Danny Lennon: Hello and welcome to Sigma Nutrition Radio, the podcast that brings you objective evidence-based information on nutrition and performance by giving you weekly access direct to world-renowned researchers, medical professionals and in-the-trenches practitioners. I am your host, Danny Lennon of Sigma Nutrition and Performance and this is Episode 152 today.

If you're perhaps new to the podcast, then go ahead and hit the Subscribe button as we have many past episodes that I'm sure you'll really enjoy particularly if you're going to enjoy today's episode. So some past guests would include Eric Helms, Mike Israetel, Brad Schoenfeld, Greg Nuckols, Stephan Guyenet, and countless other expert practitioners and active researchers that I can list.

On today's episode, we're continuing in the same vein and I'm welcoming back Lyle McDonald to the show. For those of you who are long-time listeners, you'll remember Lyle's previous appearance back in Episode 65 I think it was where we discussed metabolic adaptations to dieting in quite some detail.

The show notes for today's episode are going to be at SigmaNutrition.com/episode152. So if you go there, I'll put up relevant links to today's episode, a bit more about Lyle's background and where you could find him online, and you'll also be able to subscribe for free to

receive show transcripts direct to your inbox. So that's SigmaNutrition.com/episode152.

And just a small note for those of you interested in performance nutrition and weight cutting combat sports, then details of the Sigma Weight Cutting System for MMA and boxing are now up and available on the site to go and check out. Just go to SigmaNutrition.com/weightcut. You'll see all details about that system and there's also the chance for some of you to get access to a free private webinar that we're running on our weight cutting system that again is going to be freely available. So you can sign up for that over there. So again, just go to SigmaNutrition.com and you'll see a tab for weight cutting that you can check that stuff out.

So without any further ado, let's get Lyle on the line and get into this week's show.

Lyle, welcome back to the podcast. Thanks so much for giving up your time today.

Lyle McDonald: Danny, thanks for having me again.

Danny Lennon: It's an absolute pleasure and I'm kind of excited to talk about some of these topics. And there are kind of a few things on my mind that I would like to jump into, just things kind of off the top of my head I would be interested in hearing about and so I might jump around a few points. But just maybe to kick us off, I think I wanted to bring up something that I started considering after reading actually your recent series on carbohydrates that you put out on the blog.

Lyle McDonald: Mm-hmm.

Danny Lennon: And I mean, in one of those points, and I think it was maybe in the third or fourth piece you did, you were talking about how we now have obviously research showing the benefits potentially of a lower-glycemic-load diet for not really just on weight loss but typically for people then with clinical issues like diabetes or insulin resistance, PCOS.

Lyle McDonald: Yeah, yeah.

Danny Lennon: And I think in that article you made a really excellent point when you were discussing the practical relevance of this in that, how many of these people are likely going to be able to consume a low-glycemic-load diet while still eating a high total carbohydrate intake.

Lyle McDonald: Right.

Danny Lennon: And I know there's a lot of context to place on this whole discussion, which you did in those posts, but just as a general overview level, how do you view that relative importance of glycemic load in diets tackling such issues as we just mentioned, and how then is it possible for people to potentially modify that glycemic load of the diet and just is it even relevant for them to be thinking of in the first place?

Lyle McDonald: Right. So just for some quick background, this was a four-part series I did that every few years this idea comes through that oh, you have to avoid some food because it's got a high glycemic index. Glycemic indexes basically measure how blood glucose changes over time and it's been around since I think the eighties for diabetic planning and there were always some issues with it. They were getting 50 grams of carbohydrate first thing in the morning by itself and there were issues not the least of which carrots had a high glycemic index. Who can eat 50 grams of digestible carbohydrate from carrots? It's like nine large carrots. Whereas, you can very easily get 50 grams of digestible carbohydrate from a single bagel. Like, it's sort of there were some practical issues.

Danny Lennon: Right.

Lyle McDonald: People have kind of, I mean, they're still debating the literature, you know, whether GI matters for diabetic planning and it has at best small effects on clinical markers, and more recently they've started talking about the glycemic load. Glycemic load is essentially the glycemic index times the total number of carbohydrates being eaten, for practical purposes. So if you have a food with a glycemic index of 50 and you eat 10 grams of it, and so glycemic load, it's actually 5. You multiply and then divide by 100. If you eat…so 10 grams of a 50-GI food is 5. Fifty grams of a 10-GI food is also 5. So in terms of the load, the glycemic load, the carbohydrate load they put on the body, those are essentially identical. And this tends to be I think more practical, right? We're not working in these fixed amounts. You're just weighting it for the total number of carbohydrates that are actually being eaten.

And like you said, there's a lot of research that high-glycemic-load diets may be associated with—I mean, clearly it's with overeating—obesity, possibly diabetes, insulin-resistance, things that tend to occur. And there are other factors, of course – being overweight, inactive. Obesity is one of

the primary determinants in insulin resistance and the studies show that yes, generally, adopting a lower-glycemic-load diet tends to be healthier.

See, now we get into the practical issues. Because of the way glycemic load is defined, it's GI times the total number of carbs, you can lower the glycemic load in two ways. You can lower the average glycemic index of the carbs you're eating without changing the amount or you can lower the total number of carbohydrates you're eating without changing the glycemic index of them. So again, if you're eating 10 grams of a GI of 50, well, if you change to 10 grams of a GI of 25 you lower the glycemic load from 5 to 2-1/2. If you're eating 50 grams of a glycemic index of 10 and you lower your carbs to 25 grams, you bring glycemic load down identically. So in a practical sense, they're more or less identical.

And what I see happening, because you look at studies on, say, carbohydrate intake and, say, insulin resistance or something called polycystic ovary syndrome, which occurs in women, which is associated with insulin resistance, in some of the early studies the ideas were, "Oh, you should lower her total carbohydrates, increase monounsaturated fatty acids, moderate protein," basically, lower the total carbs. Fat slows digestion, etc., etc. But there are also studies where high-carbohydrate diets, if their calorie control were just as effective, so that kind of leads us down the "well, whatever the person can stick to" path, and there's much truth to that. The problem is researchers, when they do these studies when they're giving a high-carb diet, tend to emphasize those low-glycemic-index foods. They bring glycemic load down by bringing down the average glycemic index of the food, and the reality is those foods tend to be vegetables, most fruits, sort of those unrefined carbohydrate foods that let's face it, most people don't eat in the real world. Like, this is kind of we run into an issue of what the research says versus practically what's going on. Whereas, lowering total carbohydrate gives you a lot more flexibility especially within the context of, again, the carbs people actually eat in the real world, in my experience. I mean, yes, there are people that are happy to lower glycemic index, to just eat fruits and vegetables and those really less refined foods, but I think in a practical sense for most people in that situation, lowering total carbohydrate intake is probably a more real-world approach and I think it has higher ecological validity when you look at how people actually eat.

So I think that's kind of what you're getting at, is lowering glycemic load—and here we're talking about the general public. We're talking about overweight individuals with health parameters. Athletes have a completely

different set of issues. But certainly, that lowering glycemic load regardless of how you do it has benefits. I just think practically most people will benefit more from lowering carbs and moderating dietary fat and probably keeping protein higher, unless they're just willing to eat the foods nobody likes.

Danny Lennon: Right. Yeah, I just thought that was a really important point because especially when we're talking about this real-world context, and again, a lot of people listening are probably helping others with their nutrition either as nutritionists or coaches, and I think because it's something that's kind of occurred to me a lot as I see discussions online particularly within like this evidence-based community that we're in of people wanting to be more and more evidence-based or to see the recommendations based on science, and that's great and all but sometimes it can go too far in that, for example, if we're just talking about there in the real world it's probably easier to tell someone, "Oh, just moderate your carbohydrate intake and bring them down," as opposed to making all these specific glycemic load changes in terms of the food choices.

Lyle McDonald: Right.

Danny Lennon: Then, some people kind of get worked up if someone has been told to go on a low-carb diet because they say, "Oh, you don't need to be on a low-carb diet. It's not inherently magic. You can still lose fat on higher carbs," which is all perfectly true but they're kind of missing the context of why we may end up advising a low-carb diet for one specific type of individual if it's going to be easier for them to say, "Eat in a caloric deficit," because their main culprit tends to be high-carbohydrate foods, right?

Lyle McDonald: Yeah.

Danny Lennon: And I'm sure you see this all the time, people maybe pushing too much and not realizing the kind of practical significance of things you can advise people to do.

Lyle McDonald: Sort of a random example I just remembered, when I was in my 20s I worked at a wellness center and we had a, I mean, a well-meaning RD, make no mistake. And she was fairly skinny. She did exercise. I mean, she'd actually take dumbbells into her office and kind of hide. And she was counseling a lot of inactive, overweight people and she told them all to follow a 70% carbohydrate diet. Well, she was a vegetarian and if there's a group that does tend to certainly eat lots of those low-glycemic-index foods, that's it. Well, I guarantee you the women she was counseling

weren't and aren't. So giving that general as recommendation that I'm assuming that they would be eating the foods that she emphasizes was missing the context in a great degree, and that's certainly what we're talking about here.

Even the low-carb/high-carb thing, yes, they both generate effectively identical results when calories are controlled. That's not debatable even if the low-carb people continue to debate it. However, that's not always a good assumption. For a lot of people—whether it's low carbs per se, it's usually the higher protein and higher dietary fat—for a lot of people especially those with insulin resistance, low-carb diets or even lowered carbohydrate diets tend to control hunger better. So, yeah, fine if a researcher's giving the people their food to eat every day. It doesn't matter. This is not representative of what's typically going on in the real world and there's also the issue of what's appropriate for the obese insulin-resistant person versus the leaner healthy individual.

And that gets into context specific populations as I also wrote in that article piece, you know, of low-GI stuff. You got a lot of athletes thinking, "Ah, low GI is healthier. We have to eat all low-GI carbohydrates," and not arguing with that in general but there are times when high-GI foods are better after training, during training. Try to eat some low-GI, high-fiber foods during a workout and let me know how that works out for you. So again, they missed the context. GI for diabetic planning is completely different than GI for a performance athlete and what they need. So like you said, I think a lot of these factors tend to get missed in how population-specific and real-world-specific they are.

Danny Lennon: Right, yeah, that context is a really important piece and I think even on the last episode I was discussing some of the work I do with MMA fighters for example, which is a great example of what you just discussed of the context of where high-glycemic-index carbs and quite a large amount can be useful, particularly from what typically people think of as bad foods, so after they make weight they have that 24-hour weigh-in to basically get their glycogen stores back up and, yeah, good luck eating 800 grams of sweet potatoes and oats, right?

Lyle McDonald: Even early on, I worked with a bodybuilder years ago and I saw this a lot, you know, when you get folks that are just…they're almost scared of starches and refined carbohydrates and they would try to do refeeds on these high-fiber carbs and let's just say they got some pretty profound stomach upset and other negative effects, I'll just leave it at that, but it

didn't go well. Like you can't eat 6 to 10 grams per kilo of carbohydrates a day and do it with low-GI foods. You can't. You'll explode. Even more so if you have an athlete maybe, has to sleep eight to nine hours a day, who may be training four to six hours a day – they have very limited time to even eat the 20 calories per pound or was that 44 calories per kg that they need. You just can't get food on. So in that case, you have to use some concentrated carbohydrates and, yes, they will be high-GI but it doesn't matter. When you're training and lean and insulin sensitivity is through the roof post workout and for a few hours, it's just not an issue and people get hung up on that.

Danny Lennon: Right, yeah, and I think a lot of it comes back down to just people understanding what underlying principles are at work when a certain method is being used as opposed to thinking the method is actually working. So, I mean, we're just talking about low-carbohydrate diets there, for example.

Lyle McDonald: Absolutely.

Danny Lennon: And one thing you even brought up was that once you get someone eating lower carbohydrates, because of that generally there's going to be more protein but there's also going to be less probably hyperpalatable foods, which is another thing that's going to essentially drive overeating in the first place. So you can't really separate carbohydrate content and food quality and then overall calories in the real world. You can't really separate them out because for most people they're going to influence one another, right?

Lyle McDonald: Absolutely, and this is always a difficulty in nutrition research, like getting into some serious irrelevancies. Ideally, in science, you have one independent variable and one dependent…you change one thing and then you look at the results. Well, nutrition research by and large, it can't be done. At the very least if you're trying to feed two diets of the same calories, if you change carbohydrates or fats or protein, it doesn't matter. Another nutrient has to change. If you want to raise carbs, either fat or protein has to come down or vice-versa. Well, then you get into the question of: Was it the lower carbs? Was it the higher fat? Was it the ratio of the carbs to fat? That's why you have to do a lot of studies and manipulate the variables, and that's why the protein thing has always been a big confound. Put people on an uncontrolled low-carb diet, they always eat 25 to 50% more protein. Well, is it lowering the…? And then high protein we know blunts appetite, has a zillion beneficial effects. When you

match protein and vary carbs and fats, it makes three-fifths of no difference.

Getting to what you were getting at, even the studies that manipulate glycemic index, either protein changes…but fiber intake always changes. Fiber intake always goes up if you lower glycemic… So is it the lower GI? Is it the higher fiber? Is it the higher protein? In a practical sense, it doesn't matter because whether—in a scientific sense people, you know, we want to know the mechanism. In a practical sense, it kind of doesn't really matter. If it works, it works. People confuse those two levels. Yeah, it'd be great to know what the mechanism is and there are ways to get around that. Fine, switch the GI, give the higher GI group a fiber supplement to match fiber, but then "hold on you've just added another variable that's uncontrolled" and you just get into these lots of problematic issues. Maybe it's vitamin and mineral status, lower GI foods in that they're vegetables and unprocessed stuff. Maybe it's because they have higher micronutrient levels. Like, again, practically doesn't matter. But in a scientific sense, it absolutely…it makes it very difficult to control these beyond a certain level.

Danny Lennon: Yeah, I think that's an important point and I think trying to look at some of the mechanisms as to why some of this stuff is happening is probably important to…like if we get to the, "Okay, these are the principles by which each of these methods is working, "we can now start to construct for any given individual the way that they can use these principles maybe in a different way that a different type of diet hasn't worked for them previously.

Lyle McDonald: Absolutely. There's an earlier review study or I don't know if I would call it a review, but it was basically the optimal diet for the treatment of insulin resistance. It was in like Journal of Nutrition a bunch of years ago. And he sort of set out, "Okay, we need to have protein a certain level, carbs should be set at 25 to 35%, fats at whatever." And then he's like, "Then you've got some flex room. If you need more carbs for whatever reason, you can add more carbs. If you don't, you can add more dietary fat."

And if you look at the way I tend to set up diets, that's my template. Protein intake is always set first. I don't give a damn what else the rest of your…if protein intake is insufficient, it's a bad diet, no question to me. Very low-fat diets tend to leave people hungry, tends to cause problems with mouth-feel food enjoyment. There's a big review that found that in

every study comparing lower- and even slightly higher-fat diets, the higher-fat diet outperforms. People enjoy the food better.

So I set dietary fat next. Even getting back, since I most talk about the women's book in every podcast that I do, for women who normally have a menstrual cycle, very low dietary fat can hurt their menstrual cycle, so I set dietary fat second.

Well, that leaves carbs as the remainder, right? You do carbs by difference. So if protein is higher and fat is at a certain level, carbs come down, but if your energy expenditure goes up—your MMA athlete, your endurance athlete—and your energy expenditure is enormously higher, well, then your total carbs… So it kind of factors that in. I don't know why, but I'm working from a principle base. Calories matter first, protein matters second. I don't like to see fat below a certain level. It makes essential fatty acid intake very difficult. It tends to make the diet—like people will do it, back in the eighties people with 10% dietary fat, but it's damn near impossible to stick to. It contributes to menstrual cycle loss in women.

So fat needs to be 20 to 25%. Some do better with 30 to 35. I would factor that based on body fat level. If they're fatter, dietary fat should be up because they're insulin-resistant. That automatically scales carbs down within a fixed calorie level.

So yeah, that gets to your point about using the principles of why these diets work. We know high protein is better for appetite control and blood sugar maintenance. We know that moderate-dietary-fat diets tend to outperform both high and low from an adherence standpoint, and then carbs are going to vary based on insulin resistance activity levels like we talked about. What foods are they willing to eat? If they're willing to eat low-GI foods, you can raise your carb intake, and if they're not you better bring it down because they're going to get into…unless they're a high-training athlete. So we've got all these variables that are going into it and that makes it far more complex than saying, "Eat high carbs or eat low carbs."

Danny Lennon: Yeah. No, that's a point I completely agree with and it's so important to reinforce for people because, and I think I've mentioned this to a number of listeners before, because they may have seen some of the stuff I've done with a couple of clients where I've talked about a certain case study and at the same time they see me maybe advising this person and talking about

the type of carb intake they had, which seems to be fairly low, and at the same time saying that, “Well, carbohydrates aren't the thing that's necessarily making someone fat. It's not the carbs that’s driving excessive fat gain.” And people kind of miss how the two of these can both be true in that like you said, when you're setting protein adequately, then you're looking at dietary fat, really then someone's expenditure and just how much they're capable of moving is going to be driving their energy expenditure, obviously, along with their muscle mass, etc., etc.

Lyle McDonald: Absolutely.

Danny Lennon: And so when you have someone who is extremely overweight and isn't capable of the work capacity of high expenditure/use of energy, usually has low muscle mass as well, then they're going to probably have a much lower energy expenditure overall, so less calories to play around with. So by default, the carbs are low not because you necessarily need them to be super-low in order for fat loss to occur.

Lyle McDonald: No, that's absolutely it. Years ago when low carb sort of made its first resurgence, I got in a big argument with somebody and I was trying to point that out. I'm like, “Look, carbs have to scale with activity levels. Obviously, high-performance athletes need more, but if you're inactive you need less.” And here's what the guy responded: “Well, they should just move more.” In his mind, there was only one dietary approach that was valid and you had to fit the lifestyle to the diet, and to me that's backwards.

Danny Lennon: Right.

Lyle McDonald: I mean, not that, yeah, not that I'm trying to argue that, “Oh, they shouldn't start exercising or progressively increase it,” but we know that in overweight individuals, usually they're not exercising, and I'm not trying to play the laziness card—that gets into a whole separate issue—it's just realistically they're not. It's often very difficult for them to exercise. If you're 300 pounds and have been inactive, good luck. The Biggest Loser notwithstanding, good luck doing a lot of exercise.

Danny Lennon: Just don’t have the work capacity.

Lyle McDonald: We know that studies repeatedly show that realistic amounts of exercise have almost no impact on weight loss. It may improve fat loss a little bit but the amount people are either capable of or willing to do is simply irrelevant. That leaves diet. But again, you really need to adjust that to

their lifestyle in terms of not only their activity, their body composition – you've got their lifestyle to take into account. That gets into some of the new ideas about like intermittent caloric restriction that may be beneficial in some cases. Even if you get into meal patterning—this is actually the book chapter I'm stuck on—bodybuilders and strength/power athletes don't use as much glycogen as other athletes unless they're doing a ton of volume. Like for a physique athlete—bodybuilder, physique, fitness, bikini, whatever—to really deplete muscle glycogen in a muscle group, you got to do a ton of work. And this is Alan Aragon's excellent…his review on the anabolic window, pointed out that, "Look, they're rotating muscle groups anyway." Even if you do deplete your glycogen on a Monday, you're not training that muscle group till a week later or Thursday or whatever, you don't have to pump in the carbs.

Now, if you're an endurance athlete, if you're a cyclist who's doing four hours on the bike two days in a row, that's a very different situation. Or, doing two-a-days. Runners frequently run twice a day. Football players do two-a-days. I'm sure your MMA guys do a conditioning session and a skills session. You're looking at—even that's context-specific. Physique athlete can carb cycle and have three low-carb days a week and it doesn't matter because it's not a performance sport strictly speaking. The nature of the training isn't the same because they're rotating muscle groups. As a runner who's only using the same muscles as a cyclist, as a lot of athletes – sprinters, track cyclists, things like that that are using the same muscle groups and are very performance-oriented and have to worry very much, like for them to try to impose a carb cycling that a bodybuilder might use onto one of those athletes, it doesn't work. You have to modify the nutrient pattern. You get into some of the every-other-day/alternate day approaches where you're going to do a relatively lower carb, relatively higher carb, but some of those where general patterns just don't work. So there's another context-specific issue that you have to look at. What kind of athlete are you working with? What is their weekly training structure? By the same token, if you've got a recreational runner or a citizen runner, I did an interview years ago for a UK running group and they were like, "Yeah, I'm running 30 miles a week. I'm just not losing weight." I'm like, "I have bad news for you. Your training volume is jack. Like the number of calories you're burning a week is nothing. Like you don't need 10 grams per kilo of carbs when you do a 30-minute run. You just don't. You need 10 grams a kilo is when you've done a marathon or when you've done your two-hour-long run."

And it's interesting that while a lot of the general nutrition people haven't gotten this memo. Most of the really recent sports nutrition stuff has finally recognized that those general recommendations don't work, that you have to scale daily carb intake to the amount of training that's being done. Hour, low intensity, 3 grams per kilo, is plenty. If you're doing a two- to six-hour endurance—six hours for cyclists, two hours for running—exhaustive workout, you may need 10 grams per kilo on that day, and they're finally recognizing after years of giving the same daily amounts every single day that you do have to scale that to the activity level. And that's a concept that needs to be more widely—

Even if you look around workout nutrition, you don't need Gatorade to walk on a treadmill. You don't need Gatorade to jog for 30 minutes. You might need a carbohydrate drink if you're doing an hour at threshold or marathon pace or doing intervals. And people have gotten this general message, "Oh, you need carbs during exercise." No, you need carbs during exercise that lasts an hour or longer. You don't need to carb load for a 5K. It will actually probably slow you down because of the water weight. You do need to carb load for a marathon or for a six-hour bike race. And a lot of these general ideas just aren't being applied in the real world contextually.

Danny Lennon: Yeah, for sure. And I think maybe a lot of that is just a by-product of how much of at least early research was predominantly just on endurance athletes.

Lyle McDonald: Oh sure, absolutely.

Danny Lennon: It's probably only now within the recent few years and it's still it's probably a small amount of the research base, but at least there's some more emerging now particularly for strength and power athletes or then physique…

Lyle McDonald: Sure, or even sprint athletes and…

Danny Lennon: Right.

Lyle McDonald: I mean, there was a big issue of Journal of Sports Science like 2010 or something that had very evidence-based recommendations for endurance athletes – strength, power, speed, different things, and a lot of them, they're just like, "We don't really have good…" you know, "Here are some guesses," but it's like even there, the endurance athlete will burn the most calories of almost any athlete just because of their sheer volume of

training. A sprint athlete, a track sprinter, a 100-, 200-meter guy, their workouts may be long and exhausting but they're doing a whole lot of nothing. They're running for six seconds and then they're resting five minutes. Like they're on the track forever but the number of calories they burn is actually not very large. To give them 10 grams of carbs per kilo is just way too much. And I'm seeing, like I said in even the research-type-stuff recommendations, are very much being scaled and it's like, "Okay, for a sprint athlete, 4 to 6 grams per kilo, about 2 to 3 grams per pound, that might be perfectly enough." Again, that cyclist in the training camp or the guy doing two-a-days, he might need 10 to 12 grams per kilo. So scaling it in that sense, just it gets very difficult in a lot of activities because even in physique training, bodybuilding-type stuff, calorie burn is, A, not very large, but it can vary enormously. How many sets are you doing? What kind of repetition range? Powerlifters are working triples and fives—I got news for you—are not using a lot of carbohydrate. A lot of them do bodybuilding work though that you get into a lot of different stuff. The recreational weight trainer doing one set of 10 exercises in 30 minutes is not the physique person doing 36 sets in 90 minutes with possibly a shortish rest period. So you're looking at a whole lot of different factors, which is, again, part of why my book is delayed so long because I'm trying to cover every single eventuality and there are just so many variables to take into account.

Danny Lennon: Yeah, I can imagine just looking through one avenue then just leads on to probably a myriad of other factors then to explore and this huge web develops.

Lyle McDonald: Yes.

Danny Lennon: But just to kind of touch back on one of the things we had briefly mentioned earlier, Lyle, I think we brought up a bit around how the glycemic index of certain foods is probably in many ways, particularly with highly processed foods, we're getting more into then other confounding variables like hyperpalatability and then what those types of foods do to drive, say, caloric intake, etc., etc., and it's some of that stuff is then related to, I mean, topics that people have brought up around supposed, say, sugar addiction, which is something I've talked about recently, and essentially it's probably more accurate that it's probably an eating addiction related to behaviors and surrounding environment, right?

Lyle McDonald: Yes.

Danny Lennon: As opposed to actual true dependency on a compound or nutrient. But that kind of leads me to a topic I'd like to hear your thoughts on and because especially anecdotally a lot of people will then refer to particular trigger foods they have. And these are not always high-sugar foods. Sometimes it's the jar-of-peanut-butter scenario for some people, right? There's just something that for some people tends to be something that ends up more in a binge. From what you've kind of seen through this, does this come down to it being like purely a psychological thing? Is it a sensory reaction? Is it a mixture of a multitude of different things? Or what do you think are the main things we need to bear in mind when people are talking about this concept of a trigger food or some sort of particular food being very difficult for them not to binge on?

Lyle McDonald: Yeah, that's a really good question. I mean, I generally tend to…I think there's both psychological and physiological factors. And it's funny, you know for me, you know what my binge food is? I can eat a loaf of bread in a sitting. Like, do I like candy and stuff? Yeah, and I can do that, but for me if I'm dieting, if I started on certain kinds of bread, if they're very chewy, like I can sit there and just eat straight slice of bread after slice of bread. I can do a bag of bagels without even winking. So in a sense, that's a "trigger food" for me.

I do think part of it there's a…a lot of this is being driven through dopamine and the cannabinoid system, which gets to the whole liking and wanting thing. I do think there's—but it's weird. Everyone's like, "Oh, sugary foods, right. Well, then explain the peanut butter thing." There you're getting into…it's got a mouth-feel. It's got a creaminess. It could very well be, you know, who knows, conditioned associations from a kid where peanut butter was your, you know, when you were sad your mom made you peanut butter… Like I can speculate all day long. I think it's a lot of all of those. Like I do think certainly, if you're looking at the research in obese individuals, their brains are responding to hyperpalatable foods in a very different way than lean people, which is something else that gets forgotten a lot.

We maybe go on a quick tangent about flexible eating and If It Fits Your Macros and some stuff that I think a lot of people forget about that, is the theory, the idea, because I've seen in the obese that they're both hyperresponsive to certain foods, but also they can become hyporesponsive. And it's actually very similar to the drug addiction thing, and the idea's that when they're younger they get more reward out of certain foods, the junk food for lack of a better term. As they overeat and

overeat and overeat and just hammer that dopamine system, hammer those receptors, the receptors become blunted out and now they need more to get the same effect. I'm not going to use the word “high” but it's very similar to what happens to drug addicts. Initially, those are just the people that, “Now, I love the way this makes me feel,” and suddenly a little while later, “I don’t feel this anymore.” And not only do they go through severe withdrawal if they don’t use and they now need it to feel normal, but they need more to get high and this is where you get some of that escalation. This is where I think you get the gateway drug idea, “Well, if drug X isn’t working, I need something stronger,” and you move from whatever, snorting to shooting to smoking, whatever gives you that faster high. So I think you've got that going on certainly in an obese individual.

Usually you hear, you know, leaner individuals, it's interesting that trigger foods can vary so much because it's not always hyperpalatable foods. Some of that I think during diet and you tend to crave what you can't have and cravings have both a psychological and physiological factor. It's one of those things that I do think it's both. I don't know if we have an answer, and I think from a practical standpoint it's more along the lines of, “Well, if you found out the hard way that this is your trigger food you probably need to stay away from it.”

Danny Lennon: It's interesting you bring up the kind of sensory aspect of how it's probably not just, say, the taste of sweetness in some things. It's obviously the smell of these different foods, the texture when someone puts it in their mouth. Even when they're picking up a certain food we know, say, the crunch even can make a difference in foods. So all these kind of sensory inputs tie into it. But then when you kind of, again, when we look at these trigger foods and we see all these different reporting of for different people it seems to be different types of food and not necessarily with the same things in common, it maybe just throws up, is it something where people have industrialized reactions to different sensory inputs in the same way that I think it was a paper maybe published last year looking at the glycemic response of different foods and some people had like a greater glycemic response from a banana compared to a cookie and then another individual had the complete opposite? So potentially it's some sort of individual difference in how people just react to these different sensory inputs in some way and…

Lyle McDonald: Absolutely.

Danny Lennon: Again, we're just speculating, right?

Lyle McDonald: And I think what a lot of people lose, I mean, we love to be reductive, hence sugar is the problem, fat is the problem. People forget that eating is way more than the nutrient involved, it's way more than the taste that's involved. Like you said, eating is a sensory experience and you do have mouth-feel. We know that fat gives foods mouth-feel, which is why a lot of people find that low-fat foods or nonfat foods, they don't taste good. Even if you give…a lower-fat food often has a taste and texture that is just so different than the nonfat equivalent. It doesn't even take much fat. It just takes just a little bit to have that mouth-feel. Crunch is part of it because invariably then you've got the whole hormonal response. You've got the incretin response to eating or smelling the food, right? We know there's a hormone response to simply smelling foods that sort of prepare the body. You've got whatever brain response, whatever condition. We know, even if you want to look at food preferences, taste buds…food preferences are set at a very young age. If all you were ever fed as a kid is junk food, good luck learning to like vegetables, and if your parents give you a lot…you'll have a taste for them. That develops unfortunately very early in age. It can change. Taste buds can change. It could be nutrient density, although I don't know that that's a…

It seems like…I think what's interesting is frequently the overconsumption is occurring before a lot of things could probably be happening. It's not like you eat your trigger food and then five minutes later your blood sugar goes kaboom and you eat more. Like it's typically you have that first taste and then boom, you're done, you won't eat the entire bag, which suggests that it could be something relative to your taste buds, your personal—you know, we know that there are people that are hypertasters or there's now like a fifth, what is it, the umami taste bud that some people have and some people sort of don't. Some people's taste buds are a thousand times—I haven't looked into it but I don't see why it's fundamentally impossible for certain people to respond more to savory than sweet foods. I mean, even we know that some people just don't like sweets. I don't understand them but some people don't like them, but they can eat the hell out of savory foods.

Danny Lennon: Mm-hmm.

Lyle McDonald: Even if you look at food cravings during the menstrual cycle, everyone thinks, "Oh, chocolates," and chocolate is certainly one of the most craved. However, there are also cravings for savory foods, and a lot of the chocolate thing is cultural because in Spain they don't do chocolate. They crave—it is a savory food, so you get some different things going on.

Danny Lennon: Mm-hmm.

Lyle McDonald: We might look at, say, the carbohydrate mouth rinse stuff. We know that if you just swig carbohydrate and spit it out, that improves performance during exercise. It's clearly not a blood sugar thing. That's a neurological effect. That is a signal being sent to the brain that's telling it, "You're fed." So you've got a whole lot of different things going on, which is why frequently there'll be these odd studies where they'll either infuse…they'll either IV the nutrient straight into the bloodstream or they'll use a gastric tube and they'll infuse it into the stomach, which avoids the whole taste thing. Now you're taking at least one section of this issue out. You're taking out the incretin response. You're taking out the taste response. Now you're looking far more strictly at the gut hormone and the nutrient, like nutrient levels in the bloodstream in terms of what's driving that. And I can't say I've looked into it in detail but you often see different things, so clearly eating, you can't separate that or pretend that it's only about the sugar, the carbs, the fat. You got a whole—

And then there's the issue, this whole reductive thing over individual nutrients. People by and large don't eat nutrients. They eat foods, right? Now, you find high-fructose corn syrup in soda. That's one of the few exceptions. People, that is a place where you're looking at straight sugars, but even then most people who drink that, if you look at the rest of their diet, it's crap. People who drink 64 ounces, whatever that works out to in milliliters, it's a lot. It's like 2000 milliliters. Look at the rest of what they're eating. They're drinking that with, most people—I do jelly beans. I love candy corns. I love straight-sugar candies.

If you're looking at someone eating chocolate, well, guess what? That's sugar and fat. To blame sugar is idiotic. You've got, again, that mouth-feel. Dark chocolate is very different than good chocolate. I don't like dark chocolate. There are other things that are going on that are giving sort of a satisfying eating experience and that gets lost when people are focusing on a given macronutrient or even a given type of macronutrient – glucose versus fructose versus sucrose versus starch. So yeah, I think there's a lot going on with that.

Danny Lennon: Yeah, of course, and I think then even when you tie in the environmental situation or the kind of social context someone's in whilst eating certain types of foods. Then again, it's even more to try and narrow this down in research to try and do a controlled study where essentially you have to

take someone out of that context generally if they're going to be…if it's more highly controlled, right?

Lyle McDonald: And this where, again, you get into sort of the difficulties in research. You can do a very highly controlled study, metabolic work stuff and give them the food, which is great and very informative, but is it real-world? Is it ecological with the real world in a sense of, does it tell you what people are really going to do?

I remember a big criticism. They do these studies with basically a free all-you-can-eat buffet. They do these, "Oh, we fed them something an hour later," and the research pointed out that, well, number one, you're giving them access to free food and everybody knows that free food, that's the best price you can get. You're giving them X, and what he found was that if you compare the calorie intakes of those types of studies to real-world calorie intakes, they were enormously higher. He's like, "This is not…" Also, who eats and then an hour later eats something else? Well, okay, people clearly do, but the design of the study was very artificial. "Well, we gave them a milkshake and then an hour later we gave them access to all they could eat." That's not really typical of the normal eating pattern. So yes it's informative, but is it illustrative of the real world where people, A, don't eat in that pattern, and if you've found that observing people in a more ecological real-world situation the results are different, and in this case the calorie intakes were much lower, you have to ask, "Well, is this study really telling us anything particularly…?" And I'm not trying to dismiss a study or a research model. They all have their use. It's just you have to consider how this stuff is being measured. But you know, there would be no "smells can trigger hunger." There's a reason that when you go to the mall the cookie places are wafting smells.

One of the oddest ones, people eat more in larger groups. There's a researcher named Juan de Castro who's done a bunch of…like we typically eat more on the weekends, which has nothing to do with physiology. It has to do lifestyle. We typically aren't working and we're bored and most social events in the modern world revolve around food. There's a robust relationship between the number of people at an event and how many calories people eat, and I don't know if it's simply because those events involve more food. If you want to get way up your butt with evolutionary theory, I would argue, or I would contend that typically when there is a large group of people involved evolutionarily it was after a big kill, so people had a drive to eat more. That's me just completely pulling stuff out of thin air. There's also been work that even that's genetic. Some

people will eat more when there's a big group, some people won't. So you've got a whole lot of real-world factors that aren't interacting with all of this. I mean, as pathological as it tends to be—

Some of the successful dieters, they don't leave the house. Bodybuilders don't go to social events. They don't go out into the real world when they're hungry because they know it's tough. When you're dieting to single digits or low teens for women, your body…they'd even shown when people are dieting hard, you're more likely to notice hyperpalatable foods. Your entire system is oriented towards finding those and in the real world you can't avoid them. So these people that are like, take their own food to Thanksgiving or special events, as obnoxious as that is and I think as pathological as that can be, there's a reason it works. I think for most people it's not a healthy behavior pattern and it's not something the average person is going to do, but the reality is that it's avoiding a lot of these real-world triggers. I mean, then again, usually the trigger food thing, people are at home. People aren't out gorging on peanut butter. This is the physique, the dieter at 8 to 12% who's like, "Just a little bit of peanut butter," and then boom, they've gone through half a jar and I'm like, "What happened?" So you get a lot of this different stuff that's going on.

Danny Lennon: Yeah, sure. Completely agree. And I think we even see that with the way people set up their home environment or whether they're going out, really the modern world is just not conducive to essentially being super-lean, right?

Lyle McDonald: Oh no, absolutely not.

Danny Lennon: Just we're not made for it. So even for someone who is not necessarily trying to diet down that much, in the modern world you still need some degree of dietary restraint.

Lyle McDonald: Yes.

Danny Lennon: Now, that doesn't have to be tracking calories and macros or necessarily being on a diet, but it has to be some form of restraint or control, otherwise you're just going to go crazy and eat everything if there is no restraint whatsoever. So I think anyone that is not overweight and obese is using some form of restraint whether they identify with that or not.

Lyle McDonald: Yeah, there's that weird tiny percentage of people that just seem to…their bodies just kind of regulate it automatically, but yeah, I saw some paper recently and it was actually, what was it? I think it was looking at

alternate-day fasting or something like that or intermittent fasting and looking at did it increase the risk of eating disorders because this has been a sort of a concern, and these were people that did not have a preexisting issue. And it found that not only did it not have a negative effect, overall the people's general restraint did seem to improve. Now, I'm not saying like they became these extremely rich dieters, but the paper kind of pointed that yeah, in the modern environment if you're not exhibiting some amount of dietary restraint—and again I'm not talking about the super-rigid, can only eat sick food type of thing—if you're not exhibiting some dietary restraint, you're getting fat. There's just no getting around it. It's why I have such an issue with this, "Oh, eat intuitively." That's what's getting people into problems.

Danny Lennon: Right.

Lyle McDonald: I mean, in the modern world there is no intuition to eat healthy especially in an environment that is driving food intake at every level from visual, societal, environmental, smell – whatever adjective that would be. Like everything we are around in the modern world, go to any office situation, there's always a candy bowl; every week there's a birthday party with cake and if you don't take any you're antisocial, take part you're antisocial; and there's just all this, the entire, they call it an obesogenic environment for a reason. Add to that the general lack of need for activity, regular exercise does tend to help appetite self-regulate itself, and you've got this perfect cluster of events tying in with our genetics on some level that if you eat—ask any physique dieter. Tell them you eat intuitively and they're like, "Yeah, I'll be 30% body fat." Or even if they do make it work, there's one individual in the field I won't name and they're pushing very much a, "Oh, just eat intuitively according to your appetite." Well, A, nobody knows what their appetite actually is any more. And this person spent a good decade doing the rigid six-meal-a-day, clean-eating, measure-everything approach, well, here's the thing: I don't care how freely they think they're eating, unconsciously they're tracking.

Danny Lennon: Of course.

Lyle McDonald: I guarantee you, when I go to the buffet, I know how much I eat. I know exactly how much I'm eating. I am making a conscious choice not to care. There's a study that shows that the frontal cortex, the part of the brain that sort of oversees our self-awareness, it lights up in lean people in response to eating but it doesn't in obese people. The lean person is like, "Okay, I've eaten enough," but it's a conscious choice even if they're so hungry,

and an obese individual, it's not happening. That's where you get into mindfulness and a whole lot of other approaches that I think this gets into the whole behavioral thing. Like we know what to do to lose weight. Eat less and exercise. Yes, it's simple, it's trite, but at a fundamental level that's the basis of it. The question is, why can't we get people to do it or stick with it? That's a behavioral issue, and as we start to figure out…they're coming up with lots of more interesting approaches that's coming out of the social psychology literature, they're doing mindfulness approaches, they're doing what are called acceptance-based approaches, which is yeah, is—I don't know if I could describe it well-versed enough. It's one of those accepting that you're human and you're going to be hungry and you're going to eat these foods, but not beating yourself up over it. It's to avoid that shame spiral or whatever pop psychology term you want to use. We're finally getting to the point that we're addressing the behavioral things that are going on. But anyway, the point being that the people who are like, "Oh, I just eat intuitively," if you look at what they're eating it's like, "Well, you had half a bowl of cereal and milk and half an apple, yeah, that's not intuitive eating. You're still showing unconscious restraint, period." I mean, that's the benefit of tracking your food for a while, knowing what you're eating…

Danny Lennon: Exactly.

Lyle McDonald: changes in your brain that makes it so generally automated. You know what a serving size is and I guarantee you you know what you're eating, and most people don't.

Danny Lennon: Yeah, and I've said it to a number of clients before that even if tracking their food intake for a short period of time, if they don't want to do that in the long-term that's fine, but even people who do it for a couple of weeks, the skill set they learn from it is something that persists, which just ties into what you're kind of saying there about intuitive eating, right?

Lyle McDonald: Yes, it's making them aware of what they're actually eating. I mean, there are studies that show that doing nothing more than tracking makes you lose weight because you eat less, but most people aren't going to do that all the time. I don't even think the most obsessive dieters do that all the time. They do it when they're dieting to extreme levels. I don't think most people are going to get super-lean without some amount of tracking. I know I saw something recently, kind of listened to it. Greg O'Gallagher I guess did something to the effect of using intuitive eating to get lean, but again, if you've been 8% and you know how to get there, you're not eating

intuitively. You think you are, but whether unconsciously or otherwise, you know what's going in your mouth. You know what 4 ounces of chicken is and you know what a couple of vegetables is. You can eyeball it. Tracking your food is probably the single biggest pain-in-the-butt activity anyone will ever have to do and it's probably the single most valuable thing they can do.

I mean, I'm all for simple diets that automatically control food intake ad lib when you first start out. All for it, whatever lower-psychological-stress-in-the-beginning diet. I'm not talking about lean folks trying to get super-lean. I'm talking about the general-citizen overweight diet. There's a reason simple-rules diets work. The world is full of 2000 choices a day or whatever it is. Having to choose what to eat is not…it just overloads the brain, the willpower thing or whatever. Giving them a simple set of rules—eliminate sugar, eliminate this, eliminate that—does work in the short-term. It causes a lot of problems in the long-term. Cravings become an issue. You crave what you can't have. You can be very difficult socially. You get into…can become very rigid. More than that, eventually that diet stops working and you start unconsciously eating more, you're body's adapting, and at some point you got to sit down and do it. You got to sit down and find out how much you're actually eating and what a portion is. Even two weeks is frequently long enough. Just, yeah, it's pain, but it will give you a skill set that in this modern world—

I mean, you watch these TV things, oh my God**,** on the street, "How many calories in this large pizza?" people go, "Hmm, 400." Dude, that's a slice. I'm like, that's like a 3000-calorie pizza. I know there's a British show and it was something about, "Do I have a slow metabolism?" and it was a typical dieter, she was like, "I only eat 3000 calories a day," and they added her food up and it was like 15,000 calories. People don't know anymore. They don't realize any of this stuff that a single small candy bar can be 200 to 300 calories. My God, in America, people are like, "Oh, coffee's fine." Right, until you add whipped cream, cream, chocolate, sprinkles. That is an 800-calorie cup of coffee. Like, people have no concept of this anymore. Serving sizes in the US, you go to a restaurant, they will serve you 8 to 12 ounces of meat easy when for a lot of people 4 to 6…you know, it's double or triple what most people need to eat, and just nobody knows what a serving size is anymore. The biggest drawback, other than it being a pain in the butt is, the measuring thing, it's really depressing. When you realize what a 500-calorie meal is, it's very saddening. [Chuckles]

Danny Lennon: [Chuckles] That's a stark realization for a lot of people, I think. Maybe ignorance is bliss in many ways.

Lyle McDonald: In this case it is, but if you're determined to—you know, same thing when people learn how many calories exercise realistically burns. I had a friend, a trainer, who got a phone call from this girl. She's like, "I ate a bag of M&M's, about 207 calories. How much exercise do I need to do to burn that off?" And she was like, "Thirty minutes hard or 45 minutes easy." The girl got mad at her. People think that an hour of moderate aerobic or, "Oh, I must have burned a thousand calories." Try 350. I mean, it's just there's a lot of…some it's misinformation, some of it is just misunderstanding. A lot of ideas that have gotten out there you still see in magazines today. "Walk 30 minutes three times a week and burn the pounds off." Yeah, that's 600 calories a week you're burning. That'll really do something. People just have no concept of it.

Danny Lennon: Yeah. Yeah, for sure. Completely agree. I think it can be quite depressing to see some of those figures at times but…

Lyle McDonald: Yeah, absolutely.

Danny Lennon: Yeah. Lyle, just to round this off, I'm going to finish on one last topic and it's kind of perhaps a vague thing but I'd still like to hear your thoughts on it, and it's really just when we look around now at the fitness industry as it is right now, particularly information that people maybe are putting out online as well—because I'm sure you've seen all sorts of information come and go and you've been probably part of a lot of the good parts of the evidence-based fitness scene probably before it was ever as big as it is now—when you look around at the moment, what are your kind of thoughts on the state of the fitness industry right now? Is it in a better place or a worse place than it has been previously? How can we even try and make it better overall?

Lyle McDonald: Contradictorily, I'm going to say to this it's both. It's both better and worse. And you know, just going way back in history, so I got out of college in '95 right when the Internet started and I was on [00:57:46], and I actually was one of the first people really. I was a know-it-all exercise physiology major and I was really one of the first people pushing that hard. So in a sense, you can either credit or blame a lot of what I was doing—and, I mean, Muscle Media 2000 had been doing it to a limited degree, but I was really trying to bring a lot of that in. So [00:58:06] you can either credit or blame me for kind of where we've gone now because we've reached two

extremes. One, we've reached an extreme where people think, and I've fallen into this trap, that if there's not research on it it must be wrong. If you don't have evidence, it's an invalid concept. And I've seen people go, "I haven't seen your book. Some of the old science ideas were proven true." Well, sure, and a lot of them have been proven false. So you don't get to have it both ways. You don't get to point focus on the ones that were, that higher protein and this and that. Right, and the meal frequency thing is BS. The "missing a meal metabolic slow-down thing is BS. There's just as much of it that was totally off-base.

So it's a mixed bag. You've got the people that…it's like I said, you've got the extreme where if you don't have evidence it can't possibly be valid. You've got the people that think evidence-based is a joke because of the extremeness or who make the argument of, "Oh, sports science is just sports history," which there's some truth to but there's also a lot of untruth to. You want to see some good research that's being applied ahead of time? Look at Australian Institute of Sport and the folks behind sky cycling. They are using cutting-edge science that they're doing research on the fly to optimize athletes. So they're not the general…they may not be the general researchers, but they are doing that.

We are also reaching a point, and like I mentioned when we were talking before the podcast, we're seeing finally a lot of people that have a very balanced background. We've got folks like Brad Schoenfeld, Eric Helms, Layne Norton, Bret Contreras—I know there's others, I'm not trying to ignore people—that have both a very strong academic background whether master's or even a PhD who are doing research but who are also athletes themselves. And most of these guys are certainly bodybuilders, but Brad Schoenfeld, good grief, almost weekly he's got a new publication and he's doing some really good stuff within the limits of research of looking at real-world training models because man, you look at some of the stuff from the eighties and it was clear that the people designing the studies didn't even know where the weight room was. Like you just read these studies and you're like, "What in the hell kind of training is this supposed to be?" So I find—

But what I'm afraid of is that the evidence-based thing is going to get pushed so far that not only will you have to have research but, if you don't have an advanced degree, you won't be valid. Like I'm afraid, I'm almost afraid, that that's where we're going to get that you're going to have to go that far, that just being a coach won't be enough, you have to produce athletes. Even using evidence-based won't be enough. But if you don't

have a PhD, then clearly you're—I saw one guy claim that he would only hire a trainer if that trainer had a PhD. Oh please, that's absurd. There's plenty of PhDs who are dumb as dirt and there's plenty of good coaches that generate fantastic results.

So that's the good, and I'm finding more people are becoming interested in what the science says. I do I think it has to be tempered with the real world. I had a big discussion with Brad Schoenfeld last year at the ISSN network. He was like, “Yeah, I really think the evidence-based thing is taking over,” and I'm like, “You're wrong.” I go, “You're wrong.” I'm like, “You see the people just like you do and I do. I see the people that want evidence-based. That's not the majority. I know it's not the majority. I guarantee you Bodybuilding.com gets a thousand times the hits of Brad’s site, my site, your podcast, Bret, Layne, all those people. I guarantee it gets a thousand times the hits daily than any of…than all of us put together.” There's a selection bias. He sees the people, that the people that are coming to my site are ready for good info…

And that's where the bad is. The bad with the fitness industry, and this is just a consequence of the Internet, there's a hundred times more noise than there used to be. It used to be that the bad information was limited to the magazines and there were only about six of those. Now, anybody with any idea, no matter how dumb, can put it up online. They can sell BS. My God, I just saw something. The FasciaBlaster, have you seen this one for eliminating the cellulite? Like, it is a torture device. It's almost like a Graston scraper tool that is being claimed that you can—and, I mean, people are just like physically damaging themselves with this stuff.

And we've gotten to the point that as much as people, a certain population, does appreciate evidence-based, the majority will always respond to a dude with the big guns or a girl with a nice butt, not… This just is what it is. When people ask me what the best way to become successful in training is, if you're a dude, get jacked; if you're a girl, post lots of booty shots on Instagram, get a hundred thousand followers and write an ebook, and you will get rich. And it is what it is. So what’s happened is, for as much as the evidence-based folks have certainly increased, you've also got the people that claim to be evidence-based, that put research references that they’ve either not read past the abstract or that say the exact opposite of what they're claiming because most people aren't going to check the references. Oh, I will, but most people are not going to. So that's the other negative of the evidence-based. You've got the people that are too far, has to be researched, the people who don't know what the stuff says or are

deliberately misrepresenting it or just don't know what they're talking about, but there's also a hundred times more people online that their claim to fame is being in good shape.

And the reality, I don't know about other countries, certainly in the US, in the US we don't care about science. When you've got a situation where a D-list Hollywood actress can create the anti-vaccine movement and scientists will not change the minds of people, there is a problem. Nobody cares about science in America. And I don't know about other countries. I'm sure…just education here is not a big thing. Rock stars, movie stars, have far more sway.

I heard a beauty the other day. Apparently, on a talk show one of the hosts said, "When you go to a restaurant, make sure to ask them that that food is glucose-free because glucose is bad for you." I'm just like, "Oh my God." But people will watch that…

Danny Lennon: That's amazing.

Lyle McDonald: So I think that's where it's gotten a lot worse. The Internet is full of noise. For every handful of good sites there are a hundred or a thousand selling garbage, selling BS to the gullible, and this is why just like I will see people in threads about something and go, "You need to do your own research." Okay, great. How is the average person? Not someone with a background, not someone with critical…how is the average person supposed to search on fat loss on the Internet and not have the first six pages of Google be crap? How are they supposed to distinguish between very scientific or accurate-sounding information—right? Alan Aragon recently referred to Gary Taubes' book as…he said he didn't read it because he doesn't like to read fiction. Gary Taubes' book sounds very convincing and if you cherry-pick your data well enough you can make anything sound good. People still believe that stuff. Gary Taubes has just moved the goal post over the last decade. The studies don't change people's minds. Kevin Hall's excellent metabolic work doesn't matter, and people can't—God, look at Facebook. Look at how many fake news articles get shared hourly, minutely, by people…you can put anything you want on the Internet. Nothing's vetted and there's no way to vet it unless you really pay a lot. And of course, we only fact-check stuff that we disagree with. If it fits your…if it's confirmation bias, you never look. You never look at the by...

Danny Lennon: Right.

Lyle McDonald: You see these news articles and hidden in the text, “This is a satire site.” Nobody cares. If it agrees with them about something, it must be true. So it's both better and worse at the same time.

Danny Lennon: Yeah. No, I agree, and the thing…it's interesting when you bring up around how people are. It's going to be very hard for a lot of people to maybe vet a lot of this information and it almost becomes this self-fulfilling cycle of people being poor consumers of information in that they don’t adequately check these things, but then in turn they can't check them because they don’t have maybe either the skills or they can't find the relevant information, and then it just kind of perpetuates over and over. So it's hard to know what the solution is but, like we said, it is what it is.

Lyle McDonald: I mean, the way I see it, and this has been kind of my approach, is like yes, you can argue with people, you can debate people all you want. The thing that I find the most damaging, you've got the Food Babe, David “Avocado” Wolfe, you've got these people that are just so far out in left field, whenever people share that stuff and go, “I can't believe this,” you are doing their job for them because you're giving them free publicity, right?

Danny Lennon: Yeah.

Lyle McDonald: Somebody wrote this really scathing article about Food Babe. I don't know if it was VICE.com or something. Over the next several days, her site got five times as many hits as it had been getting because people think controversy means there must be something to it. That dude who wrote that book 50 Cures They Don’t Want You to Know About, as soon as anybody come—I mean, lookit, if you ban a record, people want it more. If you ban a book, people will want to get it more.

The best thing in my opinion, even Alan and I have a longstanding, I'll say debate, over this because he's determined to go and fight with these people. He wrote that piece on my website about the old Anaconda versus chocolate. Now, I'm not going to…like I'll run it, but all you're going to do is make more people aware of it. And if you look at the comments in that article, I'm right. Like, all it did was make people go, “Huh, well, if he's writing negative things about it, there must be something to it.” To me, the best thing is, A, to ignore the nonsense. Don’t address it. Even the evidence-based…like I think they're great, but in a sense they're doing more harm than good. And provide better information. To me, that's the best approach. I could spend my career doing nothing. I could daily go

take apart something on the web. It's very unproductive. I don't think it accomplishes anything. You've got the backfire effect: The more you tell people they're wrong about something, the more strongly they hold to it. Just find better information, right? I know that eventually when I get emails from people, they're like, "You know, I've been through it, I've done this and that," and everyone's like…when people want the truth, as unpleasant as it is they'll go looking for it, but they have to get run through the BS first unfortunately.

I mean, I don't know how long you've been training. I see this with older guys in the gym. They're like, "Yeah, these kids today, they won't listen." And I'm just like, "Well, would you have?" When you were 15 and the general gym guy came to you, he's like, "Yeah, you shouldn't do all that training," would you have listened? No. You'd have said, "Well, we trends like this. Why would I listen to you?" Unfortunately, by the time you're mature enough to know better you're usually past your prime. That is the horror of being a coach. But most people, if they're not ready to listen, they're not ready to listen. But you put out better information, you help the people you can help, you ignore the people that you can't because you're not changing their minds, and then you ignore the bad stuff, just put out better information till people are ready to hear it, to me that's the best thing people can be doing. And there's a lot of really good folks doing exactly that. Like I said, the handful I named off the top of my head, I don't mean to be comprehensive or I'm not trying to diss anybody by not naming them.

Danny Lennon: Yeah. No, I agree. I think that's a really valid point. I think it's a good takeaway for people to bear in mind.

Lyle, that brings us just basically up on time here. You've been kind enough with your time already. First, let people know where they can find more of your information both on the site and then anything else you want to add maybe about the upcoming book, etc.

Lyle McDonald: So my website's been around forever. LyleMcDonald.com will get you there or BodyRecomposition.com is what it's been known as. There's like 500-plus articles. I'm running out of things to write about, quite honestly. I've been doing this for 10 years. I'm on Facebook a number of places. I've got a personal wall that I mainly post dumb memes and nonsense. I've got a Facebook group called Body Recomposition that has a lot of really smart people, a lot of very good discourse and input. We discuss science, get a lot of training questions, you name it. I've got I guess a business page that

I really don’t do a whole lot on. I don’t do any other social media because I just don’t have the energy.

I have been working on this ridiculous book most people are probably aware of, which is on women’s physiology, diet and fat loss that I almost wish I'd never started because it's turning into a nightmare. It's already volume one, which is just diet and nutrition is going to be over 300 pages, and then I got to do the training book next year. But I have delved into every bit of minutiae about not only women’s physiology but gender differences between women and men, because there are really important ones and unfortunately most diet and training and stuff comes out of research on men, has been developed on men, and it's either frequently ineffective or actually outright damaging to women. So it's almost done but I've been saying that for a year, so it'll in my wildest dreams be out before the end of this year; realistically, it'll be the first of the year or somewhere in that range.

So yeah, I'm always around. You can send questions to my site that probably won't get answered. And yeah, the best place to find me regularly is on the Facebook page. Just Body Recomposition will get you there.

Danny Lennon: Perfect. I'll link up to all that stuff in the show notes for people listening and…

Lyle McDonald: Awesome.

Danny Lennon: Yeah, like Lyle says, go and join that Facebook group at least and you'll be notified of any future posts but also when the book is released and all the other good information that comes out in that group. So with that, Lyle, I'll say thanks so much for your time today. You've been very kind. Some great information. And thanks so much for being on.

Lyle McDonald: Alright. Thanks, Danny.

Danny Lennon: That was the always excellent Lyle McDonald with some more great information. I'm sure you took a ton of cool stuff away from this episode. And if you did, please help the show by making sure you're subscribed to the show, first of all, maybe sharing this show around on social media, telling people about it, and even leaving a review for us on iTunes. That helps massively if you just go and leave a rating and review on iTunes. It helps the show grow and get more of this evidence-based information out

to more people. So thank you for those of you who continue to support the show. It means a lot and hopefully more of you continue to do that.

Remember, the transcript of the show will be available in time and you'll get that if you sign up for the transcripts on the website, so just go to SigmaNutrition.com/episode152. There's going to be the show notes. You'll also see a link to get the transcripts, and as soon as the transcript for this episode is available you'll get that sent directly to you as a PDF into your inbox and we'll send you each time a transcript is ready for the show if you enjoy that.

That's pretty much our episode for this week. Thank you so much again for listening in and I'll be back in the next episode sometime next week. We've got some really cool guests lined up over the next few shows. We're going to be talking with a researcher at University of California at Davis, Kimber Stanhope, who has done a lot of research in the effects of sugar consumption on health, so trying to get a real evidence-based perspective as opposed to a lot of the sensational stuff you'll see around sugar consumption, for example, within the mainstream media. So we'll be talking to Dr. Stanhope in an upcoming episode. We'll also have Jeff Rothschild on to discuss some practical implementation of some fasting protocols, and then we're also going to be talking to Dan Garner, who is a nutritionist working with a ton of professional athletes in the US including those from the NHL, NFL as well as some guys in the UFC including Michael Bisping.

So, a ton of really interesting episodes on the way. There'll also be a couple of solo shows in between as well where we'll do a smaller segment with some practical takeaway information, so that will all be useful. So like I said, make sure you hit Subscribe and I will talk to you in the next episode.

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