

Ketodontist Podcast Episode 01 Guest Marty Kendall Optimising Nutrition

Intro: Welcome to the Ketodontist Podcast with your host Mr. Matt. And we are here to explore the worlds of low carb and ketogenic diets, primal and paleo lifestyles, and oral and whole body health. We're taking the best information from the leading minds in health and wellness and making those worlds collide. This is the Ketodontist Podcast.

Dr. Matt: Okay. Welcome back, everybody. Thanks for joining me again here on the Ketodontist Podcast. Today I am super excited. I have a great, great guest. I first learned about him ... When was that first round of that Keto Summit, Marty?

Marty: Oh, wow. Yeah, that was nearly a year ago. I think it was a lot of a fun.

Dr. Matt: Yeah, I was going to say it's probably a year ago. That's where I first learned about you. I watched your interview on there and I just like, "Oh, man, I got to follow up with what this guy's doing."

Marty: Oh, wow. Thank you.

Dr. Matt: And so since then I dived into your blog and we're in a lot of the same Facebook groups and stuff like that. And I joined your Facebook group and stuff. So I just been loving what you're doing. But we'll go into that here in a little bit.

Marty: Thank you.

Dr. Matt: So everybody, my guest today is Marty Kendall. Marty is an engineer whose interest in nutrition was spawned out of necessity trying to better manage his wife's type one diabetes, as well as his own family history of type two diabetes and obesity.

In early 2015 he started blogging at optimizingnutrition.com, one of my favorite blogs by the way. He tries to provide clarity around many of the confusing and conflicting issues in nutrition, often using a quantitative approach. I think that's the engineer in him.

While his blog post can sometimes go deep on a topic, he has also worked to develop a short list of optimal foods to suit different goals by balancing the sometimes competing parameters of nutrient density, insulin load, and energy density.

His most recent project is the nutrient optimizer, which consolidates his thinking into an automated system that reviews a person's current diet to provide a short list of recommended foods, to provide the nutrients they're not getting enough of, while supporting their goals whether they be diabetes control, weight loss, bodybuilding or athletic performance. Marty, thanks so much for joining me today?

Marty: Well, thank you. It's good of a mouthful, but yeah, thanks for having me.

Dr. Matt: Yeah. I think the intro is a little bit too modest, man. I think we need to kick it up a little bit. So anyway ...

Marty: People have to have to judge themselves after the podcast.

Dr. Matt: So Marty, tell us a little bit more ... we hit a little bit on your introduction there. But tell us a little bit more about your story and your wife, what got you into this crazy world of nutrition science?

Marty: It's been a bit of a whirlwind rabbit hole that I fell into, and maybe five years ago so I started ... my dad started dabbling with nutrition and working out and kicking me in the butt and saying, "You'd have to do something about being a bit fat."

And I didn't listen for a while, and then finally came across he mentioned Rob Wolf and I started listening to his podcast, which could be better. I think was listening to number seven hopefully and way back when. And then I came across Jimmy Moore and listened to like thousands of his podcasts. And so it's just ... I was just another person bumbling around, trying to learn about nutrition and get my head around it.

Then I came across ... went to a low carb down seminar in Brisbane and met some amazing people, and they mentioned this type of one-group group. And got involved in that. It's all about Dr. Bernstein's method of managing diabetes for type one diabetics.

And I think at the time it was a very small group, and they were talking about getting death threats from people for not allowing kids to eat enough carbs. And so we've got on that.

And I suppose it has been a bit of a mental challenge to accept a diabetic shouldn't be eating carbohydrates. But once you got on and saw these kids having flat lined blood sugars on their CGMs, it was like, "Okay, maybe we can do this."

And I suppose my wife jumped in a little bit more on the deep end and got massive improvements and quality of life in insulin, and then I came across Jason Fung, and he had a bunch of really amazing videos, and that mentioned the food insulin index.

And I was digging on that, I thought, "Well, if insulin is not just about carbohydrates, it's about protein and fiber, perhaps as well." If I can better understand this insulin index thing maybe I can better manage my wife's diabetes and my own health challenges and struggles. And everybody as they get to 40 that they get a bit tubby and have to go and juice, have to do something a bit more.

Dr. Matt: Right.

Marty: So I came across a bunch of research out of University of Sydney, a thesis where they'd recently published big motor load of data. In Christmas holidays I downloaded that into a spreadsheet and started playing around with it. And as you would have seen on the blog I realized that insulin doesn't ... isn't proportional to carbohydrate alone. And high-protein foods will require insulin to metabolize. And high-fiber foods will require less insulin to metabolize.

So I played around with the download, basically a formula of that so I can better predict how much insulin would be required for a type one diabetic or just a normal person with a functioning pancreas, but they're not conscious of control it.

But then you can use that to control your ... to prioritize on the order your diet and to find foods that minimize your insulin requirements. For all the sudden you go, "Well, the foods that require the least insulin are the ones that are really ketogenic." But then at the same time they're processed

essential oils, and butter, and olives and peanut butter that's so fantastically yummy and really good.

But at the same time from a Rob Wolf paleo headspace it's whether these things contain the vitamins and minerals at the same time. I'd really love that lung stuff, and I went, "Okay. How can I smash these two things together?" And from an engineering headspace doing multi-criteria analysis you can then join those two elements together quantitatively to take insulin load and nutrient density, and then tailor different food lists for different people.

So yeah, that's how I got to where I am. And I've just continued to share those ideas and people come up with more questions and you see more confusion. I thought, "Well, how can I use numbers to better quantify that and explain things to myself and to other people?" So yeah, that's the blog and too much or all my spare time taken up.

Dr. Matt: Yeah, well it goes back to that saying, "What gets measured, gets changed." Right? Well, very cool. Because you're an engineer and not a doctor it seems like that gives you kind of a unique perspective on nutrient science. And I've seen a couple of other folks like you, Iver Cummings, for example, he's also an engineer who just started doing a deep dive on this nutrition science stuff. Tell me what is it about that possible engineering background that gives you this unique perspective, the one that kind of tackled this space?

Marty: I don't think there's anything magic, but I suppose Iver as well just went, "There's a problem here I need to solve for myself and I need to ... The current medical system is not giving me the answers I need for whatever reason. So I'm going to go into the detail and wade through all the detail to find something that works."

And I suppose the medical system thinks in terms of correlations and epidemiological data, where they look at, "What does this population do and maybe if you follow that whole population of 10,000 people and get a significant statistical relationship, we can say it's statistically significant and tick it off somehow." But engineers are supposed to go for a mechanistic approach and say, "Well, why does it work? If we move this, maybe this moves."

And for me being able to download the USDA food database of 8,000 foods and 50 different micronutrients in it, I was just like, "Well, this is a big playground. I can solve nutrition with a spreadsheet in a multi-criteria analysis type approach." And yet I just see so much confusion out there, and it's like, "Well, maybe this can help, maybe this can make a difference and contribute to the world out there." So it's been fun.

Dr. Matt: Oh, yeah, I think you're absolutely doing that. So and that's why I just wanted to have you on so bad is because I think this is a message that just has to get out there. I mean, nobody's talking about this stuff.

Marty: Thanks, Matt.

Dr. Matt: So going back to your wife, Monica, so she's been type one diabetic. Tell me a little bit about her history with type one diabetes, her struggles before moving into this analytic lower carb approach.

Marty: Yeah. I supposed there's just not a lot of clarity in advice for diabetics. They're advised that take a lot of carbohydrates, and when she was first diagnosed they were jamming so much carbohydrates.

She tell stories of that she was hiding the toast in the pot plants, because they were just giving her so much yogurt and toast and whatever and cereal to eat, because they were wanting to get carbohydrates into her, and then she's going ... she has the dose, and she's never seemed to get clarity advice, an advice that she could apply and make work.

And just as you get older it gets harder and harder. And then I suppose we got married and we found a doctor that had some really good knowledge about diabetes and type one diabetes and gave us good education of how to dose with insulin versus carbohydrate and improve things a lot there.

So just live in with it day to day we both learnt a lot and how to quantify it. And when you want to have children it's really important to learn, because you get all these scary things about kids that don't turn out too well with type one diabetes. It's really out of control. Blood sugar. So it's a unique motivation to learn a little bit. And we got two beautiful children, so that must have worked out okay.

But then I supposed ... Yeah, it's just that rollercoaster of insulin, carbohydrate, insulin, carbohydrate. And Bernstein says it's the lower small numbers that you can't ... If you've got a large amount of carbohydrate and a large amount of insulin you never quite match those things up, so you're always on this rollercoaster, up and down, and up and down. And your mood correlates with that and your energy levels, because basically your dose from so much insulin you can't access your own energy, so you're lethargic.

And yeah, so when she was able to produce insulin dose she became more insulin sensitive and energy levels improved and moods improved and she's gone from being able ... dropping the kids off at school and coming in for a nap and doing a bit of housework and going back and pick up the kids and coming home and having a nap to being able to work three days a week all day as a teacher. And the quality of life is much improved.

Diabetes is always going to suck but you can manage it better and it's been a good journey, and definitely worth the investment of time.

Dr. Matt: Yeah, you can make it to where it doesn't necessarily run your life. It's something that you have to work around by all means. But it doesn't control, take control anymore. So very cool.

Marty: Yeah, and you see kids at the type one group who are just completely thriving and maxing it out and doing so much better than everyday kids are eating garbage, and that's thriving because they're paying attention to the nutrition even if they have to drive a manual pancreas.

Dr. Matt: Yeah, so very cool. Starting off you had mentioned Rob Wolf, you mentioned learning from Jimmy Moore's podcast, learning from type one group.

Marty: He's had a lot of great guests.

Dr. Matt: When really diving into the science of all this, were there any particular resources or studies or doctors' works that really kind of guided you down the things? Or is it just kind of a little bit of everything from everywhere? Tell me a little bit about that?

Marty: Yeah, I supposed a little bit of everything from everywhere over all. Maybe Paul Jimenez has also got some really good thoughts on nutrient density and nutrient handling that's been an influence. There's Joel Fuhrman who also look at nutrient density and also Matt Lander has done some really interesting work in nutrient density.

So I'd tried to pick up what they've done before and read all I could, and then scan that a little bit. I wish they continued that a little bit further so I that I work out what they did and crack the code and now I can just play with it myself.

Dr. Matt: Yeah, you're really good, stretch your legs on this stuff.

Marty: Yeah, I thought that this is something that needs ... that hasn't been taken to its full potential and needs to get out there, because what is nutrition but nutrients. And if you can quantify that then you can prove that something's nutritious rather than just being a simple belief system that ends up coming down to a really just sector rather than the science.

But I started an optimizing nutrition Facebook group that you're part. And I supposed over the last two years it's been every day getting out to all my amazing new friends from all over the world, sharing all these amazing studies that just blown my mind, and stretch my brain, and educate me, and challenged me.

And just because I started ... happened to start the group, it doesn't mean that they give me any respect for any stupid ideas that I have. So that really keep on my toes and I've got some amazingly intelligent friends that just blew my mind and really inspire me to continue to learn to keep up and be a part of that community.

So it's just the hive mind of the internet that enables you to connect with people who are geniuses all over the world. And it's a great learning environment.

Dr. Matt: The internet is really ...

Marty: And you don't have to ... Yeah.

Dr. Matt: I was going to say the internet has really kind of struck the world a little bit.

Marty: I was just going to say you don't have to ... Yes, yeah. It's amazing. Yeah, you don't have to be a medical professional to be a part of the discussion.

Dr. Matt: Right. So tell me a little bit ... there's a lot of ... we talked about misinformation and dealing with this whole everybody's ... some people are like very much it's all about the macros, some people are like screw the macros, it's all about the micros. Well for our listeners who are new to this let's talk a little bit about macronutrients versus micronutrients.

Macro is being your big level, your proteins, fats, carbs, that type of stuff. Micronutrients being more of your vitamins, minerals, electrolytes, that type stuff. Let's talk a little bit, what's your take on that? This whole macros versus micro approach, what seems to be the larger driving factor for health overall? Or is it the blend of the two, kind of how I see it?

Marty: Yeah, I agree. I think it's just one fact that you can't say, "I need to avoid saturated fat or avoid fat or avoid carbs or get high low or low fat." Because if you go to any extreme individual parameter it just doesn't quite work.

So the good thing about low carb is it eradicate most processed grains and sugars, which are also happens to be very low nutrient density, they're very nutrient poor. So effectively at that point when you're just getting sugar and processed grains I think you're going to get your body's ... your appetite's going to get ... Well, you're not getting much potassium, magnesium, calcium, whatever, like protein, so I'm going to keep on eating until I get enough of those micronutrients down the pie hole to feel good.

So I think that's part of, yeah, basically the problem is that we're not ... our processed foods that is colored and flavored to taste like nutritious primal food is just not anymore nutritious. So just because you pick it up and it looks and tastes amazing, doesn't mean it's actually nutritious for us. So that tricks us into basically just suffer failure because that food is ... it doesn't actually have nutrition. It's flavored and colored to taste like it is the most nutritious thing out there.

So once we get rid of those foods then, like basically said, "You've done the primal training." Once you've taken those process foods out your palate is better able to find micronutrients that you need. Yeah, but at the same time you can approach it from a micronutrient approach that if you get enough of the hard-to-find micronutrients, the macronutrients look after themselves. But at the same time if you're type one diabetic or need therapeutic ketosis, then perhaps you need to tweak the macronutrients a little bit more to decrease your carbs. And if you're really trying to manage some situations you need therapeutic ketosis for maybe protein is a legitimate consideration there.

So yeah, they're both interrelated and I've tried to engineer a system that takes all those into account and says who are you? What are your goals? What's your current situation? And then track you from sick to retrain you to be well and then not need any tools. And you can just go roam wild and free and go, "Yeah, that tastes good because it is good."

Dr. Matt: Right.

Marty: And you can trust your appetite again.

Dr. Matt: And that's what I love about what you're doing because it's getting us to this whole individualize nutritional approach which I think is so important. Rob Wolf talked about that in his newest book *Wanted to Eat*, and he's talked about doing a 30-day reset and then doing a 7-day carb test to find where you're at on the spectrum, what can you handle, what can't you handle, and all of this stuff.

Marty: It's really important.

Dr. Matt: And I think what folks like you, Rob, and other folks who are taking this individualized approach, I think this is where the future of medicine, where this future of nutrition really needs to go. Because we try to fit everybody into this box, it's one size fits all system. It doesn't work like that.

Marty: Yeah, definitely.

Dr. Matt: Well, as you might have guessed I'm a big fan of ketogenic diets. I don't know if anything in ketodontist tips you off to that. However, I don't like to think myself as dogmatic or that it's the be-all solution for everybody. It's just like a lot of my coaching clients, a lot of them ... because keto is kind of a buzzword right now people and it's kind of all the rage.

And so they come to me expecting to be put on a ketogenic diet. And sometimes I do, sometimes I don't, depending what really their goals are. So even though I like it I don't want to push it on everybody.

But it seems like us as humans were so tribal and we fall into these camps. And we subscribe to this and it's like there's nothing outside of my little world. I have to defend my little camp. And it just is kind of segregating the world of science and nutrition. So you have the hard core ketoers who might only eat eggs and bacon and steak, and then you have the low carbers, you have the primal paleo folks who are like absolutely no dairy, absolutely no legumes. You have veganism who just hate life and everything. No, I'm just joking. But like they're very much entrenched into their belief and thought process.

What's your thoughts on this whole segregation? Can't we all just get along?

Marty: Probably it goes back to the primal context, the primal, I was talking about Dunbar's number that you had a group of people that you could get to know, it's about 150 people. And everybody outside that was the enemy. So it's just primality on the internet, in the modern world, and we preached out because we're exposed to these people who are different to us, so they must be wrong and that's different, I couldn't mentally deal with that.

But I've learned a lot from hanging around in vegan groups, or Keto group, or primal groups. And everybody's got their element of truth, their little part of the elephant, the tail or the ear or task or whatever. And they'd go on, "This is what an elephant looks like." But there are different people, different context, and different requirements.

Like I don't really personally care if you get your micronutrients from plants only or animals only, although people are very passionate about one approach or the other, but if you're a type one diabetic, you're going to need to think about the insulin load of your diet while still trying to maximize the nutrients.

If you're a cross fit athlete you're not going to survive on a weight loss diet, but if you're trying to lose weight then there's a different approach as well where you need to maximize the amount nutrients while minimizing ... with the minimum amount of calories. And so yeah, there's different contexts and you can get ... It all comes back to eat real food and feast well, fast well.

Dr. Matt: And I like what you said about really you need to focus on what you're really wanting to achieve. Like right now myself I'm in very much fat reduction mode. I'm still hitting the gym to get my resistance training in, so I get that protein sparing effect. But I understand that I'm not going to get power lifter strong when I'm only eating like a thousand calories a day on this protein modified ... protein sparing modified fast thing. You know what mean?

Like we need to focus, yes, we can focus on building back muscle or gaining strength or whatever. But we need to focus on first thing and understand that we can't necessarily have it all right off the bat.

Marty: Yeah, definitely. I think the most important thing is to say, "Well, am I diabetic? How do I normalize my blood sugars?" And Rob Wolf put it well that he said, "You need to tailor your diet so you've got the blood sugars of a metabolically healthy person." So I think that's my context and my headspace is.

But yeah, test your blood sugars. If your blood sugars go through the roof after eating what you normally eat, then hey time to refine that with reducing the insulin load to the point that you can get reasonably stable blood sugars.

But once you've got that you're probably going to lose some weight and feel a little better and get really jealous about whatever you just did. But maybe there's another point where like you're saying once you've lost a bit of weight and you feel a bit more energetic and you want to go to the gym. And three weeks ago I just started hanging out with Ted Naiman and Louis (Philip-Sager?) and whatever.

Online I've got these friends who are very intimidating, which I thought maybe it's time for me to go lift some heavy stuff. And it's amazing.

Dr. Matt: Yeah, I want to be in between them in a group photo that's for sure. Holy cow.

Marty: Yes, so all of a sudden your appetite changes when you're lifting weights and it's a whole different ... so yeah, you have to say, "Well, how do I respond to my appetite once I'm at that point?" And so it's different strokes for different folks. But you can quantify those things and that's my aim is to try and quantify different approaches for different people.

Dr. Matt: Yeah, depending on their goals and what they're passionate about. And I think that's really cool. I really do. A few minutes ago you had mentioned eat real food, balance this feast versus fast thing. If keto is a buzzword then fasting now is probably even more a buzzword.

Everybody's talking about fasting like it's some panacea that just manna came from heaven and God instilled fasting on all of us. It's like this has been around for awhile. But I think a lot of confusion right now with fasting is that there's so many proponents of different ways of fasting, you have the alternate day fasting, you have the 24-hour fast like in Brad Pilon's eat, stop, eat where you pick one or two days out of the week that you just don't eat anything. So if I was fast on Wednesday I eat dinner Tuesday at like 7:00, and then I want to get it again till Wednesday. Yeah, folks like that.

You have folks who promote the daily shortened eating window like Ori Hofmekler, and I probably just butchered that name. But Ori's book, the Warrior Diet, where he recommends, I think it's like a four hour eating window. You just pick four hours later in the day that you consume all your day's worth of calories. And you do that pretty much daily.

And then you have folks like, I think one mutual heroes, Dr. Jason Fung. He advocates the smart use of even longer fast when called for, maybe not for everybody. Probably not for severe renal failure patients and stuff like that.

But what are your thoughts on this whole fasting gig? Do you any particular style or schedule that seems to have the most all-encompassing benefits? What's your thoughts on this whole fasting things?

Marty: Yeah, there's a whole bunch of thoughts. And I've gone down the rabbit hole a bit on this one too. And I've got a couple of blog posts on it. But I suppose a couple of thoughts up front is a guy Raymond Edwards from the Optimal Ketogenic Living Group always just says, "Feast well, fast well."

And it basically all comes down to that that you need to feast and then after you fast you need to make sure you feast at well as well. So and that ties into my nutrition that when you do feast you need to see that is replenishing the nutrients you didn't get over the last hour or two or 24 or 48 or five days or seven days or whatever.

So I think the best research probably says that it's best to eat when you wake up and have a bit of a compressed eating window. They call it early time restricted feeding that you eat when you wake up and don't eat too late in the day. But then practically ...

Dr. Matt: So I suppose you're kind of waking up with the kind of the Circadian Rhythm type of thing.

Marty: Yeah, yes. So get out in the morning and see some sun and eat, don't eat at 11:00. But at the same time for me, myself, I've got a family and our family meal is at night. And so it's hard to do that for everybody. But I don't think you need to get so stressed that your cortisol and your insulin are spiking just going, "What's my optimal feasting, fasting cycle?"

A couple of things that I've dabbled. I came across a really interesting study that basically showed that people could calibrate their appetite with their blood sugars. So if you're diabetic then high blood sugar is basically a sign you've got excess energy floating around in your bloodstream that needs to decrease and get out.

And if you're well fueled then maybe you don't need to eat for a little while. So I've dabbled for a little while of testing my blood sugar and saying, "Okay, my blood sugar has dropped below my normal average. Maybe it's time to eat. I feel a bit hungry."

And there's other people who have had really good success with tracking their weight and saying, "Okay, I'll get up and get on the scales and is my weight below my target weight? Yes, so it's time to eat today. Or if it's not then maybe I'll skip eating today."

And those sort of quantitative approaches I thinking are useful, because for me I've found ... I've got a bunch of 5-day fast, and a 7-day fast. And at the end of that you're going, "You have really earned that butter and cream and peanut butter, and where's the jar of peanut butter go? And bring me a type of butter as well." And all of a sudden you go, "Why am I not losing weight?"

So I think there's got to be some structure in that as well. It's not a magic pill. But at the same time I think it's good to let your insulin and blood sugars drop down as low as it can, because then that forces like a metabolic flexibility and a metabolic health that you can improve that that we don't often get when we're always eating all the time the way we've been educated to by the food companies basically.

Dr. Matt: Yeah, and the whole idea of the three squares per day being fabricated as kind of a societal norm, but that's not what we have been doing for the vast majority of time we've been on this planet.

Marty: Yeah, definitely.

Dr. Matt: I like what you said. And so folks listening to this whole fasting thing, don't think that you can go do a 24-hour fast and then have your feast be a crappy pizza or some sort of nutrient void Chinese buffet, because like Marty's saying when you fast, you have to feast with the quality of foods and the micronutrients that you've been missing over that fasting period.

Marty: Definitely, and to tie that out like if you've been trying to fast to lose weight, then congratulating yourself with a liter of MCT oil is ironic.

Dr. Matt: Well, you'll lose weight but it's all coming out of your bowels if you drink so much MCT oil. The folks starting off with the MCT oil be able to like ... because there's the term disaster pants for a reason. So well one last thing with fasting.

So when if you have a person that you're doing your nutrient optimizer with and everything, and they're incorporating some sorts of regular fasting, how does that change what your recommendations are or what your protocols are? Does it change anything as far as their micronutrients or supplementation? Or do you just recommend still eat the same foods, just eat more of them at your feast point? Tell me a little bit about that.

Marty: I think the honest truth is one way or another if you're trying to lose weight you need to create an energy deficit. We don't behave as bomb calorimeter and calories are not that thick ...

Dr. Matt: Our bodies aren't Styrofoam cups in the high school science lab.

Marty: Yeah, and we're very complex bits of kit and there's plenty of ... people say there's a metabolic advantage to Keto, but people more recently are saying, "Well, actually fat burns more efficiently and there's less losses." So from a straight calorie point of view potentially you may even need to ... if you're tracking everything from your My Fitness Pal, then maybe you need to eat less calories. But you feel more satiated and your appetite will be better and rah, rah, rah.

So it's complex. But I think what you need to do is make sure that you're not overeating. And some people fat satiety works, but sometimes it doesn't, and you need to bring in other parameters to make sure you're not overdoing it.

So does anything change? Not really, because in the end you're trying to get the nutrients you need over say a week, whether you get that through three small meals a day or one big meal a week or whatever. You're still trying to get ... you're trying to get the nutrients you need to thrive and survive.

And as you've experienced with protein sparing modified fast, if you're like ... if you want to lose body fat, then maybe you can drop your fat. And if you say there's no such thing as an essential carbohydrate, maybe you can drop your carbohydrate while still trying to get the micronutrients you need.

But do you need to have some protein to maintain your lean muscle in the long terms? And you've mentioned the protein sparing modified fast which is an interesting variant of fasting and, yeah, which has got some traction lately and started some discussions and it's just another facet.

Dr. Matt: Another rabbit hole to go down.

Marty: Another rabbit hole. But it all comes back to getting the nutrients you need without too much energy.

Dr. Matt: And I totally agree. One thing that had really shifted in my thought process, in my headspace the last few years was I was ... I used to be a very much it's all about hormones, calories don't matter type of thing. And as Luis from Keto Gains mentioned, and sometimes when he talks, going keto, going high fat, unlimited fat, add butter MCT to your coffee every day, all that stuff.

That's all great and you get some benefits and it will work until it doesn't. And that's what happened with me. I mentioned this in my first, very first episode, episode 0.0, so listeners if you want to hear my back story on this, go back to that episode where I also mentioned Marty's work quite a bit and I linked to his protein sparing modified fast blog post. So go check that out and I'll probably link it here again as well.

But one thing that's really changed in my views over the last year or so, when I really learned about you, I learned about Luis, a Ted Naiman. And it just really opened my eyes that if you're already ... if your body's already high fat, you might not need to ingest tons of fat. And once I finally wrap my head around that, that was kind of a wake-up call for me.

And I lost a good 30, 35 pounds just doing keto, just not tracking anything, just having plenty of tasty fat, doing my buttered coffees, all that stuff. And then I plateaued right around 320 to 315.

Marty: Wow.

Dr. Matt: And I just could not move the dial any more after that. And the lowest I would ever get was 312 and I could not get through that wall. And so then I started learning about this protein sparing modified fast thing, so I just adopted that a bit about week, almost a week and a half ago. So probably nine days. And I'm already down eight pounds, well past down the 312 mark that I could never do.

Marty: Awesome.

Dr. Matt: So a step, a jumpstart that I needed.

Marty: Congratulations.

Dr. Matt: Thanks. Dealing with that protein ... getting kind of segue-waying from PSMF to dealing with protein, that seems to be another debate in this whole keto, paleo, low carb world that people are really getting pretty riled up about, which I don't quite understand.

But what are your thoughts on the science of protein and the levels that people should be eating? Protein seems to be shunned by some folks in keto worrying about ... Well, let's talk about that first, the keto folks worrying about the insulin effects of protein and gluconeogenesis, and all those potentials with ingesting protein. What are your thoughts on that? Give my listeners a little bit of the download there.

Marty: Yeah, makes me wonder how Grok survived without My Fitness Pal to track his mammoth in-take.

Dr. Matt: And his Fitbit to count his steps all the way, and yeah.

Marty: So just stepping back to the process you described. I think a lot of people get ... Keto is booming at the moment, because I think a lot of people at the other extreme say everybody's locked into sugar, high fructose corn syrup, fake manufactured foods that are highly insulinogenic. So all the sudden we give them permission to down the butter and the bacon and your eggs.

And your sky high insulin level start to plummet and all of a sudden though all those fat stores are unlocked and they flow out and you feel not so hungry and you're losing weight and it's like ... like your experience, "This is fantastic." But then there's a point where you start to plateau because the fact is it only works so far. And then you think at that point, you have to go, "Well, I've plateaued. Where do I go from here? How do I start to increase my nutrient density and maybe stop unlimited fat, but start to say, 'Well, how do I manipulate this to all our fat to come from my body?'"

And if you're insulin resistance, if you're dosing with insulin, if you're a type one diabetic or type two diabetic, you're dosing with insulin, it's useful to understand how insulin affects your body and how much insulin you need and how the food you eat will affect that.

And I think some of my work from a couple of years ago when I first discovered all this with the insulin index and graphing that. People went on, "Well, we need to avoid carbohydrates and we need to avoid protein, because that's insulinogenic." But it's taken me a couple of years to wrap my head around this whole is protein a bad thing?

And I suppose that the short story is that ... The body makes sure it gets enough protein. It will seek out protein. Your appetite will keep on ramping up to prevent your loss of lean muscle mass. And if you try to avoid protein, then there's a risk that your body will have to chew through a whole lot more calories to get the protein it needs as well as all the micronutrients.

So I think from our diabetes perspective it's important to understand what protein does and how the liver works and what gluconeogenesis really is. And I supposed just go through that like you said. So gluconeogenesis is production of new glucose from things that aren't glucose, so types of protein and to some extent your fatty acids in terms of the glucose in times of die, despair, when it really needs it.

But at the same time the thing to keep in mind is that the body doesn't really enjoy doing that. It's hard to do. It takes a lot of excess energy to do that. It doesn't actually yield a lot of energy when it does that. That 30% of the calories the energy is lost in doing that.

Dr. Matt: I see. So it's not a very good yield as far as the energy it gets for the energy it consumes to get that.

Marty: Definitely. It's an expensive process. And if you keep on ... I talk about rabbit starvation, if you keep on eating lean meat, you get to a point where the body says, "Look, I've got enough protein. I've replenished my muscles. I've replenished my new neurotransmitters. My blood is full of that little bit of protein amino acids that it can take. If you're going to keep eating, give me the chocolate bar or the butter or something else other than protein because I can't keep using this stuff. Just stop it."

And all of a sudden you'll get quite satiated if you try to eat that lean protein. But that's a good thing from a protein sparring modified fast, funnily, because then you can go, "Well, I've got the protein. I need my appetite is suppressed by the protein. And then I can start using my body fat."

But if you look at the ... it's going to appear inside the liver, what happens when we eat carbohydrates is that insulin is like a break on the glycogen stored in our liver being released into our bloodstream. So when we eat that chocolate bar or the donuts or the coke, the body says, "Okay, we've got enough glucose coming in from external, so we're going to shut that supply coming off from the liver." So that's what insulin does, it basically shuts that flow from the liver off.

When we eat protein we need insulin to metabolize that protein, but at the same time the glycogen pulls out some glucose from the liver to balance that, to keep our blood sugars balanced. But then in a type two diabetic or someone, a type one diabetics who is dosing with insulin, they may not be able to match their insulin dose with the protein ingested quite perfectly. So then they actually end up seeing their blood sugars rise because the glucose from the liver is being leached out into the bloodstream, because that balance isn't quite right.

So once you understand that you say, "Well, what's the problem here? It is my state turning into chocolate cake in my blood."

Dr. Matt: Right.

Marty: "Or do I not actually have enough insulin at this point? Do I need more insulin or to eat less protein?" And if you're saying, "Well, once I've started to lose weight and now I need to start to build muscle to use that excess glucose and become metabolic healthy." I think you need enough protein to make sure you're building your muscles, to use the glucose rather than trying to shy away from excess protein."

And in a way the body will make sure it gets enough and not too little. And the body's got a pretty good way of regulating its own appetite to make sure you get enough as long as you're not trying too hard to go to one extreme or the other.

Dr. Matt: Yeah, I think getting in tune with your own body and how its feeling and its own triggers I think is very important in this whole thing, because, well, definitely when I coach folks going through a little carb or going keto right off the bat, yes, those first few days can certainly suck. And it does help if we get the electrolyte balance in check and everything like that.

Marty: Definitely.

Dr. Matt: So there is going to be an adaptation period. However, there comes a point where your body should start feeling good if this is the right thing that you should be doing. So I think it's really important for us to not necessarily develop the Biggest Loser type mentality where they're just struggling for weeks on end, and they're getting skinny but they're crying. And it's like this really should be a somewhat enjoyable process.

Marty: Yeah, because if you restrict that severely unnaturally all of a sudden as soon as the cameras are off at the end of the show you're going to be into the five pizzas, and just going to feel good again.

Dr. Matt: Exactly. Last thing on protein, really there's something that I've been kind of noodling on. I'm just starting to dip my toe into this thing with the excess protein research. Is the research into mTOR activation, its pathway, and all that good stuff, have you done much digging on that? Because like I'm really in my infancy on that. But it seems pretty interesting.

Marty: Yeah, it's another situation where you just need to find that optimum balance point. And I suppose if you're a worm in a Petri dish, if you restrict calories and even more so if you restrict protein, your cell turnover will slow down and you won't grow as quickly and you'll live longer because your cells can effectively only turnover so many times before they burn out and die.

So if you're a worm in a Petri dish in a lab you may survive longer. But is that where I'm going to be happy? Is it going to feel good? Is it going to be warm? Is it going to be freezing cold? Is it going to look attractive to the opposite sex worms in the Petri dish?

And so I think there's a balance point. mTOR is an issue we don't want to push proteins so hard that we grow to unnatural levels, because that's an issue. But at the same time if you're looking at longevity in the world, in the real life, in a nursing home most people get to 70 or 75, and a lot of people their bones will be so brittle and the muscle will be so fatigued that they'll fall over and break the hip and never get up again and go to the nursing home or die.

It's quite tragic at that point if you don't have enough muscle mass. So to avoid protein to the point that you invoke sarcopenia, that you get muscle wasting is a real risk. So I mean, and muscle is critical to insulin sensitivity. It's central to being able to use fuel well and being metabolically healthy.

So to actively avoid protein, you may not get an optimal long-term outcomes. So it's sort of the balance point. And in that the subtext is it's good to be active, it's good to be outside seeing the sun, it's good to be happy and good to be enjoying your food to be under thrive.

So there's that balance point and I don't need to be hammering excess protein powders if you're not lifting for three hours a day. But yeah ...

But if you're actually battling cancer for therapeutic ketosis, then you don't want to be feeding you cancer cells with excess insulin and excess protein, because that will stimulate the growth of those. But most people who are avoiding protein potentially don't need a therapeutic ketogenic diet.

Dr. Matt: Yeah, and most folks who are needing a therapeutic ketogenic diet for something like cancer, probably aren't doing six watts per week, and trying to increase it definitely at the same time.

Marty: Definitely.

Dr. Matt: So one thing that I think there is some worrying information on it, I'd like to get your opinion on this, is really the cascade of how we develop insulin. You have the hypothesis that ... Or sorry, developing insulin resistance is what I should say. There's worrying thoughts that carbs are what cause insulin resistance, excess carbs.

A lot of the vegan camp say it's meat, it's overconsumption of meat that causes insulin resistance. I haven't really been able to see the science on that, so I don't quite understand where they're coming from. But I'll listen to them. But from what you studied, what are your thoughts on where this

insulin resistance in non-type one diabetics obviously, where does this insulin resistance start? What's kind of the trigger that you see?

Marty: Yeah, it's a good question, because metabolic syndrome is going to bankrupt Western society and pretty soon the whole world, because our hospitals aren't going to be able to keep up with the the cost with the cost of diabesity, they call it, just because people being diabetic and obese, and just not being productive.

Dr. Matt: Sorry, everyone.

Marty: And being so expensive to maintain.

Dr. Matt: I like sending X, because it sounds kind of cool. I prefer the syndrome X label, because kind of Gen X it kind of have a school flare to it. But yeah, I understand what you're saying. Metabolic syndrome is an epidemic.

Marty: More and more people are in that situation, but it's not really their fault. And like the medical system just says diabetes are progressive and degenerative diseases, and you just need to keep on taking more Metformin and then insulin, and then whatever, and just keep taking these drugs until you eventually die.

Dr. Matt: And then you go blind and we chop your feet off.

Marty: So scary and ...

Dr. Matt: Such [unclear 53:23]

Marty: That's better with type one diabetes and it's scary stuff.

Dr. Matt: It absolutely is.

Marty: Yeah, it's a bit of a wake-up call, like see other people, your family and get a hold, everybody in the generation above me my family has got some degree of diabetes that's quite severe and I'm going, "Wow, I've got to do something about this to make sure I don't become that." Because I have the knowledge to reverse it.

So part of it to get to the question is ... And what Jason Fung focuses on is exposure to excess insulin produces insulin resistance. So if you're a type one diabetic, if you're jammy in insulin for the carbohydrate, you're eating ... you're going to become insensitive to that insulin you're injecting like you would if you're doing alcohol or smoking or any other drug. You basically become more resistant to that and need more and more of that.

So the only way to reverse that is to reverse that situation, to swing to the other end by fasting or a low insulin diet. But there's another ... and I think that's largely true, but there's another camp, people like Iver Cummings and a lot of my smart friends on Facebook are talking about the adipose centric theory of insulin resistance, where basically insulin resistance is where your adipose tissue becomes inflamed and resistant, and basically says, "We're full. We can't keep storing all this stuff you're throwing at us. How about you talk to the brain, and the liver, and the pancreas, and the kidneys, and the eyeballs, because they're still insulin sensitive? We just take anymore."

And that happens at different levels for different people. They call it TOIFO - thin on the inside, fat on the outside. Anyway, you know what I mean.

Dr. Matt: We get it.

Marty: Yeah, so for people who may look skinny, they actually may have a worse situation because the bodies that can't keep continuing to take that excess energy before it starts to jam it into the vital organs. So if you're diabetic and skinny you're probably in a much worse situation metabolically and probably may even die earlier than somebody who's able to get big before they start jamming into the brain and get out of the zone.

And so I think that's one of the more interesting theories, and then there's probably more beyond that, talking about the nutrition and your mitochondrial health, which comes back to your ability of you mitochondria to burn energy and the NAD which is a fascinating rabbit hole.

NAD decreases as we age and increases when we fast and eat nice and a bunch of other nutrients. So and that up regulates the activity and the ability to heal a mitochondria. So I think it all plays into ... it's multi-facet and we can take different aspects of it. But eating well, exercising, seeing the sun, having good relationships it all comes back to the primal paleo context.

Dr. Matt: Yeah, adequate grass, adequate sleep, reduction of primal stress, all that stuff.

Marty: On the phone all night and not seeing the sun. Yeah, so it can be complex, but the solution is quite simple.

Dr. Matt: Yeah, now I agree and I think we make it so much more complex than what it really needs to be and there's so much information out there, and so much ... I'm such a big believer in self-experimentation, that so much ... so many people, they read so much information and they just keep doing a deep dive, doing a deep dive and then they find conflicting information and then they're confused.

And they kind of get this paralysis by analysis thing, where it's just like try something out, try something out. That's why I love the 30-day templates. Try something for 30 days, unless if you're smoking, doing a 5-pack a day cigarette challenge for 30 days, that will probably kill you.

But trying a paleo reset or a ketogenic reset or something like that or just focus on whole foods for 30 days, probably isn't going to tear you up too bad. You know what I mean?

Marty: It's worth a shot.

Dr. Matt: Exactly. So while we're coming out an hour and I want to be respectful of your time, I don't want to hug you all to myself here. Tell us a little bit more about your blog - Optimizing Nutrition. What led you to start that? You started in 2015, what got you to start that and also how has it evolved over the last couple of years?

Marty: Yeah, it just started after a sort of had that moment of realization where I thought, "This insulin index and insulin loads stuff is really important. It could be really helpful for people who are managing diabetes." And I've got that out there. I wrote a manifesto and just basically shared it as continual blog posts.

But then going on, just seeing more and more issues that arise like you say on the various camps of different Facebook groups and one group warring against the other group, and you go, "Well, how can my quantitative approach answer those questions?" Like you say, "What's the simple outcome?"

I mean, sometimes the process is complex and the journey is complex, but the outcome, the final answer is quite simple. And I'm trying to get to a simple recommendation of what should I eat for that person at that time and fasting or whatever.

So I supposed I learned through researching and writing and this is sort of my journal and then I polish it a bit more and make it into blog posts, and if I spend a bit of time doing it I'd like to share it and get it out there. Yeah, so that's all it is, and me sharing that.

And then I've developed recently after developing these food lists that are individualized to different people, I realized that in everybody you can't just put them into simple buckets of - this is a person who needs therapeutic ketosis, this is a cross fitter. Everybody's eating different food and has different blood sugars, so I've developed the nutrient optimizer, which is a little toy that I've been playing around with.

Basically it looks at ... it's like My Fitness Pal that tracks your food intake, but then Chronometer tracks your micronutrients as well. And that's got a snazzy little outputs function that I can drop into a spreadsheet, work out which nutrients you're getting enough of, and which nutrients you're not getting enough of. And then identify foods that will then complement that. So I don't care really if you eat fish and veggies or meat only or whatever both.

Dr. Matt: I love the folks on your page that want to do a bacon only diet or some crazy stuff like that.

Marty: And I can tell you all of the nutrients you're not getting if you only eat bacon. And there's a lot of ... and you might end up in a hospital with kidney failure. But you can and your lose weight for a while.

But yeah, we can refine that. We can identify the foods that will complement your current situation, and then as you blood sugars improve you basically level up to the next situation and you've refined your diet a bit more and you filled those nutrient gaps.

In a couple of weeks later we can update that list and say, "Well, this is what you need to put on your fridge. This is what you need to take shopping with you and say, 'Where do I find these foods? And how do I put them in my frying pan and get more into my mouth.'" And hopefully it's that's simple.

So yeah, that's a little project that is going well so far. And eventually I'd like to develop it into some sort of automated system, bit of an app or web interface, so some membership abilities so I can built it, make it more viable for more people to use.

Dr. Matt: Absolutely. And that nutrient optimizer thing, I just think that's so cool when you're putting out all these ... sharing all these folks that have signed up with it on your Facebook page and stuff. And I want to be one of those eventually.

Marty: It's going to be great, man.

Dr. Matt: I did sign up with Chronometer. I just haven't taken the time to put all the inputs in. But we'll get cracking on that and we'll share it on your stuff and share it on mine, so folks can track along. And I really think that if I could take one thing away from that nutrient optimizer I think it's just really cool about seeing where you're fishing at and then you have, bam, a one page spreadsheet showing the best foods you could possibly do.

Kind of like that we talked about on that one post. Somebody, I think it was an egg only diet. And these are ... and you show the nutrients that were missing on that and it turns out spinach would be a great adjunct to fill in the gaps that eggs are missing.

I took that and I'm like, "Boom, spinach omelets. I'm good." And that's my breakfast now.

Marty: Definitely. I have ... I eat a lot of frozen spinach, because every lists - spinach is the answer.

Dr. Matt: It is. It's top of every list that I see. I'm like, "Oh, that's a surprise. Spinach."

Marty: I don't like watercress, and I don't do a lot of liver, but spinach, yes, definitely spinach. And personally I eat a lot of canned mackerel and I used to eat sardines, but I've grown to like the mackerel more. And you can get liver tablets as desiccated.

Dr. Matt: I've seen that. I haven't tried them. Where do you get yours from?

Marty: Most of our groceries come from iHerb, so from the States. So yeah, I get it through iHerb and yeah.

Dr. Matt: Oh, yeah, for the listeners who don't know Marty is not here in the States. I don't know if you could tell that or not. But he's not State side here.

Marty: Yeah, in Brisbane, Australia.

Dr. Matt: So Marty, to finish up. Tell us a little bit, where can my listeners go to check you out? How can they contact you? What's the best way to really keep up on what you're doing? And if they want to learn more, how do they contact you?

Marty: Yeah, I have a very active virtual avatar that has ... it's an Optimizing Nutrition Facebook page. I'm on Twitter as well @optimizingnutrition. There's the Optimizing Nutrition website, which is the blog, which goes into way too much detail and a bunch of obscure rabbit holes in the world of diet nutrition.

Dr. Matt: I love it. I don't care what you say. That blog is awesome.

Marty: Some people have that response, but some people go, "Man, it's just too much information. What do I do?" And that's sort of where the nutrientoptimizer.com is a whole different page that's meant to be fairly simple, that takes you through what the nutrient optimizer is about.

You can apply, there's a little application form that'll tell you ... that asks you a bunch of questions about who are you, what are your goals, what are your blood sugars, what's your weight, what's your body fat, and where do you want to go. And then you can send it to me. I'm charging a nominal fee of \$30 US.

Dr. Matt: Yeah, it's totally cheap folks. Come on.

Marty: Yeah, I had a guy, not too long ago, yesterday saying, "I charge \$300 for a nutritional consult." And I'm like, "Wait a minute. I may be under selling myself." But for the meantime, like what I'm trying to do at the moment is just build up a database of hands-on analysis and tweaking and learning. Because doing Shawn Baker who's a zero carber, he's really prominent. It's been interesting to go through that ...

Dr. Matt: Yeah, I saw your update post where I guess Amy Berger was kind of ... the whole of your feet to the flames on reevaluating some stuff.

Marty: Yeah, that was good. That's good. And I need to have answers when people say, "Well, the recommended daily intakes aren't appropriate for people doing ketos, zero carb and therefore this is junk." And we need to have ... I need to refine that, so I've gone through that process and this is what I do in my spare time and hobbies, and it's trying to understand which nutrients have solid information for the recommended or which are just based on population intake.

So anyway, yes, so you can log for a week or two in Chronometer. Share your login with me and then I can send the report to tell you what you should be eating. And then there's a number of people who have done it, and then come back a month later and done it again, and come back a month later. And it's just amazing to see the diet quality improved.

But you see the photos of them and they're saying, "I'm sleeping better. And I'm looking better. And my appetite is so much better. I'm less hungry. Or I can't eat enough because my arms are satiated with these nutrient dense foods." It's like, "Okay, we can tweak that if you still want to put on weight in your body building. If you pull better."

But most of us are going, "Oh, how can we manipulate a data so we don't need to eat as much?" So I'm looking forward to seeing it help a lot of people.

Dr. Matt: Exactly. Well, I think it's going to be great and I'm excited for you to keep building it and eventually get to this critical mass that you're able to really put it out there in a widespread manner that doesn't necessarily have to involve your time so much and make it more ... remove that barrier of your time and just make it accessible to the masses. I think it's going to be a really cool.

Marty: I can't wait for it to be scalable. It will be great.

Dr. Matt: Yeah. All right, folks. We'll we're a little bit over an hour, so I'm going to wrap up here. Marty, hang on for just a sec. I'll talk to you some more here in just a minute. But Ketodontist listeners I appreciate so much for you being here.

As a new, as a brand new podcast it's so important that I want to ... I really want to give you guys great value. You're lending me 30 minutes to an hour an episode. I want to instill great value for you guys. If you do like the show, please subscribe and leave us a review.

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