

The Paleo Solution

Episode78

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Robb Wolf: Hey, folks, Robb Wolf here, Episode 78 of the Paleo Solution podcast here with Greg Everett and also Gary Taubes, author of the New York Times best-selling books, "Good Calories, Bad Calories. And Gary, tell everybody the title of your newest book.

Gary Taubes: Its "Why We Get Fat: And What to Do About It."

Robb Wolf: And now that came out about three months ago or four months ago?

Gary Taubes: It came out at the end of the year, end of – the very end of 2010. So it's been out for about five months or six months now.

Robb Wolf: Awesome. Now, Gary, have you listened to one of our podcast before?

Gary Taubes: How much trouble do I get into a fight if I say that I haven't? I actually don't listen to podcast because that takes time and you can't skim.

Robb Wolf: That actually shows that you have a high degree of, you know, much higher standards than most folks I do know. I was just going to comment that this thing is usually run by countries here and users. So I don't have high expectations for this.

Gary Taubes: Okay.

Robb Wolf: So, yeah, I don't know if folks knew the full extent of your background some undergraduate work in Physics and Engineering and then eventually getting in and doing some science journalism writing. Gary, tell folks a little bit about like just your early interest in science and then how you transitioned into journalism and then we'll actually get in and start talking a little bit about the questions that folks posted and then also a lot of the content in "Why We Get Fat" and "Good Calories, Bad Calories"?

Gary Taubes: Okay. Well I was a, yeah, I was a Physics major in college. I'm not a very good physicist which was obvious one reason I left the field. My advisor actually suggested I leave the field after I got a C minus in Quantum Physics. I got my Masters degree in Engineering because I wanted to

California and date blonds. And Stanford was surely enough to give me a scholarship.

Then, yeah, then I went into journalism and got a job in the science writer at Discover Magazine. I was writing about physics and engineering, nuclear physics, you know, all the harder sciences and got fascinated with this idea – I actually did my first book I lived at STERN, a big physics lab outside of Geneva and I watched some very oncologists and physicists discovering non-existent elementary particles. And this made me obsessed with this question of how hard it is to do science right now. We see it as to get the wrong answer.

And basically like I said I've written the same book three different times about bad science and how people get led astray by their beliefs and their preconceptions. And the first one was on high energy physics. The second one was on nuclear physics as sort of fiasco known as cold fusion. And then I got into public health and wrote "Good Calories, Bad Calories" which is about nutrition and chronic disease and whether or not the saturated fat causes heart disease and if it doesn't, what does and makes us fat. And "Good Calories, Bad Calories" was five years of excruciatingly, hard, long work and research. And I end up writing this 500 plus page book with hundreds of citations, heavily annotated like a 160 pages of bibliography and end notes. And I wanted to reach the public health authorities and the researchers who do this stuff and try to make it readable for the late public. So I was kind of walking in this tight road.

And what I didn't realize is that it was very difficult to read for the late public and that the research in the public health authorities had little or no interest in reading a 500-page book the subtext of which was that they screwed up. So then after the book came out, I mean, I got a lot of fans and a lot of people did read it and got emails saying, "Would you please write one that my wife could read and my husband could read or my father or my doctor could read?" I've got emails from doctors saying, "Would you write one that my patients, I can get to my patients?" And by this time I had been lecturing about the calories in, calories out issue and why we'd really get fat for a couple of years. And I thought, you know, the argument – I was making an argument in the lecture instead of good calories, bad calories it's like a revision of science and history because to me, it helps to think of these things historically so you could see how we came to believe something and why.

But in "Why We Get Fat," I decided I would just kind of make this argument that I've been making in the lectures so in an hour I could convince someone that they have been thinking about obesity incorrectly

and that there was a different and far better way to think about it. And that led you to different conclusions. So "Why We Get Fat" was then published four months ago. And it may actually be having an effect. Right.

Robb Wolf:

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Gary Taubes: It may have actually be getting through to people. So yeah.

Robb Wolf: Do you feel like the analysis that you provided like for the physics community, was that embraced quicker and easier than what this health information is going its way through?

Gary Taubes: When I was writing about physics, I wasn't challenging anything they believe. So everyone is willing to believe what agrees with what you already believe. And they learned I was attacking – there was bad science in the physics meaning. That's what I was writing about. But the 95 percent of the physicists agreed with what I was saying. And they – actually there's a funny story about this. The – yeah, I end up doing this expose.

I went to STERN, to Geneva thinking I was going to write about this great breakthrough in high energy physics. And then as I was there, I watched it sort of disappear into the background and turned out to be wrong. And so I end up writing an expose. And the central character in this expose was an Italian physicist who worked that hard and then won a Nobel Prize when I was there names Carlo Roby, I mean, Carlo from **[0:06:06]** **[Inaudible]** character. And Carlo had a, his sort of a right-hand man was a UCLA physicist name David Klein. And a couple of years after the book came out, a friend of mine in the physics community saw David Klein at a conference and he said to him – he asked him how did you like Taubes' book? And Dave said, "Its crap. I haven't read it." And what I feel like my job has been for the past three or four years now is to get over the, "Its crap, I haven't read it" response of the medical public health community to my books. And if I can get pass that, then I've done my job. If I can get them to at least say, "Its crap, I have read it."

Robb Wolf: Right, right. Then **[0:06:53]** **[Inaudible]**.

Gary Taubes: Then at least I know – yeah.

Robb Wolf: That's awesome. Let's jump in to some really, really good questions that folks posted on the blog like Greg mentioned when we were chit chatting trying to get our connection up. I think we have probably about six hours

worth of potential content, but we'll only torture you for about 40 minutes, 45 minutes before you can run and actually enjoy your birthday.

Gary Taubes: Okay, there you go. Tomorrow is my birthday.

Robb Wolf: Oh, tomorrow is your birthday? Okay.

Gary Taubes: I was still running till like deal with the fact that I haven't been paying attention to my young children. And my wife is probably going to make me pay for it and leave the room.

Robb Wolf: Did she really do that? Would she hold that against you?

Gary Taubes: No, no. There's a point in which it becomes family time and if you shouldn't, yeah, rightfully so. And although this is technically part of the work today, so anyway let's go.

Robb Wolf: Cool.

Greg Everett: All right. So we'll start off with some artificial sweeteners questions. Gary, did you do any research on the effect that artificial sweeteners i.e. Splenda, Sweet and Low, et cetera have on insulin?

Gary Taubes: No.

Robb Wolf: Good answer.

Gary Taubes: Actually over the years, you know, you constantly see this observation in the epidemiology that people who consume the low, diet sodas, and some artificial sweeteners also have problems maintaining their weight and become insulin resistant metabolic syndrome. And the question is is that just a confounder because the people who drink these sodas are the people who have weight problems to begin with? If you think about it, who drinks diet sodas, it's not people who are lean effortlessly. Its people who know they will get heavier if they drink the caloric version. So that could be the explanation.

The other explanation is that we're doing deeds to create insulin in response of these artificial sweeteners. And that could be a problem. And the only people that I know – why I'd say up until recently – the only people I knew who had lost effectively no way to giving up carbohydrates, for people who refuse to get rid of, you know, quick air, very heavy artificial sweetener habit, their diet coke habit or whatever and it's conceivable that – one of the things that I came way for my

research believing is that if we crave something profoundly, it's quite likely that it's the body that's doing the craving as much or more so than the brain.

So a natural question is do our body still think that these diet cokes are actually cokes and secret insulin in response or a little bit of insulin or enough to keep fat wrapped up in the fat tissue or not to oxidize it and to metabolize it? And as of the last time I looked about six months ago, there were still no studies one way or the other on whether that happened. It would seem to be a fairly easy study to do, but nobody had done it.

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Robb Wolf:

I think the Journal of Circulation has a pretty solid piece looking at a hypothalamic regulation of leptin and insulin and it being dysregulated with artificial sweeteners and obviously some spectrum of that among the population. And some people responding very very strongly to the artificial sweeteners, some people not so much, but that was a – that was a good one. But it seems that I would definitely second that observation like running a gym, we frequently have to have the Come of Jesus talk with folks that just cannot let go of the artificial sweeteners. And they are completely **[0:10:28] [Inaudible]** in their fat loss efforts. Like they seem pretty compliant, otherwise sleep is pretty good typically with diet, carbohydrate load down to a level where we should see some fat loss but until the artificial sweeteners go, we just don't see a good fat loss with it.

Gary Taubes:

Well do you see when they give up the artificial sweeteners?

Robb Wolf:

Yes.

Gary Taubes:

Because this case of my few anecdotal examples, I couldn't convince them to do it.

Robb Wolf:

Yeah, we have seen that. I've done a ton of lectures for gyms like doing seminars largely for gyms. So then we end up getting a, you know, obviously it's a very anecdotal, very observational. But tens of thousands of people that are getting this message and in kind of reporting back via the blog, via podcast and saying, "Yeah, the diet soda was the final thing that I pulled out of the rotation and really saw some significant weight loss after that."

And also some other interesting changes also like sleep apnea, not resolving some other kind of peripheral signs and symptoms of hyperinsulinism resolving with the removal of that diet soda typically.

Gary Taubes: That's interesting.

Robb Wolf: Yeah.

Gary Taubes: And you would think, you know, if there are some people who are most susceptible to it, who are most intolerant of these diet sweeteners, those would be the ones who would crave at the most.

Robb Wolf: Yeah.

Gary Taubes: Those would be the ones who aren't giving it up.

Robb Wolf: Yeah, absolutely.

Gary Taubes: So, okay cool. We have solved that problem.

Greg Everett: It's done.

Gary Taubes: Now to world peace.

Greg Everett: Let's talk about protein first.

Gary Taubes: Okay.

Greg Everett: Gary and Robb, I read that the insulin's secreted effort consuming a protein rich meal can be as high as after a carbo rich meal. Can you explain why the former does not tend to lead the fat accumulation nearly as much as the later?

Gary Taubes: The – there are a couple of studies, papers published by Jennie Brand-Miller in Australia showing high insulin secretion from protein meals. But these are, you know – and in this case, one of them – one of our meals was white fish which was like I think five percent fat or some excruciatingly low fat and then very lean meat. And the point is we don't eat protein like that. Actually we couldn't. Then we wouldn't.

So if you could eat 40, 50 percent of your calories from – well, you're still going to end up eating 50 percent from fat if you're not eating the carbs. So in my mind those studies are impeccably relevant. You should be eating, as I see it, a relatively high fat protein content shouldn't go up to that much. And what Jennie Brand-Miller was showing in those studies was not 25 percent protein, 75 percent fat, but almost it's high a protein cuts of meat or fish as you could get.

Robb Wolf: Super lean.

Gary Taubes: Super lean, yeah. And that's something not how we consume it. And if you did you would have other problems before you would start seeing whether or not you're accumulating fat.

Robb Wolf: I think some of where this comes from though when we're talking about just the general notion that insulin release is the primary mediator of fat gain and loss of insulin signaling and what not. And this is something that was typically a shock across about that I would get from vegetarian doctors. John Mcdougall when I was having a debate with him once. He said, "Well, you know, beef releases any type of lucine rich protein source" in which beef, white fish we tend to be pretty heavy and lucine and some of the other amino acids can produce a pretty good insulin release. But I would counter that with, you know, the protein sources tend to release glucagon. Glucagon has an insulin sensitizing effect on the actual receptor sites of cells and then also there were some different activity. High protein meals tend to improve lipoprotein lipase activity at the muscle interface versus the diposide interface.

But then there was also just that fact that protein isn't carbs with regards to the way that liver metabolism happens, you know, backloging, liver function increasing, the production of DLDL cholesterol and stuff like that potentially setting up some of the backlog there that we just don't see with protein. Do you think that that's a piece or...?

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Gary Taubes: Well yeah. I mean all those things. I used to have more faith in the glucagon part of it than I do now just – yeah, it doesn't seem to be – I mean some of the studies I've seen on the fat cells themselves suggest that the glucagon isn't much of an issue as I would have liked it to have been. But what people forget is that you have basically what you're trying to do in science is it's fairly on observations. And so you have some observations that you have populations that were exclusively carnivores and didn't have any of the diseases associated with metabolic syndrome which you would expect if meat eating was a problem.

You have the observations that carbs are a problem historically. You add carbohydrates into any traditional diets, you begin to see obesity, diabetes, heart disease. And then you have the clinical trials. And to me if the clinical trials then exist, then I wouldn't have gone into this business, but you've got the clinical trials putting people in high fat, meat heavy diets and restricting the carbohydrates and they loss weight.

Robb Wolf: Right.

Gary Taubes: And if they didn't loss weight, if they gained weight, then I don't write my book and it's not an issue, but in the clinical trials, they loss weight. So you're telling them to eat more meat. Whether they do or not it's almost irrelevant because you're telling them they can go ahead, eat as much as you want.

Robb Wolf: Right.

Gary Taubes: And then there's the anecdotal evidence that we all carry around with us too. Like for instance, you know, and everybody might be slightly different. I think the basic regulators of fat metabolism are the same on everyone. But I'm sure there are subtleties in how we respond. I personally can eat as much meat as I want. I know I'm not going to get fat doing it because I know, I've seen how my weight doesn't change regardless.

But the key thing, again, the observations in populations and the clinical trials are out. You say, "Look, here's a clinical trial. We tell these people to eat as much meat as they want. Eat as much eggs. Eat as much protein." And they're getting a lot of fat I hope, but they don't gain weight.

Robb Wolf: Right.

Gary Taubes: So that's what we want to explain not why don't, you know. We don't want to explain that they did gain weight because they didn't gain weight, they lost weight.

Greg Everett: Right.

Robb Wolf: Gary, have you checked out some of the work by Professor Stefan Lindberg, M.D, PhD at University of London, Sweden. He did a prequel study. He put a Paleo diet versus like a Mediterranean diet both in humans and in pigs and had some pretty interesting changes between the two of them. And this is where I think a lot of folks end up or are looking today as some of the inflammatory underpinnings potentially with metabolic arrangement.

Like in the Paleo diet intervention, he had a group of folks that Type II Diabetics with existing heart disease, put some folks on a Paleo diet basically grain, legume, dairy free. But they had a pretty significant

carbohydrate load from roots, tubers, fruits, and vegetables. And there was a Mediterranean diet that was whole grains, legumes, low-fat dairy, low-fat protein sources that would make any dietician weep with joy. But when they put these two groups of folks on there, it was an interesting group. They're obviously sick. They've got Type OO Diabetes. They've got existence diagnosed cardiovascular disease.

The Paleo diet group after an eight-week intervention ended up having a 28 to 30 percent improvement oral glucose tolerance test, really nice improvements, did some other blood lipid parameters, lost of umbilical fat mass and stuff like that. Whereas the Mediterranean diet group had a barely statistical significant improvement in their oral glucose tolerance tests. So they were effectively unchanged by the end of this whole thing. And approximately similar protein carbohydrate fat ratios. And for me, for sure, if somebody is metabolically deranged, I think low carb – it's just you can't make any argument but that. Like they have substrate overload and that needs to be addressed.

But this is interesting to me when we're thinking about insulin as the single mediator, insulin versus protein versus carbohydrate and the hormonal effects associated with that because it seemed like there were some other issues that play with these results that they had with these folks. How do you think that plugs in to all this?

Gary Taubes: Well, I mean, this – it quite possibly could be what you're saying that there's far more to it. I definitely, you know, I'm sort of going with **[0:19:28] [Inaudible]** razor when I talk about insulin. I know it's regulating fat accumulation. It's a very powerful hormone. You cannot change it. Like with a study like that and I haven't seen that study. And actually one of the things that bothered me in life is since "Good Calories, Bad Calories" came out and since my children were born I can't keep up the literature.

Robb Wolf: Right.

Gary Taubes: And then especially you guys in the Paleo world, it's like it's just – there's a ton of literature I would like to read. And I literally don't have time to do it.

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I'm trying to get the research community to pay attention to at least hear the fundamental arguments that I've been making. It's not about calories consumed that that's the wrong paradigm to think about this. And you want to think about the different things that regulate fat accumulation

and the oxidation of fatty acids in a malign tissue. A study like that, first of all, the problem is there's a lot of different variables. And the first thing I'd asked, "Was it a feeding study?"

Robb Wolf: This one was, yeah.

Gary Taubes: Yeah. And so that's a good thing. And was the glycemic – basically the glycemic load and the fructose did the same in both arms?

Robb Wolf: You know the glycemic load was approximately the same. The fructose load was actually probably even a little heavier in the Paleo diet group just based on the fact that they have a bit more fruit in there which was frankly surprising to me because I'm totally in the camp in fructose being Satan's **[0:20:58] [Inaudible]** basically.

Gary Taubes: And how many subjects did he have in this?

Robb Wolf: He had 22 in each group. They're not huge numbers. No huge.

Gary Taubes: That's a compelling finding. It could, again, it's hard to interpret it. I'd have to look at the numbers. You know, it's funny I've been having – I had this long discussion with your buddy Matt Lalonde when I was in Boston. And this is what I was saying to Matt, "You know, what I'd like to see in an ideal world is you could imagine a study with a few thousand people on each arm or 10,000 people on each arm. And one gets just the meat and green vegetables and the one gets meat and green vegetables and tubers and fruit. And one gets meat and green vegetables and a low glycemic index breads. And then one gets – then they have a control diet and then run it out for 10 years and see what the difference and the **[0:21:48] [Inaudible]** are. Like I would to see Linberg do that study with another fact just a pure little carb on which nothing else.

Robb Wolf: Sure which when he did this study in pigs, they had very similar results the Mediterranean diet produced no really good benefit. They actually – and interesting features that they found, very high leukocyte infiltration into the pancreas of the pigs on that Mediterranean diet which is very consistent with the innate immune cell response that we see kind of tied in to autoimmunity and some of the stuff that we see innate immunity being tied in with some of hyperinsulinemic elements like related to sepsis and what not. But hardly enough I was the review editor on that paper and that was part of what I recommended was that if they took that – all of those parameters that they had on that Paleo diet which has still had fruit and roots and tubers, if they were to have made the

glycemic load virtually zero that already impressive results would have been shockingly improved.

Gary Taubes: And that's what you don't know. And that's what I've said when I was arguing to Matt when we were together is when I was just looking at the historic data going back to the 19th century, there was only one example I found where it couldn't be explained. The chronic disease burned in the population couldn't be explained by this sort of presence wraps and superfine carbs and sugars. And the one example was the original **[0:23:13] [Inaudible]** observation in Greenland of low rates of heart disease and the Greenland Eskimos, the eating in significant amounts of sugar.

And – but that was it.

Robb Wolf: Right.

Gary Taubes: That definitely it. And that's just wasn't enough. So ideally, what I want to do is see a population that doesn't eat refined carbs and sugars and know what they die of. And then I could start seeing what the stigma would be for these other changes in the diet. In the Mediterranean diet didn't do much doesn't surprise me.

Robb Wolf: Right, well, me neither, me neither.

Gary Taubes: The Paleo diet with this same amount of carb load did is just surprising to me. And that would, as you would argue that, that is certainly an argument that is much more going on than insulin which I don't doubt. But for instance let me give you the flipside of the study that I would like to have funded some day. This is my fantasy study. And it's interestingly enough that it's the same Atkins always wanted to do. But it's an overfeeding study where you would take a couple dozen men and you'd randomized them into two groups and you'd measure their daily energy expenditure ideally free living. So you'd use doubly labeled water to get an energy expenditure for them. And then you'd put them both on a diet that'd be 110 or 120 percent of their energy expenditure going in, okay?

One diet would be the archetype of healthy diet—fruits, vegetables, whole grains, skinless chicken breast, but 120 percent, say, of their energy expenditure.

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And the other diet would just be a ketogenic diet, an Atkins like diet. So basically fatty meat and then some green vegetables and 120 percent of

energy expenditure and then ran them out for six weeks to month. It would have to be a feeding study. It would have to do in a metabolic work because you have to get – you want to make the people eat it. And you want to be able to prove to critics, skeptics that they did eat it. And then you have the two hypotheses. Basically you had different predictions depending on how you see the work. If you look at the calorie side paradigm, then both groups would gain weight, right, because you're feeding them more than – you've increased intake over expenditure.

If you're living in this world that I live in where I think insulin is a fundamental regulator of fat accumulation, then the healthy diet group gains weight because you're overfeeding them and you're increasing the carb burden. The ketogenic diet group should lose weight because fundamentally what you're doing is lowering in some levels to nothing.

Robb Wolf: Right.

Gary Taubes: So their energy expenditure will have to go up because they can't lose weight unless their energy expenditure – I mean they can't lose weight. If they're losing weight, their energy expenditure is greater than their intake. And that's a study I would like to get done. And it would just tell you right there, you know, I'm interested beyond anything else, can we demonstrate that people can lose weight without calories or over eating or over nutrition being an element, that that's not a meaningful way to think about obesity. And then you can start to think about all the other things going on whether they're better off if they're eating like I said tubers or fruit with this.

I personally know people who gain weight when they consume fruit.

Robb Wolf: True.

Gary Taubes: I think we all do.

Robb Wolf: We definitely see that in our athlete population where if they shift the bulk of their carbohydrates to starchy root and tubers, so they're not getting from my perspective the gastrointestinal irritation the kind of collateral damage with DNA and immune response, but they're also not suffering the liver derangement that the fructose causes to get better nutrient partitioning, carbohydrate getting into the muscle instead of in the liver. And we get better body composition shifts immediately just with the removal of fruit inclusion of jam or sweet potato. This and the otherwise pretty insulin sensitized like athletic population. But we see immediate improvements in body comp by just doing that shift.

Gary Taubes: Now should I give up the one piece of pumpernickel bread I eat each day and have a sweet potato instead?

Robb Wolf: I would, I would.

Gary Taubes: And if I do it, what am I going to see? That's what I'm, you know, because again, it's observation. What am I going to see, because I'll do it? I'll try much **[0:27:44] [Inaudible]** sweet potatoes, but.

Robb Wolf: You should typically see improvements in kind of digestive function. You should see some improvements – interestingly any of the parameters that we would normally associate it with insulin like sleep quality, recovery, any type of triglyceride levels and stuff like that. We should see all that stuff improved.

Gary Taubes: Because all that, I mean, it's – most of it is good now. But then there are, like I said, I'm a 55-year old with a two-year old and a five-year old. I haven't done more than seven hours of sleep in three months. Actually tomorrow is my birthday. I'm waiting to see if my wife actually let's me sleep late. It kind of depends how early the kids get her up, wake up with them. But if they get her up at five, come seven she's getting me out of bed birthday or not.

Robb Wolf: Right.

Gary Taubes: So it's sort of, you know, I'm open to – I'm open to improvements. And this is what I'm saying with Matt, like if I had 10,000 people and one of them were eating a slice of pumpernickel, whether they are breast fed, free range, meat and fish and vegetables. And the other was eating a sweet potato. Am I going to see a significant difference in disease burden in those 10,000 eating a sweet potato?

Robb Wolf: Greg, let's hit that Katava question because this actually kind of dovetails into that a little bit.

Greg Everett: All right. Let's find it in the sea of Gary Taubes' questions.

Robb Wolf: I think the only person who got more questions than Gary did was Sarah Fragoso, but she's very very good looking, Gary. So you did really well considering you're a dude.

Gary Taubes: What is her phone number? I don't even know her. Should I?

Robb Wolf: She's good looking. She wrote the Everyday Paleo book. So she's one of our trainers in our gym.

Gary Taubes: Oh, okay.

Robb Wolf: Yeah, yeah.

Greg Everett: All right, why can I not find it here? Oh here we go. So the question is, "I have read both of Gary's books and I think he has done an amazing job of exposing the public dietary advice bullshit for what it really is." That's a quotation. I would never use that language on this show.

[0:30:01]

"What are his views of the Katavans and why can they be so healthy on such a high carbohydrate intake? I think it's fairly obvious that they had no early or prolonged exposure to the processed high sugar, Frankenstein food that we have. So is it possible that if we maintain our metabolic machinery the way it should be from a young age, the metabolism has no problem in dealing with natural starch with low insulin nutrient content?"

Gary Taubes: No and that's the fundamental issue here is you've got – I discussed this in the first chapter of why we get fat. I give examples of populations that, you know, in the fact they ate high carb diets or relatively high carb diets or diets high in refined carbs and sugars and had high levels of obesity prior to the Franken foods industries, like they had no food industry. So they came in 1902 with sew, a Native American sew in 1928. The **[0:30:55] [Inaudible]** ends in the 1960s and the band too and the **[0:31:00] [Inaudible]** and, you know. I mean example after example populations that had no sort of food industry processed food to speak of, but what they did have was sugar and flour.

But then there are populations, the Southeast Asians, the Japanese, the Katavans who ate high carb diets and they didn't have high levels of obesity and diabetes. What I didn't say in the book is that many of the studies that measured obesity rates were done by people who are interested in studying diabetes because these populations all tend to have a high diabetes or AIDS as well. So what's the difference? Do you throw out the carb hypothesis or do you add an **[0:31:35] [Inaudible]** because you need an **[0:31:37] [Inaudible]** in this case and the **[0:31:38] [Inaudible]** is sugar and maybe the refinement of the carbs.

So without knowing much about the Katavan's study, I would guess that they have low sugar intake the same way the Japanese have low sugar intakes and the Koreans and the Chinese and even the French and the

Mediterranean, the Greeks and the Spaniards who used to have low heart disease or obesity rates had – all had very low sugar intake and I think sugar – and that's what prompted me to write this piece in the New York Times a couple of weeks ago with sugar toxic because I'm fundamentally answering that question of do you need sugar to trigger the insulin resistance? And then once you have this resistance is triggered potentially all carbs would come bad and the refined flour, the high glycemic index carbs are particularly bad because of their effect on insulin. And actually when I wrote, "Good Calories, Bad Calories" I always thought sugar was a crucial variable. But this time after time again, I'm getting, "What about the Japanese? What about the Katavans? What about the, you know?"

Robb Wolf: Right.

Gary Taubes: And it's an excellent point. And then it turns out that the researchers suggest that indeed it is sugar, the fructose **[0:32:51] [Inaudible]** impacting the liver. So that would be my understanding. And yet it is conceivable that if we never had sugar the other carbs would be much more tolerable to us. And if we never had sugar and white flour, if we had just tubers and roots and we'd be fine and healthy as could be. But...

Robb Wolf: There were some of what Stefan Lindberg's findings, like definitely the sugar element, linoleic acid, the short chain omega-6. But he also seem to drill in and look at some of the anti nutrient elements of grains and legumes, some of us get irritation, even so far as elements of grains and legumes like wheat germ agglutinin and phytohemagglutinin one obviously from wheat and one from red beans. But both of these things actually being able to penetrate the gut barrier and actually bind to the leptin receptor sites and stimulate leptin and insulin resistance.

So that's where it ends up deviating away from carbohydrate content per say at least from his model. But actually some of the anti nutrient and for lack of a better terms like pharmacological effect of some of these anti nutrients basically the anti **[0:34:14] [Inaudible]** elements sort of part of grains and legumes.

Gary Taubes: And this could all be true. But again, it's getting to a level of detail that once you get rid of the bread I don't care if you're doing it for the insulin or for the agglutinin. It's sort of – in these books what I'm trying to – I'm not trying to prescribe an ideal diet in my books. There is much about "Good Calories, Bad Calories" how we got off the rails in nutrition and how do we get back on and to go back and use the conventional, the like establishment research even though it might have been the German

medical establishment not the American and get it back on the rails so that it could be done right.

[0:34:57]

Robb Wolf: Right.

Gary Taubes: And this is something I didn't have time to say to Matt along when we were talking and if he's listening, I'm saying it now. We basically had different goals. So if there are a lot of nuances involved. And there are a lot of probably effects I'm not even capable of understanding because the fact is have I gone to medical school, I would not have done well. That's not what my brain does well. But what I wanted to do like I said is sort of as much as possible just detail where the thinking went array and how the public health authorities deal with this because it's fundamental. It's a public health problem.

Robb Wolf: Right.

Gary Taubes: And then the detail how, you know, the basics of how it could have been considered, the alternative hypothesis and how much of an improvement. If people listened to what I did like in effect go on an Atkins diet instead of a Paleo diet, I'm pretty confident they will benefit. If they give up carbs entirely including the tubers and just eat the green vegetables and the animal products, they may burn in hell forever for all the animals that died for them, but that's an issue I'm not going to – I can't address because...

Robb Wolf: That's all **[0:36:16] [Inaudible]**?

Gary Taubes: Yeah, yeah. But it's sort of, you know, and I know from clinical trials and I know from the clinicians who use these diets that people improved dramatically.

Robb Wolf: Right.

Gary Taubes: Would they be better off and because of the kinds of things Stefan has written about would they be better off in a Paleo diet, again, that's why I'd like to see the clinical trials. And would there be subsets of people who would certainly be better off on a Paleo. But if they're going to both improve 90 percent, but it's, you know, to some people it's 80 percent on the one, on just a carb restricted diet and 95 percent on a Paleo diet and other people it's different. I don't know. But that really wasn't my goal.

And like I said since then, I'm still fighting this battle we're trying to get the community to understand the points that I was making. That it's not about calories, but it's about the kind of stuff that we're talking about here. And that if they look at it, if they can – if I can get them to shift their paradigm, **[0:37:17] [Inaudible]** as that sounds, then I will have gone a long way to making my life worthwhile since I can't afford a Porsche and do is that way.

Robb Wolf: Well you already – we're both getting close to the midlife crisis terms. So that could be our next option. Don't worry.

Gary Taubes: I'm pass the midlife crisis time that's why I know I'll never buy the Porsche.

Robb Wolf: You know, it's interesting though like as big obvious advocate or zealot, however you want to call it of the Paleo diet as I am there's clearly a benefit in metabolic deranged individuals where the liver function has gone deranged, where pancreatic function is not there. If both remove what I'm perceiving to be this gut irritating elements and you remove the glycemic load the concomitant insulin response, the just over burdened liver dealing with too much glycemic load, then you fix things much more quickly than simply changing the qualitative nature of carbohydrate but still providing too much carbohydrate you would otherwise insulin compromised individual. I think that is just clear and stay.

Greg Everett: Right.

Gary Taubes: And that's my suspicion as well. By the way can I send the emails that I get asking questions that involved sort of exercise and exercise physiology just to you?

Robb Wolf: No.

Gary Taubes: Because I'm overloaded here especially since, you know.

Greg Everett: You can do what I do and that's delete them.

Gary Taubes: You know it's just this feeling like somehow goodwill will make up for – being attentive will make up for my lack of blogging, like 14 Twitters in the past six months, you know.

Robb Wolf: You know I discovered that the people who don't blog much and don't tweet much actually get things done.

Gary Taubes: So that's why I don't understand how anyone gets things done? We were in Los Angeles a week ago and my wife – one of my wife's former step mothers; her father was many times married is a big manager in L.A. She managed a lot of celebrities. And she said she had 22,000 unopened emails in her inbox.

Robb Wolf: Wow.

Gary Taubes: And I don't know how people get work done anymore with emails and Twittering and blogging and like how do you actually earn a living if – I have to earn a living by writing. I'm still – I'm a freelance writer. I got to turn out articles and get paid per word. And if I'm writing for free all the time, when do I have time to actually earn a living? It mystifies me, anyway, not your listener's problem, but my problem.

Greg Everett: That sounds like a good Facebook post for you, Robb.

Robb Wolf: Totally, yeah, yeah.

[0:40:01]

Greg Everett: All right, because you guys touched on the leptin a real quick, I want to skip ahead here to this leptin question. Stephan Gwenneth, I'm sure I'm mispronouncing that and Chris Masterjohn among others are making the claim that it's leptin resistance and not insulin resistance that causes obesity sighting that insulin resistance seems to occur downstream of leptin resistance.

The implication of this is that fat masses regulated in the brain not the fat cells themselves. In the past you have dismissed this idea. I was wondering whether in the face of new information such as animal models spontaneously losing fat mass when leptin is injected directly into the hypothalamus you have investigated this viewpoint?

Gary Taubes: I think that it's always been obvious that the hypothalamus plays an important role in fat regulation by regulating the hormones that in turn regulate that. There are multiple feedback loops here. But I think the fundamental issue is the fat cell. What's – the leptin as I understand it is secreted in response to the amount of fat in the fat cell and in response to insulin and glucose uptake by the fat cell. So it's sort of – whether or not you have to become leptin resistant before you become insulin resistant is an interesting question. And I think leptin plays a key role of that. I think its important role is actually in signaling promoting fatty acid oxidation in the mitochondria as opposed to signaling the appetite suppression in the brain.

But I just think that the fundamental sort of [0:41:48] [Inaudible] start with the fat cell. And then if you have to – if you have to explain there and there, there are a lot of different elements involved. I mean the example I use in the afterwards of the paper bag of "Good Calories, Bad Calories" is like if I hit you in the head with a hammer, there are all kinds of signaling molecules and inflammatory molecules that are going to be secreted by this way as it's swelling and the pain – the pain mediating molecules. But the cause of the problem is the hammer. And that's what I'm interested. And that's what caught the – insulin to me is the hammer. And then other things – I'm not actually sure that the insulin resistance comes, precedes the hyperinsulinemia that the problem could be the hyperinsulinemia, the high glycemic index carbs although now like I said, I'm more into the idea that it's fructose.

My fundamental issue again is getting the obesity researchers and the nutritionist to do the right experiments because I can't do them and Chris can't do them. And when they are done, they have to be done understanding that there are these alternative hypotheses. But if we didn't have the insulin – this specific question, I know, if we didn't have the insulin resistance – put it this way, can you accumulate too much fat in the fat cell without elevating insulin levels? And if you can't, then the elevation of insulin level is a fundamental cost. And I would argue that you can't and you don't regardless in what you do with leptin. Even if you get the leptin resistance and that result in insulin resistance which then causes the elevation of insulin levels. But then what causes the leptin resistance to begin with? And if that's a response to elevated leptin, then where is the elevated leptin coming from? And that's from being driven by insulin isn't it?

Robb Wolf:

Or potentially some of these lifestyle features like lack of sleep, omega-6 fats, the leptins which are interacting with the leptin receptor and some things like that, it's interesting you can induce a wicked state of insulin resistance in acute sepsis or acute trauma, like it's on par with the worst kind of insulin resistance that you can see. But something that you said is really really critical there which is can you make a fat cell larger without insulin? And it's interesting.

In that situation, we're not seeing an increase in adiposite mass. We're actually seeing this weird scenario in which all the tissues are insulin resistant but they are also wickedly catabolic.

Gary Taubes:

Right.

Robb Wolf: So the muscles aren't excreting glucose, but the liver is excreting glucose. Adiposites are excreting triglycerides into the system. And the whole thing actually gets fixed by the application of insulin in an acute fashion.

[0:44:52]

But I think that there's actually – if to whatever degree there is something to this gut permeability systemic inflammation that there's actually some low grade sepsis occurring which is causing some insulin resistance which is then causing other problems downstream.

Gary Taubes: Yeah, all that is possible. All that is possible. You know, again, it's sort of – it's – I am assuredly over simplifying the mechanisms, but I do think that a fundamental problem in this field is that people pay far too much attention to what's happening in the brain and not enough on what's happening in the body because the problem is in the body. The problem is the fat cells are accumulating too much fat and so you want to know what is driving that. And then the metabolic derangements if there's some resistance as well and what is driving that. And that can be all the elements that you're discussing.

Robb Wolf: Right.

Gary Taubes: But like I said, my concern is to get – we're having this discussion in where the public health community is saying eat less and exercise more.

Robb Wolf: Right, right.

Gary Taubes: And I'm the first person to admit, I really – I just can't keep up with it at the level that you guys are doing it. I don't have the time and I may not have the brain power. It's not what my brain does well. And that's why one of the least I can say, I got a B minus and my B minus average as a physicist, then I didn't go to med school.

Robb Wolf: Well my book was of 400 pages shorter than yours. So your brain does pretty good keeping track of a lot of key things.

Gary Taubes: Without computers it would be ugly plus I've had about six concussions between boxing and football. So I often wonder if my memory was as bad when I was younger as it is now, but I can't remember.

Robb Wolf: You know what one thing that pops in into my head with this stuff is something that Loren Cordain has been kind of pushing for is when we couch this questions of like potentially putting together this big meta studies and they actually – he, Pedro Bastos, I believe Stefan Lindberg,

Milan Fonte, some really big folks in this kind of Paleo diet community but then also some people and experts in lipid metabolism and some other areas of research. What they put forward was basically an overall picture of how the ancestral environment has changed like sleep pattern, omega-3, omega-6 intake, evolutionary novel leptins from grains, legumes. So much more of a, for lack of a better term, holistic picture that should be the baseline even things like vitamin D status and stuff like that, exercise level, all those sort of stuff.

But then whenever we start getting ready to couch a question about what's good, what's healthy that if we're not starting from that ancestral path, what was the hunter gatherer phenotypic norm and what were the environmental or epigenetic features of that environment that drove all that? If we're not starting from that place, then we're largely just kind of reshuffling a deck of cards comparing a bunch of variables. But it would literally be like doing a lot of the experiments that we see in physics. Like how do you explain Brownian motion? How do you explain the double slit scenarios and weight particle kind of duality type of stuff? How do you explain any of that without quantum mechanics?

And this is kind of where nutritional science because it's not really steeping itself in evolutionary biology and using that kind of Darwinian orientation to just begin to ask the questions. Like before we even sit down and start running studies, what should the ideal parameters be? And the press, "play" from there.

Gary Taubes:

Yeah, I mean it's funny I was just – I was talking to, interviewing a guy who runs a genome **[0:49:00] [Inaudible]** Washington University a couple of weeks ago and he said, "Yeah, they're trying to figure out what genes are mutated in cancers and different cancers and then what stage in the cancer the genes become mutated. The normal thing we want to do is we want to – we're looking." They're sequencing a thousand different human genomes because they want a baseline. They want to know what normal is.

And we want to know what normal. When we're saying normal was **[0:49:26] [Inaudible]**. And the funny thing is the public health authorities, again, these people that I'm always dwelling about agreed that they have this desire simplistic notion of what that was and it was completely twisted by their preconceptions. And I was, yeah – have you ever read this world cancer research found in the American Institute of Cancer Research report on nutrition, physical activity and cancer?

Robb Wolf:

Yeah.

Greg Everett: I definitely have, yeah, yeah.

Gary Taubes: And do you see what they're talking about like the Paleolithic and they talk about gatherer hunters instead of hunter gatherers?

Robb Wolf: Right.

[0:50:01]

Gary Taubes: Because they don't want – they don't think meat eating is good for you. So they're even going to change the terminology so that they – and I've never seen that term. I mean much as an anthropologist have read he said, "Are you serious?" This is a kind of minds that we're up against.

Robb Wolf: And it all boils down to no matter how much air play they give to that, their recommended meal is still a glass of orange juice and a bowl of like meaties.

Gary Taubes: Yeah, yeah.

Robb Wolf: Somehow all of that would...

Gary Taubes: In moderation with exercise.

Robb Wolf: Yeah.

Greg Everett: No and it's sort of – so yeah, I agree. And what's interesting is again if you look back at the history of this field is I have other people ended up blaming the sugars and the four and the fat for obesity. We're doing it for the same, yeah, they've always said, "Hey look it's just we never eat this foods with flavor." This **[0:50:54] [Inaudible]** started feeding cardiac patients OMNI diets in 1920 or so. And he was a New York cardiologist. He went to the natural museum of history and he said, "What a primitive man eat?" And they said, "This is what he ate and it basically meat and then a few tubers." And so he went home and that's what he fed. He said, "This is what you got to eat."

So yeah, I've seen – in intuitively obvious. But if you think like that unless you would start twisting things and the gatherer or hunters instead of hunter gatherers, you will end up having to change your recommendations in your guidelines. And public health institutions and public health authorities don't like to do that because it makes them look less incredible if they say, "Oops, we made a mistake."

Robb Wolf: The British Publication New Scientist back in 2001, they went so far as to say that it was well understood that the FDA and AMA, mostly who's mainly driving into these know that they are completely wrong. But we would see some sort of weird class action kind of scenario that, you know, on par what a tobacco look like, just child's play. But then I don't know if we can even sue our own government for being wrong, you know. I don't know how that works.

Gary Taubes: I have a fan in Phoenix who's a lawyer who did class actions too. So I asked him about this. And I forgot the details of the reason as I forget most stress in life, but I believe it was something about nothing able to sue the government because I've talked to him. I mean I would love, if nothing else, have you got a trial, you can get these details out, you could get these facts out and have a jury of 12 reasonably intelligent Americans who have to be smarter than most of the nutritionist out there adjudicated.

Yeah, to me, that's pretty obviously should be the fundamental baseline in the way you approach. And again if you read the details the government's reports that I did, that was their rationalization. You eat a low fat diet because they believe that we all evolve in eating low fat diets. We should eat less salt because they all believe we evolved in eating less eat salt. We should be more physically active because they all believe we evolve being physically active. I mean I had – I have literally had researchers say, "We just – you don't have to kill a willy man for your dinner like you did 30,000 years ago." And I said, "Yeah, you actually didn't have to do it 30,000 years ago, they might have painted pictures of the people who did kill the willy man because it was such a wonderful thing to watch or memorable." But it doesn't mean that's what they were doing before dinner.

Robb Wolf: Right.

Greg Everett: Well, let's segway with that into the exercise question.

Robb Wolf: Cool, cool. And we could make this one our last one because I know we've had Gary on here forever. It took us about 15 minutes to get our connection booted up, so.

Greg Everett: Yeah, happy birthday, Gary. We're going to let you go before you hate us completely.

Gary Taubes: Okay, well thank you guys. I'm obviously enjoying this. Again, let's acknowledge that my family is waiting for me.

Greg Everett: All right. So the question is Gary's main audience when talking about how exercise doesn't necessarily lead to weight loss is obese people who have metabolic derangement. But I'd love to know whether Gary thinks weight loss can be accelerated through exercise provided you're sticking to a low carb approach. It makes sense that a low carb ramps up the activity level could burn through existing fat stores faster.

Gary Taubes: Well, again, I just don't think. As soon as you think about the activity level or energy expenditure, I think you're working in the wrong paradigm. So I can imagine that resistance training makes a difference in weight loss. And again, yeah, metabolically deranged versus metabolically, young people versus older people are different issue. But in general I think if it makes a difference it probably does because it changes the partitioning of the nutrients, how your body, the hormonal response to the nutrients. I can imagine a lot of different ways that it does. I just don't see any clinical trials out there suggesting that it does in the people that they do clinical trials on

[0:55:03]

Jeff Rullock has done some recently that are compelling, that I didn't know about. But again when I talk about exercise, I'm literally talking about in this idea that if we increase our expenditure that will lead, that will put us into negative energy balance and that will lead to weight loss.

Robb Wolf: Right.

Gary Taubes: And to me that is nonsense. It's a wrong way to think about it. So even if I had an observation like I had a clinical trial and we randomize people into two groups and one did resistance training and the other didn't and they both did low carb. And the resistance training people loss more weight or loss more fat, then I would be one. But I wouldn't think it was because they were expending more energy by doing the resistance training. I would wonder is it because they're somehow changing in the partitioning of the fuel that they are taking in.

Greg Everett: Thoughts on that, Robb.

Robb Wolf: I'm nodding pretty vigorous agreement which doesn't convey too well over the podcast. But yeah I think that that's and, again, most of the stuff being pretty observational from the gym, but also digging around in the literature thinking about this like a bomb calorimeter is so infantile I think at this point. Like if we really think about this as pumping information into our computer, like the way that the genes get flipped on and off at

the genetic inputs are massively influenced by our activity level, our sleep patterns, our stress, but also the nutrients that we take in both the macro nutrient ratios and the also the let's say that there are some problems with GI irritants and stuff like that.

But at the end of the day, all of this stuff registers as an information signal on our body. And so it doesn't just boil down to calories in calories out. I obviously, you know, like we see this phenomena where we put people on low carb kind of Paleo deal trying to lean them out. And they're not leaning out as fast as we'd like and I look at their food blog and it will say almonds. So I will say, "How many almonds is that?" And they're like, "Oh, like a Casco can of almonds." And it's amazing that these people are not gaining a significant amount of weight. And then when we get that calorie intake a little bit lower then we see some pretty good fat loss then.

And so at some point, like we do see thermo dynamics pop its head up. What we find is that if we're controlling insulin load, if we're controlling inflammation overall, then we see better nutrient partitioning where people tend to gain muscle, gain bone density, lose fat mass, and those are ultimately the things that we're really concerned about. And then also we see bio markers and health and disease improve. And so it becomes very much – and this is probably, Gary where you've been – we're beating the same drum as you are a bit simply thinking about calories in calories out in this simplistic model is not doing anybody any favor.

And I've been working on a blog post called the dietics failure triad. Part of the failure is telling people to limit food which puts them into panic scarcity mode and we start getting cortisol and all kinds of other issues and I guess some other pieces to that. But this over focus on simply trying to burn excess calories without really a thought about the hormonal consequences of what people are up to. And I think that's...

Gary Taubes:

And this is what – and even that – and what I would think even when you get rid of the calorie involvements, yes calories come down. But what I'm saying is if the fat tissue isn't going to give up its fat just because the body, you know, less calories **[0:58:43] [Inaudible]** something still has to affect to sort of balance of forces at the fat cell membrane that are driving fat in or keeping in or something. And that includes forces elsewhere that are deciding whether we're going to burn the fatty acids metabolizing that have been released by the fats and whether we're going to send them back to the fat cell.

So, yeah calories in calories out matters at the membrane of the fat cell, but anywhere else in the body even like I said getting rid of the almonds maybe you did – calorie content has come down. But if they lose fat because of that something has changed the regulation of the fat tissue a little bit that set point of their fat cell. And we can get into this whole issue of set point and why I don't like that term. But again, this idea that there's a dynamic equilibrium at the fat cell that's establishing how much fat is being held in there just like there's a dynamic equilibrium in a lake establishing how much water, the water level in the lake and you might think that there's some central regulator of water level. But there isn't. It's just how much water is coming in and how much water is going out on a day-to-day basis. And for the most part, the price is pretty stable.

[0:59:57]

And this was a point made by I think they were University of Chicago Psychiatrist back in the '70s. And so, if, say you get rid of the almonds, okay they lose weight or they now start losing weight more freely, I still wouldn't say it's because you dropped their calorie intake to 200 calories a day. It's because something about those almonds was keeping fat locked up in the fat tissue. And it wasn't the caloric content. It might have been the protein content. It might have been the carb content in the almonds or carbs, you know. It might have been gut irritants for all I know. But something was affecting the homeostasis in such a way or the milieu interior that's outside the fat cell so that the fat was staying in the fat cell. And that's how you have to think of it to make – to maximize our understanding of what's going on here.

Robb Wolf: I like it.

Gary Taubes: Okay.

Greg Everett: All right.

Robb Wolf: Gary, thanks for coming on and hopefully you being in our podcast does not destroy your career.

Gary Taubes: Yeah, I hope not. This is exciting. I had fun obviously although your knowledge of the monition intimidates me no end.

Robb Wolf: Oh, shoot, I have to deal with Matt Lalonde every stinking day not just occasionally if I speak at Harvard.

Gary Taubes: Yeah, yeah. Matt, you know, yeah.

Robb Wolf: You're familiar with the old movie Clash of the Titans like the old, old one?

Gary Taubes: Yeah.

Robb Wolf: Just even peripherally? Well, they unleash the Cracken, we call Matt the Cracken. So he comes and basically lays waste to cities and city states and everything.

Gary Taubes: Although I'm going to say this, when he sent me studies supporting – and I didn't have time to tell him this. The problem is I still don't find, you know – I'm not that – there's got to be more. That kind of confidence, that's my problem with sort of, that kind of confidence in your beliefs, you need to have clinical trials in humans supporting them with variables that are well controlled. And without that, you just – you've got to have some skepticism that you could be misleading yourself. And that's the problem with most young scientist. And I'm accused a bit and I'm sure I fall. But without actual clinical trials, all the theory in the world, all the rat experiments and pig experiments – I was going through my notes from the interviews I did with "Good Calories, Bad Calories" and one of the – I was interviewing this 75-year old cancer researcher said to me, "Now, if you can't cure cancer in rats, you shouldn't even be in this business. It's so easy to do."

You just can't just make – and I'm awed by Matt's intellect. But – that's my son on the other line, obviously he's been screaming from the other room, my five-year old. He's not into Star Wars. I don't care about this guy. Anyway the point is that you need the clinical trials before you can – and the problem is you can be misled by anecdotal even your own experience what you guys do in the gym doesn't really tell you cause and effect. You don't actually – like with the almonds.

Robb Wolf: Right.

Gary Taubes: You just – you can see that this person's gotten better. And then maybe if you did it with 5,000 people, 5,000 people would be getting better. But maybe if you did a randomized controlled trial, you'd find out that it happened to be a coincidence that when they got rid of the almonds that when they loss weight.

Robb Wolf: Right.

Gary Taubes: You just don't know. And so what's necessary is a little bit of self doubt and we all need that. I mean again I get accused. The more I talk about

the nonsense of calories in and calories out, the more firmly I believe it and people said, "Three years ago you were like speculating. Now it's like bam, this is right." And it's because I've been listening to myself talk about it for so long that how can I possibly be wrong. So anyway, that's my end point on that.

Robb Wolf: That's awesome. Well, Gary, anytime you want to come back on the show, we'd love to have you. This was – this was a hue and I was super nervous about this one just because you literally are one of my heroes in all this stuff like when the first paper you wrote ages ago on this stuff the self science and dietary fat, like this was when I was still a bench chemist doing research. And I was at a cancer treatment institute actually where the folks in the lab were actually saying high carb low fat would not benefit anybody in any type of qualitative way with regards to cancer. But then this paper that you wrote hit the scene. And I was like, "My god there might be hope." Yeah.

[1:04:53]

And just huge props to you for tackling this thing and staying literally in the pocket to pull from the boxing terminology and just taking it about the heading years and keeping, pushing forward like huge props to you for that.

Gary Taubes: Well, let's just hope that I did better than I did when I really was boxing.

Robb Wolf: You're doing me both. I went into a sport that you should have a good eyesight. And I wear glasses. That was a bad idea.

Gary Taubes: Well I went into a sport where you should have a small floppy nose. And I walk in and end up with a small floppy nose. But I don't remember. I still actually – one of the things I keep in my office or actually my son now has in his bathroom, but I have a photo from my boxing career and I'm like, "Like me," before my second Golden Globes fight were, it's me standing up with my coach giving me instruction and then me like a minutes and 37 seconds later laid down on a mat. And I call it my **[1:05:52] [Inaudible]** protection. It's what happens whenever I would – when you're giving these moves and we think we're so cool we can do anything like James Bond.

Robb Wolf: Right.

Gary Taubes: And it's like no. I can't. And often when I'm in this situation I think back and I hope that this isn't like the boxing. I hope they don't like wake up in

the hospital a week later and wonder, "That wasn't a very smart idea wasn't?"

Robb Wolf: We discovered that you went Paleo Solution podcast and wondered how that happened so.

Gary Taubes: How that happened, okay. Anyway thank you, guys. This was great. I really enjoyed it.

Robb Wolf: Awesome, Gary. Thank you so much. We'll talk to you soon. We'll definitely see you at the ancestral health symposium.

Gary Taubes: I think so, yeah.

Robb Wolf: Okay.

Gary Taubes: Take care.

Robb Wolf: Bye-bye.

[1:06:37] End of Audio