insulin resistance that results from a low carbohydrate or ketogenic diet is merely intended to spare glucose for the brain and is not

pathogenic. Unfortunately, and Robb has covered this in a previous podcast, if you do test these people with the glucose tolerance test, they will fail not just because their muscles are insulin resistance – resistant to spare glucose for the brain, but also because pancreatic glucokinase has been down regulated because it's not needed as much, and pancreatic glucokinase senses glucose in blood.

So their ability to sense glucose is down regulated. Their muscles are insulin resistant. You give those people a glucose tolerance test. Their blood glucose is going to skyrocket, and it's going to stay there for a long time, and it's a really irresponsible practice, in my opinion and it has to stop, like, you should not do that to people.

So insulin in itself is not necessarily pathogenic. It has to be put into context. Individuals on a low carbohydrate diet, like I said, are going to fail this glucose tolerance test. But what most people don't know is that insulin resistance can actually save your life.

So it's been observed that the tissues of injured individuals who lose large quantities of blood, quickly become insulin resistant, and again, this is a survival strategy. It's to spare glucose for the brain. So insulin resistance can actually improve your chances of survival. This is a very well-known and studied physiological adaptation.

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Interestingly, there's a lot of rat studies used showing that high-fat feeding promotes syndrome X, but there are plenty of misconceptions and deceitfulness and dishonesty going on in these studies. So the researchers will never discuss the results of the studies in the context that I have just discussed, saying that, "Hey, this is actually just a normal adaptation."

But there are also other things going on in the diets that are being fed to the rodents. If you actually look them up, and you can – anybody can download these diets if you just type in the name in Google, the PDFs will come up. But the diets are not real food for one. If you look at what they feed these animals, it's a sacrilege. It's just horrible. And then we wonder why they die and get sick.

But anyways, a lot of the diets are deficient in omega-3 fatty acids, and it has been shown that you can put a rodent on a high-fat diet, and then add the omega-3 fatty acid back in, and you will normalize insulin resistance. And I've got two papers for – to show this, Fish Oil Prevents

Insulin Resistance Induced by High-fat Feeding in Rats, that was published in Science in 1987 Volume 237, page 885 to 888.

And then there's Influence of Dietary Fat Composition on Development of Insulin Resistance in Rats, Relationship to Muscle Triglycerides and Omega-3 Fatty Acids in Muscle and Phospholipid, that was published in Diabetes in 1991 Volume 40, page 280.

What's interesting to note when you look at those papers and that EPA and DHA are far more effective than alpha-linolenic acid. So a long-chain omega-3 fatty acids are more effective at normalizing insulin resistance within the context of a high-fat diet for rodents.

The only vegetarian source of DHA, you should keep in mind, is algae. So if you're a vegetarian and you want to get some good omega-3, get yourself some algal DHA. It's available from CVS and it will help you a lot.

What's interesting is that DHA can be retro converted into EPA much more effectively actually than EPA can be retro converted in DHA and that's because in biology, getting from point A to point B is not always the same pathway as getting from point B to point A.

So if you want some information on that, you can look at Physiological Compartmental Analysis of Alpha-Linolenic Acid Metabolism in Adult Humans, that was in the Journal of lipid research in 2001 Volume 42, page 1257. In there you'll find the fact that EPA is poorly converted to DHA.

If you want to find the retro conversion, you can look up Dietary Docosahexaenoic Acid as a Source of Eicosapentaenoic Acid in Vegetarians and Omnivores that was published in Lipids 1997, Volume 32, page 342.

So diets that are employed in high-fat feeding studies of rodents are also rich in a synthetic trans fatty acid called elaidic acid. If they are using a hydrogenated fat, elaidic acid is a synthetic trans fatty acid that is created upon the hydrogenation of vegetable oils, and it has been shown that human subjects consuming 20% of their energy intake as trans fatty acids have been shown to develop insulin resistance.

And if you want a paper on that, you can look up, Intake of a Diet High in Trans Monounsaturated Fatty Acids or Saturated Fatty Acids, Effects on Postprandial Insulinemia and Glycemia in Obese Patients with NIDDM, that was published in Diabetes Care 1997, Volume 20, page 881.

So again, a lot of the studies that you will find on this are flawed. They're not putting the results into context. And I think that it would be interesting to discuss this, you know, to compare this, for example, with the insulin resistance that is created from excess consumption of carbohydrates specifically fructose.

So fructose can be metabolized by the kidneys, adipocytes that are fat cells, and hepatocytes that are liver cells, but the liver deals with approximately 50 to75% of the load. So when the fructose and glucose enter cells, in order to stay in the cells they have to be phosphorylated by ATP dependent enzymes, and that phosphorylation prevents the glucose and fructose from leaving the cell.

In hepatocytes, which are liver cells, the glucokinase takes care of that job; whereas, fructokinase takes care of the job for fructose. But downstream metabolites regulate the activity of glucokinase, but they prevent excessive phosphorylation of glucose. That doesn't happen for fructokinase. It's poorly regulated and your liver can just phosphorylate a ton of fructose.

What's interesting is that fructose increases the activity of glucokinase which means that your liver gets turned into a sugar sponge when you have a lot of fructose around. In a large dose of fructose and glucose is going to rapidly fill liver glycogen stores. That means that all the remaining carbohydrates is going to be fed to the Krebs cycle. Citric acid or citrase is going to overflow out of the Krebs cycle.

[0:35:03]

That's going to be fed into a pathway called de novo lipogenesis which literally means new fat creation, and de novo lipogenesis is going to turn that carbohydrate into a saturated fatty acid called palmitic acid.

So what's interesting is that aside from glucose scarcity, another signal that turns on insulin resistance is the presence of a lot of fatty acids. You know, if you're eating a lot of fat and not eating a lot of carbohydrate, those are two good signals that insulin resistance in the muscles should be turned on.

But now, here you are creating a lot of a fatty acid called palmitic acid which actually makes its way to the brain and gives the signal to turn on insulin resistance, and this has been known – and I can provide some references for that, but you're doing this in the context of – or this is happening in the context of a high carbohydrate diet.

Now, you're in trouble because insulin resistance gets turned on when there's still a lot of glucose flowing in the bloodstream. So that's going to cause hyperglycemia which is observed in type 2 diabetes. That's then going to result into hyperinsulinemia because that glucose has to go somewhere, so insulin is going to be released to try to shove into cells.

If the glucose stays around for too long, you're going to form advanced glycation end-products, and then you're going to get some more detrimental health outcomes from the fact that insulin is high all the time. So I hope that, you know, that explanation gives you a pretty good idea of why insulin resistance within the context of a high-fat diet, and insulin resistance within the context of high carbohydrate diet are different. And one is not pathogenic, whereas, the other one is pathogenic.

I think I'm going to cut it here. I do want to address one thing because I get a lot of questions for this and this individual in this book in particular has really, really irked me. I'm going to criticize Tim Ferriss who has been on Robb's blog before.

So Tim described experiments in his book where he is cheating on his diet with carbohydrate rich foods, but he's not seeing his blood sugar rise to pathological levels. And he's measuring his blood sugar with a nifty little machine. And he's, you know, saying that protocol works, and that his supplements, and his stupid little air squats, you know, turning on non-insulin glucose uptake actually are helping.

But there are really two things going on here I think. Tim's insulin sensitivity and insulin secretion are still good. So his body is doing a good job of shutting the glucose into cells. That's what he's observing. That's why his blood sugars are not going to pathological levels, above 160 milligrams per deciliter.

And the fructose that's in the meal that he's eating is causing the liver to absorb glucose from he bloodstream. So that leads to lower blood sugar levels, okay. But that means that his liver is taking a huge hit. And this is bad because the liver is actually one of the few organs that can release blood sugar back into the bloodstream, which means that it's involved in blood sugar control, and that's not the – and, you know, liver dysfunction is not desirable.

There's a variety – you know, what Tim is not measuring is insulin levels. And I bet that if you were to look at his insulin levels, they would surpass

the level or the threshold that then causes a variety of metabolic shifts and problems including the dysregulation of appetite. So I just – I could not disagree with him more on this whole little protocol.

And I could tell you right now that if a type 2 diabetic were to implement that, it would ruin them because by definition type 2 diabetes you get that, you reach that point once you no longer produce enough insulin for your level of insulin resistance. So you can imagine what would be going on here with a – with a type 2 diabetic.

Robb: And this is part of why we're real reticent, in general, to recommend the real crazy bender cheat days.

Matt: Yeah.

Robb: We had a talk – a question about that in the last podcast, and I've just never seen good outcomes on that. And then Matt and I have talked about this, too. We've not seen the type of benefits out of a cyclic low-carb diets that you would kind of like to see.

And this is where more of trying to get some carbs in, you know, maybe post workout on a daily basis, because getting that consistent adaptation of using the amount of carbs that you need to for the day-to-day specific activities but also up regulating the insulin sensitivity that is of benefit and – and not sliding you into that insulin resistance that's merely an outgrowth of a high-fat diet.

But then if you need that for, you know, carbohydrate for activity or, you know, muscle glycogen stores, then it's going to be difficult to just get that into the muscle because of the insulin resistance.

Matt, it's also probably worth pointing out to folks when people hear, say, a commentary about, you know, high-fat, low-carb diets are dangerous, there's a nice response to that which is you can ask the individual, is therapeutic fasting beneficial?

[0:40:18]

Matt: Yeah.

Robb: And if the person says, "Yes," then it's obvious they don't know what the hell they're talking about because the two states are metabolically identical.

Matt: Yeah, they're very similar.

Robb: Yeah, yeah. And I think Andy Deas has left.

Matt: I've got like – you know, this reminds me of one thing. The whole concept of the glycemic load, I don't disagree with it entirely, but the problem is that if a food contains fructose, it, you know, a lot of sugar is going to get shoved into the liver.

So it's going to have glycemic load that appears – that, you know, that's lower and makes the food appear a little better. So the glycemic load is not the end-all, be-all. You really need to consider the amount of fructose that's in the food, too.

Andy: I did not leave the building.

Robb: I thought that Andy had committed some sort of a tea induced suicide.

Andy: I overdose of decaf tea and it took me. It's the end of my day.

Robb: Awesome.

Andy: Are we ready to move on to the next part of Matt's – of Ben's questions?

Robb: Cod liver.

Andy: Cod liver. Yes. Weston A. Price says yes, Cordain says no, and why did the – who do the lay people believe? Both have good – very good researcher on both sides. Could it be the problem lies with cod liver oils that have been stripped of natural A & D and replaced with the synthetic variety? Go.

Matt: So it is true that over time the amount of vitamin D in cod liver oil is changed. That's an effect. But I will say that, you know, Robb and I have looked at this research extensively. I am personally not satisfied with the quality of the research that is out there, and I feel that it is insufficient to come up with a conclusion on this.

Robb: I did a piece on this which was basically kind of a shrug at the end of the day which…

Matt: Yeah, and I agreed with what you wrote.

Robb: Yeah. And my only point with that was that if folks need high dose EPA DHA, say like they're metabolically deranged, and we're trying to turn the

boat around, they might be better off with just standard fish oil initially. And then when they're at their maintenance dose the cod liver oil is probably a just-fine option.

Matt: What I like about the cod liver oil is that it contains more DHA than EPA typically. And DHA is the precious stuff as I mentioned. But, you know, one has to wonder how sustainable the whole fish oil and cod liver oil industry really is. You know, why not just eat fish daily? And if your diet is optimal, then you shouldn't need that much supplementation anyways, if any.

So in the end actually, the only sustainable omega-3 supplement is algal DHA, like, growing algae and squeezing the DHA out of them, fixes CO2 from the atmosphere, is entirely sustainable, and then you can take that DHA and retro convert it to EPA. So, you know, if I had to pick what is the best source of omega-fatty acids, it's just algal DHA is it.

Robb: Hey, Matt, are you still on there?

Matt: Yup.

Robb: The folks often times mention fermented cod liver oil. What's the – what's the story with that?

Matt: I have not looked into that, so I don't know. I mean just – it would be interesting to see what the - how the fermentation process affects the composition of the oil.

Robb: Yeah, and mechanistically it doesn't make much sense to me, but Weston Price quotes…

Matt: Well, fermentation requires sugar so – and I know that the fermentation process will improve the digestibility of proteins; it will improve digestibility of carbohydrates, but I have not seen a whole lot of information on fats.

Robb: Right.

Matt: So I'm not sure what's going on there.

Robb: Cool.

Andy: All right. I'm very excited about the next question. Number 3, post workout carbohydrate, I know you wrote a stellar piece sometime ago on

low-carb and CrossFit. How has your viewpoint evolved from that experiment, and over time?

Matt: So I try to behave as best as possible, as a responsible scientist. And I will tell you right now that if this article on Robb's blog had been a published piece in the scientific literature, I would retract it because I do not want anyone to repeat that experiment. That was really foolish, naive, and stupid of me. Don't do it. And I'll explain to you what happened.

I was about three to four months into the experiment. I was eating just meat and maybe some vegetables, some greens and fat.

[0:45:01]

You know, I was getting no – very little carbohydrate in that whole deal, and I was following main site programming. And I was actually, you know, seeing my results improve, and I'll talk a little bit later about why I think that is in another related question.

But after I wrote that up, I completely crashed. And there is this one workout that addressed – actually, I switched to the OPT website at that point, and that bastard wrote a workout that just destroyed me. I have short arms, and I'm not that tall, so rowing is not my strength.

And he put a workout together that was rowing and sumo dead lift high poles, and I'm just rolling on the floor at the end of this workout, and my eyes are sinking into my skull, and I'm just going in and out of consciousness. You know, I just – I could barely focus on anything. And I just started – I could at least still think, and I'm like, "Wow, my brain is running out of glucose, like dangerously."

You know, I just did something really bad. So I managed to compose myself and pick myself off the ground, and I work out in Hemenway on the Harvard campus, and it's pretty close to Harvard Square, and in the Harvard Square there's the garage. In the garage, there's a Ben & Jerry's, and I just sat at the counter at Ben & Jerry's. And I looked at the menu to make – and I picked three kinds of ice cream that had no gluten in them because they have things like cookie dough and what not.

And I just looked at the girl and I said, "Give me three pints of ice cream." And she obliged, and I ate all of it, and I was still in my shorts and t-shirt. I ate all of it right there at the counter in front of her within a matter of minutes. And I could – and I could feel my body soaking it up, soaking up the sugar as I was doing that and felt much better afterwards even though I don't tolerate fructose really well.

So, you know, don't do that. If you are going to burn carbohydrate, eat some carbohydrate. I would just prefer that that carbohydrate comes from starchy sources and lower in fructose or roots, tubers, and bulbs. I mean, there are some fruits that are low in fructose. You can go ahead and eat some of that. I just like to starchier your stuff like yucca root, for example. You can eat peeled potatoes if you want.

But the problem here is that if you – gluconeogenesis gets turned on by cortisol and other hormones, and it's not that fast. It's not a very fast process. So in order for gluconeogenesis to ramp up, cortisol has to ramp up. But cortisol is that stress hormone, and your body doesn't know if cortisol is high because of stress or because of lack of sugar or what not.

And so my cortisol levels went so high that my free testosterone then plummeted, and there is this thing called the free testosterone to cortisol ratio. It's actually a biomarker of overtraining. If you want a reference on that, you can look up a paper, Influence of Dietary Carbohydrate Intake on the Free Testosterone: Cortisol Ratio Responses to Short-Term Intensive Exercise Training.

That was published in the European Journal of Applied Physiology and the DOI is – I'm not going to read that. I'll just skip that. Anyways, so – and then I got – I got blood work done, and it confirmed, in fact, that my testosterone was pretty low and my cortisol was really high. So this is – it's not a good idea. If you are going to do high-intensity exercise, you should eat the carbohydrate that goes along with it. So don't repeat that experiment.

Andy: Matt, do you want to share a little bit about what you're eating looks like right now?

Matt: Yeah. I think there's a – there's a question about that in here.

Andy: Well, we'll save it. Teaser. Okay?

Matt: Okay.

Andy: Number 4, I'm just going to read the first part because we're not going to read all these comments. It will take my whole life.

Matt: Yeah.

Andy: Debbie says, "Matt, I've been – really been working at being a Paleo health person. My only problem is I have Hashimoto disease. I work out five days a week. I watch what I eat. Perhaps more of a 85% Paleo. What can I do to speed things along. I have been doing Paleo since May 2010, lost about 15 pounds, very, very slowly. Lots of tweaking with my thyroid meds, and I continually tweak my food. Can you give me any suggestions? Thanks in advance, Debbie."

Matt: Yeah. So if you look at the comments, there are some people that made some good recommendations here. And I know that Robb has a section on his site about the, like the autoimmune protocol. I unfortunately didn't get the chance to read that. I'm sure my – there's going to be some overlap with the recommendations I give here.

But gluten-free or 100% Paleo is not enough, and she's not even 100% Paleo. She's like 85% Paleo. If you have an autoimmune disease, you need a pretty rough buy-in here. So here are the recommendations I'm going to make.

[0:50:01]

I think you should follow a low-ish carbohydrate diet. Keep in mind that might increase TSH levels, but that doesn't – that doesn't mean it's pathological.

I want the carbohydrate that you consume to be mostly glucose and a little bit less fructose. So, you know, go for vegetables, roots, tubers, and bulbs, but limit fruits. Peel your vegetables whenever possible just because a lot of the protective chemicals are found in the peel.

And then the following foods or substances have to be eliminated from your diet or life: cereal grains, including – and I'm going to be comprehensive here.

Robb: oh, lord.

Matt: All varieties of wheat whether it's spelt, einkorn, emmer, or durum, barley, rye, oats, triticale, corn, maize, rice including wild rice, sorghum, millet, fonio, and teff, they have to be gone. All grain-like substances or pseudocereals whether it's amaranth, red nut, buckwheat, cattail, chia, cockscomb, kaniwa, pitseed goosefoot, quinoa, and wattleseed, which is also known as acacia seed, has to be gone.

Eggs of any kind, dairy of any kind, nuts and seeds of any kind, nightshades which includes tomatoes, potatoes, eggplants and peppers

especially hot peppers that contain capsaicin are gone; alcohol gone, NSAIDs of any kinds including aspirin, none. Antacids that contain aluminum hydroxide none, those that contain calcium carbonate are fine.

Oral contraceptives you might want to consider eliminating. And then if you have Hashimoto's, you should avoid supplementing with iodine because it's going to up regulate the heart function and make things worse.

There are some people that I've worked with that have like all kinds of funky autoimmune things going on, and I had this one person that just reacted to any kind of plant matter. I thought it was insane, but I eventually recommended an all meat and fat diet for her, and I just made sure that she got some – she didn't have Hashimoto's, so I made sure that she got some iodine in there, and that she was getting quality meat from grass-fed animals.

So she got plenty of CLA, carotenoids, conjugated linoleic acid like xenic acid and omega-3s and all that stuff. And she actually did fine, like, for the first time her liver enzymes came back positive, and she's improving. But then, you know, if she breaks down and has a sweet potato or a pear like she wakes up the next morning and she's completely swollen. So – I know it's a rough buy-in but this is it.

Robb: That's a little bit more comprehensive than what I've typically recommended trying to think just a longer list of, like, the grain and grain-like substances, but I usually just throw a big net over that and the other things that I usually recommend as some sort of dairy-free probiotic and then making sure that vitamin D levels are that, you know, 60 to 80 nanograms per deciliter because of the immune modulating action on that.

Matt: Yeah, those are good combinations to vitamin D, probiotics. I'm not sure if you need prebiotics if you're eating a lot of vegetables, but if you're not, prebiotics may be useful.

Robb: Cool.

Andy: All right. Ben says, short and sweet, what type of eating would be recommend for a lean 31-year-old, strict Paleo for 1.5 years, 164 at 5 foot 11, looking to get body weight up to 180 to 190 on Ripp's Starting Strength, only 1.5 months in, slowly gaining weight and progressing on Ripp's linear path while maintaining strict Paleo.

I only ask if Lalonde thinks there is another way of eating that would be more beneficial given my goals. If not, cool. I'll keep up the strict Paleo. It is after all very tasty and effective. I just want to know if he thinks this is the best path. Thanks, Deas. Update your blog, dude.

Matt: So I'm going to make these recommendations assuming that you are not an idiot like I was, and that you're not doing any metabolic conditioning or high-intensity exercise. The diet I'm going to prescribe is not good for that, but it will be great for putting on muscle mass on a heavy lifting schedule.

So, I would – I would eat a diet that is ketogenic where you're sticking mostly to meat and low GI vegetables. Organ meats like liver and heart are going to give you a huge bang for your buck and then a lot of animal fat and hopefully from good sources. One of my favorite things to do when I was running that experiment was using liver pate and foie gras and mousses and all kind of that stuff.

Be careful with the mousses, they sometimes throw gluten in there. So just read the ingredients carefully, and then other good source of fats like avocados, olives, coconut, palm oil, and all that stuff, you know. You can throw that in. Maybe some high-fat fermented dairy. I would not recommend a gallon of milk a day. Please do not do that. It's just – it's not good, and I'm not going to take the time to discuss all of the effects – detrimental health effects that are involved with that but just don't do that. So – and get plenty of sleep.

You know, I – when I ran that experiment, I put on 15 – at least 15 pounds of muscle mass.

[0:55:00]

I actually leaned out and went from 165 to 180. So it works pretty well, but, you know, there's not a whole lot of glucose that's going to be provided by that diet, so just don't be a moron and metcon yourself, do the metcon suicide that I did.

Robb: So that's where – and it's so hard in the population of folks that we kind of – kind of cater to. Folks are completely unwilling to really focus on one area. So what Matt is saying here is no metcon. Like, lift heavy weights, walk, and 24 sleep, and then you should get some pretty good bang for your buck out of that approach to eating.

This is also where I went seriously awry with all this stuff where I would – Olympic lifted, did gymnastics, ate a ketogenic diet and felt great on that.

I had good performance. Then started getting into CrossFit and could never really get the sweet spot on my - the amount of carbs that I had to eat to maintain that. And I started gaining body fat because of the cortisol induced from the training.

Matt: Yeah.

Robb: So I was less lean regardless of what calorie intake level or carbohydrate intake level I was at, so.

Matt: Yeah, I'm doing a lot more traveling right now, and I can tell the – there's a little bit of chubble around the midline that's reappearing, so cortisol is huge here.

Andy: You guys are wrong. You know you need the metcon to be lean. Come on, people.

Robb: Work great for chicks.

Andy: David says, Matt mentioned in an interview he only eats two meals a day. I am interested in how he gets enough calories to support his performance efforts. What does he eat and what does it consist of – both workout days and rest days? Also, if this is an individual thing or if it is something he recommends for everyone?

Matt: I will – you know, as a scientist, I will never say using an experiment of N equals 1 that you should do this because it worked for me because it's completely illogical. Robb was also worried at some point that I might not be getting enough calories, but I documented an entire day's worth of food, and I still keep sending him my meals from time to time. He is like, "Oh, okay, yeah, you're eating a lot."

Robb: It is – it is the Epic Meal Time Lalonde style.

Matt: My lunch is enormous but – so that being said, I don't recommend this to everyone. If you are highly stressed or if you're metabolically deranged like you have type 2 diabetes, don't mess with intermittent fasting, not good for you. This approach works for me, but I'm not going to recommend it, you know, to everyone just because it works for me, so.

But here goes. Here is what I do. I skip breakfast on weekdays because it allows me to sleep in, and I'm not really hungry in the morning. I'll typically eat lunch at noon. Lunch is comprised of a hefty portion of meat, and by hefty, I mean one pound to one and a half pounds of meat.

I get all of my meat from a local farm called Chestnut Farms, and they have a CSA and they're really, really awesome. And I will have all of the rendered fat with that meat – that came with that meat. I do not throw any fat away. I'll place all of that on top of a mound of like green leafy vegetables, typically like a 50-50 mix of spinach and then Spring Mix.

And then I'll top that off with a portion of starchy vegetables or tubers. I like the slow-roasted parsnips. I like, you know, some yucca root and some sweet potatoes. Those are my favorites. And then I'll heat everything in the microwave together such that the fat mixes with the greens and that allows you to absorb more fat-soluble vitamins from the greens.

And then if I eat like a dish of meat that was prepared on the side, then I'll just grab the greens, put the tubers on top, put some butter and some Himalayan salt, and I'll heat everything separately, and I'll eat that. That's typically lunch and sometimes I'll have like an entire, you know, bottle of like the fermented – what do they call it, the cultured coconut milk which is really awesome, and it has both prebiotics and probiotics in it, and that's really great. You get that from So Delicious and Whole Foods sells it.

Sometimes I have vegetables on the side, too and some celery or a seaweed salad or something like that. It's big, like lunch takes me over an hour to eat it's a lot of food. I'll train between 5:00 and 7:00 PM. And then I'll eat my last meal at around 8:00 PM. So that means that I fast for 16 hours until noon the next day.

And then I will occasionally have a low-protein dinner just to make sure that autophagy kicks in. I often go back home to Ottawa, and whenever I do, you know, I get some coaching from Pierre Auge, who is really awesome. I can't say enough good things about the guy. You know, Pierre is – he's a scientist at heart. He just keeps tinkering with stuff and looking for new things to try out and always seeking to improve his game.

[1:00:01]

He was telling me about – he asked me a question. He's like, "You know, there's these Bulgarian lifters that would eat meat ad libitum during the week, but then on the weekends they would eat just greens and fat and no meat. And I was wondering if that was like intermittent fasting or blah, blah, blah." And I didn't have an answer for him at the time.

But after doing more research, I found out that one of the benefits of intermittent fasting is turning on of autophagy which is essentially the cell cleaning house and, you know, recycling a bunch of junk and turning it back into amino acids and its basic components. And autophagy is turned on – actually is turned off when you eat a lot of protein specifically branched-chain amino acids.

So protein starvation can turn on autophagy. So if you don't eat a whole lot of protein for a period of time, then you're going to turn on this process which means that you can fast without fasting or get one of the beneficial aspects of fasting without fasting which is really interesting. So you can keep eating some food but still get the beneficial effects of fasting.

You're not going to get used to dipping into your energy source if you still eat something, but you're still going to get autophagy going on which is kind of cool.

Maybe I should mention not long ago I tried exercising in a fasted state, and that broke me. It really did. I was not expecting that. I was expecting something positive to come out of it, but I did it for only one week and it kicked my ass. So I was following the same protocol, but instead of eating at noon I worked out between noon and 1:00 and then I had my largest meal immediately after that.

But what I found is that I started under-eating because I wasn't all that hungry immediately after a workout, and then even in the evening I wasn't all that hungry. And what happened is by the end of one week of doing this, I woke up shivering one evening and wanting to throw up. And, just, and I couldn't sleep well, and my sleep just went to crap, and my libido went way down like everything just started heading south.

I'm like, "Whoa, this has to stop. This is not bad." I gave Robb a call, like, "Does this sound like hypercortisol to you? What's going on?" He's like, "Yeah, just back away from the – from the fasted training." I'm very strict with my diet. I very rarely cheat because it hurts me really bad. Fructose hurts me really, really bad.

And I fast regularly during the week. So I think that what I was doing was fine, and I didn't need to throw this in. But I was stupid. I threw it in like five times a week. Maybe I should have tried like one time a week and see what the heck would have happened.

Also, I should mention that on the weekends, I overeat just to make sure that my body is not feeling like it's starved and turning on various mechanisms and lowering metabolism. So my breakfast on the weekends, that's Saturday and Sunday, is going to be either one pound of sausage or one pound of bacon with four duck eggs and then some – a little bit of berries on the side.

I'll do that both days, and I will actually not eat lunch because I'm not hungry, but I will eat dinner on those days. So I'm eating a lot of food on those days.

Robb: And Matt, give folks some – what are your max lifts right now? Like you're doing pretty good on the powerlifts.

Matt: Yeah, yeah. I'd like to focus on that because I really suck on the Olympic lifts. My deadlift conventional is 500, my sumo is 455. I'd got some coaching by Pierre Auge that – and he works with Willy Albert actually, which is a record holder in the sumo deadlift in his weight class.

Pierre and Willy give a good seminar on – a weekend long seminar on power lifting and Olympic weightlifting, by the way, so you should check that out. Those are two totally legit dudes. Anyways, I'm trying to get that sumo deadlift to catch up to my conventional deadlift, so conventional 500, sumo 455.

Pierre took my sumo from 425 to 455, so that was good. Overhead press is 200, bench press is 355, back squat is 425, front squat is 335. Now, I weigh 180 pounds.

Robb: 180. And then you're still doing a little bit of metcon, too, like if we ever wanted to pick you for an event, we would probably peel that out and would probably – I suspect probably see an easy 10% bump on top of all of that stuff.

Matt: Yeah, possible.

Robb: Yeah, yeah.

Andy: All right, Matt. It's time for your three questions because I got to go train people.

Matt: All right.

Robb: Oh, lord.

Matt: Robb Wolf.

Robb: Be gentle.

Matt: Question number 1, this compound is found in green tea, and it's abbreviated as EGCG. Can you pronounce it properly?

Robb: Oh, Jesus. Epigallocatechin gallate.

Matt: Wrong. Epigallo…

[1:05:00]

Robb: Epigallocatechin gallate.

Matt: Cathechin, yes, yeah, yeah.

Robb: Dude, don't talk to me about pronunciation, my French-Canadian pal.

Matt: What are you talking about? Okay. Just…

Robb: I kept on wanting to leap in and restate autophagy, but however you were saying it was pretty good.

Matt: Potato. Potato.

Robb: Okay. Lay it into me.

Matt: All right. Number 2, this substance is secreted by fat cells. The word begins with the letters AD and it ends with -nectin.

Robb: Oh, Jesus. Adepanopectin.

Matt: No, it's wrong. Adeponectin.

Robb: Adeponectin.

Matt: All right. Number 3, this condition renders the individuals who suffer from is sensitive to sunshine. One of your clients had this condition, and you constantly talk about it in your seminars about how she recovered by avoiding gluten. What is the name of the condition?

Robb: Porphyria cutanea tarda.

Matt: Damn. You got it right, yeah.

Andy: Yay, we got one.

Robb: I just have to pay attention. I get all spun up and excited, so.

Andy: Robb, we're going to have to come up with your punishment after the show.

Robb: One out of three. Not too bad.

Andy: So Matt, are you going to come back and continue to answer the never ending – never ending list of Matt Lalonde?

[1:06:36] **End of Audio**