VIDEO_ Diet Doctor Podcast with Dr. Spencer Nadolsky (Episode 29)

Dr. Bret Scher: Welcome back to the Diet Doctor podcast with Dr. Bret Scher. Today, I'm joined by doctor Spencer Nadolsky. Dr. Nadolsky is board-certified in family medicine and obesity medicine, but as you'll hear, also has a great deal of experience and interest in lifestyle medicine. He was a division one wrestler; he has spent a lot of time learning about exercise physiology and wanting to take that knowledge and help people improve their life and their heath with lifestyle.

And he got a little flack for this it sounds like in his medical training, which is really interesting, and we'll get into that. But he also has specific interests in weight loss and in lipidology. And he's not the typical low-carb person. In fact, he is frequently thought of as anti-low-carb, but as you'll hear in our discussion today, he really has an open mind and that's one of the reasons why I wanted him on this show.

Because it's good to get different perspectives. He's going to give you a different perspective on lipids than you hear in the low-carb community. He's going to give you a different perspective about calories and insulin and the carbohydrate model than you usually get in the low-carb circles. But he also has an open mind and he realizes there's a place for different treatments and different tools, and that's one of the things I hope you'll appreciate about him.

Not all of you may agree with everything he says, but I hope you'll appreciate his approach. And more importantly, he's interested in learning more and he wants to help foster more studies so we can learn more about LDL and hyper responders and is it a problem or is it not. Because we can talk hypothetically all we want. What we need is that data and Dr. Nadolsky is someone who's trying to be on that frontline to help us get there.

So, I hope you enjoy this exploration of some different ideas, and I hope you enjoy Dr. Nadolsky's open mind and his approach. So, sit back and enjoy this interview, and if you want to learn more, you can go to DietDoctor.com, you can see the full transcripts, and of course access all the different information we have on DietDoctor.com. Dr. Spencer Nadolsky, welcome to the Diet Doctor podcast, thanks so much for joining me.

Dr. Spencer Nadolsky: Thanks for having me, it's good to be local.

Bret: Is it not great that you're a local and you're able to stop by for an interview today? A true pleasure. Now, you have a really interesting background that I want to get into so people can

learn about you and what brought you to this point of your career. So, tell us a little bit about after medical school, what happened to you, where did you go, what did you do, tell us about your training.

Spencer: Yeah, I want to back up before medical school because the exercise science and nutrition science are actually what got me into athletics. My dad was a wrestling coach, football coach, brother was a really good wrestler as well in college. We used science to get good at athletics. And so, the thing was I didn't feel much fulfillment out of helping people get better performance. I really wanted to use that science for the betterment of the general population to reverse or prevent, cure if you want to say, chronic disease.

So, I went to medical school with that thinking. I wasn't sure if I was going to do endocrinology or some sort of preventive medicine or family or internal medicine, but eventually after medical school, I decided on family medicine. So, I went into training at VCU over in Virginia with a real focus on nutrition, exercise, and lifestyle medicine, with a good combination of pharmacology and everything like that to combine it, to really hone in on helping prevent/cure chronic disease.

Bret: Yeah, so actually, you're right. We should start well before medical school and even before college, because you were sort of a champion wrestler and football player and not just your average athlete. I mean, you were sort of state champion or something.

Spencer: Yeah, and the story behind that is my brother was good all throughout high school. I came in and I didn't actually start-- he was like five foot nothing when he was a freshman. He's now like five five. I was like five ten, now I'm like six two, I had to really grow into my body whereas he was a little bit stockier. He was like a four-time state finalist, two-time state champ. I didn't even start in my freshman year.

So, I had to really look into nutrition and exercise science to build muscle, improve my performance to get good. So, then once I became a state champ, really thought this is cool, but then again, wanted to use that information, just to give a fraction of it to the general population because that's how you really prevent and cure chronic disease.

Bret: Yeah, so you came into medical school thinking prevention, thinking I'm going to help people with lifestyle, which is really kind of the opposite of what most people come in with. And I think if a lot of people come in with that, it's probably beat out of them during the course of their training, because you don't get a lot of it and you're inundated with pharmacology, you're inundated with these rare diseases and we don't talk enough about exercise and nutrition.

So, did you find it hard, like it was lacking as you were going through the schooling?

Spencer: Yeah, medical school, you know, everybody jokes about doctors don't learn much about nutrition in medical school. It's actually true. I mean, you know, when you go through medical school, you'll see in the guidelines, yes it's number one, lifestyle is number one, but

anyway, let's learn about the drugs. So, and it wasn't so much medical school, but it was during residency, there was actually a time when one of my advisors said they thought that I was a bit overzealous about nutrition with my patients.

Bret: Really?

Spencer: And my response was... this is an intern. And I said, you know what, I'm not overzealous, you're under zealous.

Bret: Wow, you said that as an intern?

Spencer: Yeah, and you know what, it's kind of funny but I became the intern of the year and by the end of graduating medical school, they said you know what, I'm really sorry, you were right, I was wrong. And actually became a champion for pushing lifestyle as medicine. And I think, you know, it is... it's really important. It's starting to become more common in medical school, you're starting to see all these programs out there. I know we can get into the new ones of what types of nutrition they're pushing. But at least it's becoming more mainstream now.

Bret: Right, so, when we talk about lifestyle... I mean, there's a whole bunch of different pillars of lifestyle, with the main tune though being with nutrition and exercise. So, let's talk about exercise. You're the Doc Who Lifts, right? That's your nickname, the Doc Who Lifts. So, so much of what we hear lately is that you can't outrun a bad diet. Exercise is not the path to weight loss. Nutrition first and it's not about exercising more.

So, exercise has sort of been knocked down in terms of its place and lifestyle in some circles. Now, personally, I have a problem with that because I think it's important and I'm sure you do as well. So, give us your thoughts about that. Is it true you can't outrun a bad diet? What is the place of exercise in health and weight loss in your mind?

Spencer: There's still a very strong place. And the exercise physiologists, when you go to these obesity conferences, I go to the obesity week where everybody has the obesity society and then the surgeons and everybody in between. So, the exercise physiologist kind of pushed back and it's like wait a second, no. Exercise does have its place. The problem is if you don't take into account the nutrition, it's really hard to outrun or out-exercise a bad diet because of the compensatory mechanisms of our appetite and everything like that.

But if you have just a little bit of nutrition going for you, the exercise can very much optimize your body composition and weight loss efforts. Most importantly though, the energy gap after you lose weight using nutrition... really bringing your physical activity back, we're starting to see a lot of the data that show that those who keep the weight off are the ones who are most physically active because of that energy gap difference.

Bret: Interesting, yeah. And when we talk about exercise, there's really... I guess three different kinds that people talk about now. There's the high intensity interval training, the resistance training, and then there's the slow steady distance or sort of the zone two training. Now, do you have a favorite for weight loss? Do you have a favorite for metabolic health? Do you have a favorite for general health, or what's your general approach for those?

Spencer: Well, we have the weight-lifting zealots. I'm a little bit of a meat head myself, so of course I love lifting weights. But I would be wrong to say that's the only way to do it. Ideally - and you're a cardiologist, so you'd appreciate this - I think you know, the synergy between angiotensin receptor blocker or ACE inhibitor and then like a thiazide together, I think of like aerobic training and resistance training is like a good combination medicine.

So, ideally, a combination of all of it. You're not going to be able to recover every day if you're doing high intensity interval training and lifting. So, ideally, you'd have some steady state in there to help with recovery. It could be very good for endothelial function and everything like that and just being able to recover while burning more calories as well, just from a weight loss standpoint.

Bret: Yeah, so, it's a good analogy, the two drugs. So, the two drugs you were talking about they work better together than they do individually. That's a good analogy with the exercise, that they do work better together. Now, some people though, they haven't exercised at all, right. They've been overweight their whole life, they've been fairly sedentary. And just the thought of high intensity interval training, it's like oh my God, how do I even get started, or resistance training, what do I even do? So, how do you help people get over that initial hurdle to sort of help them get started to help them help themselves?

Spencer: I actually went to the gym with my patients and that seemed to have helped them overcome that thought of fear and it's like nobody really cares. You're at the gym, you just got to get in and get out. So, people are scared of weights. They don't know what they're doing, if they have good form, they think people are going to make fun of them. And so, actually going with them helped a lot and that's I actually think having a gym clinic would be ideal, so if you have your preventative cardiology clinic. You could have your cardiac rehab but actually having a gym with that clinic, I think, would be perfect. But it is tough to get over.

Bret: That's fantastic that you're able to go to the gym with your patients. And I remember when I was doing my preventative cardiology fellowship, I would have my office visits, walking the track.

Spencer: Yeah, that's great. I love that.

Bret: It's such a better way to interact with the patients. And sort of help them in the gym, even more important. But you know form, you know weightlifting. Most doctors don't, let's be

honest. Most doctors have no clue where to get started. So, I think the key is working with a professional, finding somebody who can really help you get started.

Spencer: It doesn't have to be the diet. You can get a good strength coach or whatever to work with but just understanding that resistance training, any type of activity is going to help the patient.

Bret: Yeah, and one of the worst things that can happen though is that someone starts and gets injured and says this is not for me, I'm never going to try it again.

Spencer: Yeah, they feel like it's punishment, whatever. You want to get them in and not feeling too bad at the beginning.

Bret: Yeah, and what about people who just like hate exercise? There are some people out there who just hate it, they don't like the way it feels, they've never done it before. How do you help them sort of psychologically to get over that hurdle to start exercising and sort of convince them that this is a big part of their health?

Spencer: Somehow finding any physical activity that they enjoy, whether it's hiking. You know, ideally get everybody to get to working out, doing some planks, bench press, but not everybody is going to do that, you know. I'm not silly to think that everybody can do that. So, any type of physical activity, you know. If it's dancing, whatever, somehow-- getting a bike, going for walks, anything will do.

Bret: Yeah, it's an interesting sort of hierarchy. More physical activity, then sort of the zone two aerobic, cardiovascular exercise, then the resistance training then the high intensity interval training, like taking them step-wise through in a safe manner and sort of educating them about how each one impacts their health.

Spencer: Yeah, yeah, yeah.

Bret: Now, you have mentioned a couple of times with exercise the calorie balance... maintaining the calorie deficit. So again, there are two schools of thought. There's the calorie in calorie out model, there's the carbohydrate insulin model. So, the calorie in, calorie out is about energy balance. All you have to do is expend more calories than you take in, whereas the carbohydrate insulin model says not so fast, it has more to do with the type of calories. Paint it as a black and white picture. What's your take on that?

Spencer: So, actually throughout medical school, worked with big time low-carb doctors now, you know, Dr. Phinney, Dr. Westman.

Bret: Yeah, two of the best.

Spencer: And many more. So, as I came through that lens, I then became a little skeptical because I started having patients who would come in and saying, I basically ate a low fat high carb diet and lost 100 pounds. And I was like, gosh, that doesn't seem to make sense according to, you know, basically what I learned. And the whole insulin carbohydrate hypothesis made sense, because in medical school we learn that insulin is anabolic, because if it's high you're building fat.

But then as I started getting more into the path of physiology and you start becoming insulin resistant and lipolytic because the insulin is not even working, etc, etc. and then having some of these patients that were losing weight on a high carbohydrate, low-fat, vegan type of diet. And it was like, okay, maybe there's more to it getting more into the science. I became good friends with Kevin Hall, you probably know who he is. And a lot of these other scientists.

And so, the way I view it is that the hormonal hypothesis is... those are very important because those can tell you where you store your energy, and also not only that but maybe changes in appetite and inflammation and things like that.

So, it's very important and it goes along with the calories in, calories out energy balance hypothesis, so... I kind of view them as together and you can't separate them, because obviously you can't give somebody 100% fruit juice... yeah, sure if they drink 800 calories of apple juice a day, they're going to lose weight, but how are they going to maintain that? They're going to feel miserable type of thing, so that's where my stance is right now.

Bret: You brought up a lot of topics we need to unpack there, so one is the short term versus the long term? And anybody can lose weight on a calorie deficit high carb diet for the short term, and the questions are what does it do to your metabolism and what does it do for long-term weight loss.

And I don't know that we have great data to support that, you know. When you compare low-carb versus low fat diets for weight loss, the low-carb diets uniformly work better at six months and 12 months and a lot of the studies, the curves kind converge and compliance goes down. And it makes it really hard to know scientifically what the right answer is.

Spencer: Right, I think a lot of it also is with our current environment, my personal bias is that it would be easier to stick with a low carbohydrate diet, because if somebody is saying eat whole grains, you know. I have a box of cookie crisps that I just bought like for dessert purposes, like if I needed a little sugar fix once in a while.

A cookie crisp but it's a children's cereal. It has whole grains, 10 g of whole grains per serving and it's like... I wouldn't give my daughter this cookie crisp cereal for breakfast every single day. It would be easier just to say, hey, go to a low-carb diet then get that completely out of your vision anyway. So, that's why I do think that a low-carb diet in this current environment is easier to stick to, that's what I think.

Bret: Yeah and controlling cravings.

Spencer: Right.

Bret: I would agree with you completely. There are some people who can do well on a low fat, higher carbohydrate diet, and they're not the people with addictive personalities and cravings and they're not... somehow, they're able to control their hunger. That's not everybody. There's a large population out there who need to control their cravings. So, do you find that on the low-carb diet that cravings are better controlled?

Spencer: Yeah, so, this is when I get into Twitter things... when I say high carbohydrate to patients, they're not getting like legumes and like lentils in their like form, you know. In their whole form. They're going out and getting French fries and potatoes and cereals, pastas, breads. And it's just hard to control this. I mean, I don't need to control my caloric intake but like, if I tried to cut back on some of those things, it would be tough to do. So I do find that completely cutting those things out and going to a low-carb. At the most, your carbohydrate may be some more fibrous fruit at the highest, but vegetables, it just completely cuts out their cravings and things like that.

Bret: Yeah, yeah. And then, the next concept is that of insulin resistance and talking about insulin resistance and hyperinsulinemia, they frequently get combined together, but sometimes they're two different things. I think that's really interesting because those people who do eat a higher carbohydrate vegan diet can be having trouble still with hyperinsulinemia.

Whereas with the low-carb diet, you mentioned there is some insulin resistance there. But I think we need to sort of differentiate the insulin resistance with hyperinsulinemia, so the generalized insulin resistance versus the more localized insulin resistance like the muscle level with still lower insulin levels. So, do you differentiate in your patients with those and kind of look for that?

Spencer: Yeah, so anybody that has any signs of hyperinsulinemia and insulin resistance, regardless... I'm trying to help them lose weight in any way possible, so like looking at the path of physiology of having the ectopic fat in your pancreas and all over the place. Any type of weight loss. But, again, I tend to find that, you know, most of the time, they're just getting too many calories from things like croissants, donuts, which are high in carbs and fat.

So, going to a lower carb diet tends to cut those things out anyway. They're usually not replacing those things with like lentils as I said. So, I tend to try to go for weight loss in general. I do use weight loss drugs if needed if I find that they've tried multiple times and that they haven't passed. So, I have my obesity certification everything like that, so I do use things like GLP1 agonists, you know.

If they've tried multiple times, for some reason their appetite and cravings, even on like ketogenic type of diets, but I do use those in general. I try to get them to cut calories, but they tend to be more of those hyperpalatable high carbohydrate foods.

Bret: Yeah, so, let's talk about specifically a ketogenic diet, right. There's low-carb and then there's ketogenic. So, you know, in people who need weight loss and who are struggling with it. And before you got o weight loss drugs, will you sort of try a ketogenic diet, or does it sort of depend on the circumstance?

Spencer: Yeah, I try, and pretty much I get a good diet history on them. Most of the time, they've tried Atkins in the past and maybe it wasn't very well developed or anything, like formulated. Most people have tried Weight Watchers in the past, counting calories. Once they've come to me, a weight loss doctor, they've tried multiple things.

So, yeah, I do tell them like a well-formulated ketogenic diet can be therapeutic in appetite regulations, similarly to these drugs that we use. So, if they're willing to do that, we definitely do that. Sometimes people just aren't willing to do it, and I especially like the Virta studies; if you can monitor them with the ketones, you can see that they're adhering. But a lot of the time patients are like, I'm not going to do that.

Bret: Yeah, it's overcoming that initial hurdle so many people have; I need my carbs and you know, fat is bad and the things we've been taught that aren't necessarily true or aren't true at all and we have to counteract that. And even brought up the point about whole grains, this concept of healthy wholegrains, it's one word, it's healthy wholegrains, it's one word.

Spencer: The cookie crisp cereals, that's wholegrain.

Bret: Right, that's the society we're in and that's why it's so important to be able to break down these barriers that people have or these concepts that people have. But the message can get confusing because on the one hand, keto may not work for everybody.

And lower fat, high carb is not going to work for everybody, but people want the sort of this black and white, just tell me what the diet to follow is that's going to work for me, where it's not always so clear cut. And there's not even necessarily a progression, I guess that's what I'm trying to get at, do you have a progression? Like try keto first, then try low-carb... but isn't a progression but--

Spencer: It's hard. I try to individualize for each person. I know some good fitness companies that do only calorie counting. So, if it fits your macros, basically they Tetris together their food and put it all into the My Fitness Pal or Lose It app. And some of them can short-term, you know, seems like one, two, three years, they can do really well, but it's kind of like an external device, they're using an external device, maybe not hunger cues to then follow their caloric deficit.

And there ends up being a selection and survivorship type of bias because these companies are known for doing well with this particularly method, so when they see people doing well they hear that, "What's their method?", and they go, "Oh, I could probably do that", and then they get more success with that method. And then the same thing you see with the whole foods plant-based people, you know, they're all yelling at each other, this is how I lost 100 pounds, it's like that's how you lost 100 pounds.

Then you get a carnivore person who's lost massive amounts of weight, and obviously I can do this and the vegans, you know, are saying that's not possible, that's not good for you. And it's like that person lost 100, 200 pounds from what it was, and that's pretty good for them, and if they can stick to that, more power to them. That's kind of the way I am now. #It's a good approach to realize the way and there are lots of different ways out there. But also that weight loss is a new metric, that's so important. It's weight loss, it's how do you feel, insulin levels.

Spencer: Quality of life is very important.

Bret: Quality of life and all of your metabolic metrics, and then of course also your lipid metrics.

Bret: Which I know is your personal favorite and you have an interest in lipidology and so do I. So, lipids are a fascinating topic because for so long it's been whatever lowers your LDL is good. That's kind of what we've been taught. Now, you started as a skeptic to the LDL hypothesis and then you switched to become more of a believer of the LDL hypothesis. Yeah, so tell us a little about that progression for you.

Spencer: So, kind of going to medical school with that low-carb lens, there tended to be a lot more of the LDL skeptics in that arena and so, you know, reading he same type of cholesterol type of books, and they brought up a lot of good points. And back then, I believe it was the enhanced trial with Zetia and Simvastatin. One of the things that stuck out in my mind was look, they lowered the LDL further but the CIMT wasn't any different and they didn't have the hard outcomes yet.

Bret: Right, so that was a study-- just to bring everybody up-- it was a randomized trial where half the group they all got CIMTs, carotid intima-media thickness test and the other half of the group got Simvastatin plus Zetia medication that lowers cholesterol even further, which they did. But in the end, there was no plaque progression, or a change in their CIMT, so the conclusion was it's not all about the LDL, the lower LDL just had no effect.

Spencer: There are multiple other things but for some reason that one stuck out and I was like, sure, maybe yeah, they lower LDL but maybe there was something about them, they call it the pleotropic effect that improved the outcomes specifically, obviously secondary outcomes for cardiovascular events and death.

But it was then after the Improve-IT trial came out that it showed no, it actually did lower outcomes once they looked further past the surrogate marker of the CIMT. It actually did improve outcomes and this drug works in a different way than statins do, basically decreases the absorption of cholesterol in the intestine. And that's like okay, maybe there is something to this LDL hypothesis, and so I started going to the NLA meeting, Dr. Dayspring, if you know who he is.

Bret: Yeah.

Spencer: He was in Richmond, right where I was working, and I reached out to him and he became a mentor of mine, sent me a lot of lipidology books, I said this is super fascinating, I'm really into the physiology of atherosclerosis. Still with a skeptical mindset but you know like thinking this is something that needs to be looked at further because I've got some of these patients and now, I'm a whole lot fascinated by this whole lipidology thing, I'm a NLA member, I'm about to take my lipidology boards. I do believe in the LDL hypothesis, but I do understand that atherosclerosis is much more complex than just simply LDL particles being retained in the wall.

Bret: Right, and there's a lot there to talk about with the cholesterol, so gosh, where to begin. Going back to the Zetia trial though, the improved trial where adding Zetia to a statin lowered it further and did show a reduction in cardiovascular events. Not all cause mortality, but cardiovascular events.

But put into perspective though, it's one of those trials where they're going to say it was a 20% reduction, when in reality it was a less than 1% absolute risk reduction. So, less than 1% of the people saw benefit in reduction of heart attacks, but it was a benefit. And that's one of the dilemmas we fall into is seeing a benefit but seeing such a small benefit is okay, it's statistically significant, is it clinically significant for that one patient you're seeing and does it then confirm an entire model saying that LDL is the more important thing.

And these concepts don't have simple answers to them obviously. So, it's clear that LDL is involved but like you said, there's more to it than just LDL. So, part of the problem I have is controlling for metabolic health. Like all those studies, every LDL study has been done in a low fat or high carb or a standard American diet type of setting, and they don't generally control for metabolic health. So, now, what is your take on putting LDL into perspective with HDL, triglycerides, the ratios, the metabolic health? Do you think it has the same prognostic value with high HDL, low triglycerides and good metabolic health?

Spencer: Yeah, I do think it's an independent risk factor. Risk factor I will say because there's multiple risk factors I do think that in order to initiate atherosclerosis you do need LDL particles otherwise how are they going to get in there and there are some other theories on that as well.

But I actually think that metabolic health is very important as well. There are other independent risk factors.

So, say for instance a smoker with hypertension... they'll have accelerated atherosclerosis with the same amount of LDL particles as you know, compared to someone who's very metabolically healthy. So, that area underneath the curve will be accelerated for atherosclerosis for those people with multiple other risk factors.

Now, you can look at somebody with familial hypercholesterolemia and that's-- when you go into med school it's like yeah, those people don't have any other issues, it's just a genetic cause of their LDL receptors not working or their APOB is not connecting to their LDL receptor or whatever it is... they have a high area under the curve of LDL particles. But then when you dive in deeper, there might be more problems with people with FH and the scavenger receptors.

Lots of other things that can't necessarily extrapolate that data to someone who has a low-carb ketogenic induced-- I actually have a... I'll add a document, I do want you to publish this blog for Dave Feldman because he's asked me to write, if I'm going to argue against someone who doesn't believe that the ketogenic induced LDL, if you want a hyper lean mass couple responder, if they're not a-- what would you do to argue against that?

And I've listed out all the different arguments actually being in some of the Facebook groups, and a lot of the ketogenic proponents, they do have a lot of good arguments against the LDL hypothesis based on their hypothesis, so yeah. But I'll add you to that document because I think you'll appreciate it.

Bret: Yeah, I will because I think it's important to recognize it, you know, a low-carb individual who has a rise in their LDL is very different than someone who has a genetic mutation that's going to cause a problem with the receptors. I think you can't compare those two and say they're the same. And then someone who's improving their blood pressure and improving their weight and the visceral adiposity and their metabolic syndrome, that's going to carry a different weight than somebody who does have those problems.

So it puts us in this realm of-- we don't have the data to say it's safe, but we can also say that none of those people are represented in the LDL or statin trials, so where does that lead us? So, you can either say that we go back to the data we already have and say it's potentially harmful, or you say we've made some many improvements and all these other things are improving that we're going to continue to monitor.

So, if you were to recommend to somebody that they continue to be monitored with an elevated LDL on a low-carb diet with all the other health markers improving, what would you say, or how would you say they should be monitored moving forward?

Spencer: So, actually, when this happens to my patients-- so in my articles I go through the multiple mechanisms because I think there's multiple mechanisms that are increasing LDL, not just Dave's hypothesis of the energy model. I believe that's partly correct, but I also believe there are some other things down-regulating LDL receptor activity. I believe soluble fiber and some of these other things, saturated fat versus monounsaturated. So, I actually do my best to add in things like Metamucil and things like soluble fiber, change all their fat to monounsaturated, then we see their baseline off of that.

Then, I talk about the risk, and I go, we don't have the data, but you've improved all these other risk factors, you're feeling so much better. We talked about quality of life... If you're feeling miserable on multiple medicines and you have a lot of excess weight versus you're on a ketogenic diet, you feel amazing, you've lost this excess weight. Who am I to say then, you know, this isn't good for you?

We don't have the data, so I'm talking to them like I'd be talking to you, like another physician or scientist that's looking into this. And I lay it out for them and they have autonomy. Other doctors I have seen... these low-carb groups, the doctors fire their patients because I think they don't want to get sued.

I am not exactly sure, but I tell the patients, I go, "Look, I think there may be an increased risk, but I don't know, if you feel better you have autonomy, you can choose this, you can choose to go on a statin or not, you can tell me, 'Off!' or you can just drink butter and not do any of the monounsaturated fat that I recommend." So I think patient autonomy is important but I lay it out for them.

Bret: Yeah, it's frustrating when I hear people saying, "My doctor yelled at me and he fired me because he wouldn't work with me." And it's not our role to dictate to people what to do.

Spencer: I think they're scared about getting sued maybe or you know, those insurance companies, like we get these letters saying patients should be on a statin-based diet or this this and this or this drug and this and this. And insurance companies are telling us how to practice medicine, also interesting.

Bret: Yeah, it's also interesting. We talk about this topic a lot and for a good reason, because it is sort of a paradigm shift, but it's interesting to think that the percentage of people who have this dramatic rise in their LDL. Actually is pretty small.

Spencer: Yeah.

Bret: When you look at he studies on people who are overweight and diabetic, it's almost non-existent in those studies, it really is sort of the people who are already lean and don't need to lose as much weight and are already metabolically healthy. So it really is a specific subset but it's a fascinating subset because it brings up into question the whole LDL hypothesis. You know,

there are plenty of so-called black swans of the LDL hypothesis, whether it's the Kitavans or whether it's the people with FH who have greater lifespan as they age if they don't get premature cardiovascular disease.

There is so many paradoxes for the LDL hypothesis and it just tells you that it's not so cotton dried, and I guess that's my problem with the whole lipidology world. They do sort of paint it as a little bit too black and white from my standpoint, and I can understand why, but do you see that too? Do you think it's a little too black and white?

Spencer: Hopefully, I don't get in trouble, but they're heavily involved with pharmaceutical companies, I see, and I think it does needs to be a little bit more nuanced, because it's like, look, why don't we just talk about it as we don't have the data of these patients that are on low-carb diets that have explosive levels of LDL? Why don't we just say that based on our information on patients that seem to be metabolically unhealthy and maybe with FH? Let's talk about it more in the grey zone as opposed to black and white. So, I agree with you, I think we need to be a little bit more open-minded.

Bret: And it's hard to separate the industry influence and the pharmaceutical influence because that's who funds a lot of the-- you know, you go to the lipidology meetings and who has the boots, who pay the money to be exhibitors? It's a lot of the drugs.

Spencer: So, one of the most recent drugs that came out, the Vascepa, the Icosapent.

Bret: So, that's basically the high dose Omega-3.

Spencer: EPA only.

Bret: EPA only, yeah.

Spencer: Huge reductions in events.

Bret: So, for people with high triglycerides, adding that... adding it to a statin, right? Adding that to a statin for people with high triglycerides, they showed like a 5% less reduction in cardiovascular events.

Spencer: It didn't even follow the APoB, they're not even sure what they followed, They think that maybe there's differences in the endothelial function, they showed these molecular changes and everything like that. But there was a very big industry kind of push when I was at the meeting, so I'm kind of skeptical, I think money influences a lot of things and I think the stuff needs to be studied a lot more.

Bret: Yeah, and how much to react to one study as well. Reproducibility of a study is such an important concept that just gets lost, one, because the studies are expensive to do. So, if a company can spend the money, get a positive result and cash in on it, why wouldn't they from a

business standpoint? But from a science standpoint, we should be demanding reproducibility of these studies and that's something that's sort of got the--

Spencer: Yeah, and I know there's a lot of low-carb CEOs out there, you know, they've got a lot of money, they could fund some of these studies.

Bret: That would be nice. And speaking of which, you've mentioned Dave Feldman's name, it sounds like you're in the process of working with him on trying to develop a study to help answer those questions, so tell us where you are with that.

Spencer: Yeah, it's a very important question. Needs to be answered, at least get some more clues into that, otherwise you're going to see people yelling at each other on Twitter, you're going to see the lipidologists and the LDL proponents, like Ivor and some of the other guys. I mean, it's all good fun and it's actually good learning if you really get down into it. Dave and I kind of came together, he's got the group of the lean mass hype responders.

And it's just... I am baffled because I didn't even think you could have some of these exponential increases in LDL. I mean I saw it in practice, but not to levels where people would have homozygous familial hypercholesterolemia. And that's where you would have two knockouts of various parts of the genes having to do with LDL receptors and APoB.

Bret: So, LDL sea levels are like 400, 500.

Spencer: 400, 500, 600. And so I'm seeing this in the group, and I'm like no way, it's got to be something else. But then you see their LDLs before they went on a ketogenic diet and they are like 130s, 140s, 150s. And so, I'm actually writing... I'm going to publish a case series on about five of these individuals. I actually brought it because I'm going to UCSD next year and the reason I am going to UCSD next year for preventative medicine is to get a Master's in public health, get some more bio stats, and also to get some more mentorship to put this study into fruition, make it come to life.

And basically, I'm going to publish this case series because people don't believe it. I've actually talked to multiple doctors out there, I've sent the lipid profiles of some of these patients and they think no way, they have to have thyroid, they have to have type 3, whatever, they have all sorts of things, and I'm like no, it is ketogenic diet induced.

We can't find anything. I can't see anything with the snips, there is no LDL receptor issues, their urines are fine, you know, they don't have nephrotic syndrome or something like that, their thyroid is fine, they don't have a family history of hyperlipidemia, they do not have anybody with coronary disease in their family, they're lean, no other medical problems, ketogenic diet, you know. 400, 500 LDL mg/dL.

So what we want to do is we want to basically get like 50 of these lean mass hyper responders and then we would really want to get a control group of low-carbers who don't have this massive increase, with similar metabolic profiles and then just watch progression. Now as we talked before, probably we will never going to have the hard outcomes we're looking for but at least progression in atherosclerosis. And I'd like to look at the lumen with like a CT angiography. I don't think a CAC score would do it, I think too many people... If they are young, you're not going to see that calcification.

Bret: So the CAC being the coronary artery calcification score which is the noncontrast CT that shows the presence or absence of calcium in the walls of the artery. But the CT angiogram injects the contrast into the veins and you actually do see the arterial lumen, you see the whole artery, and you will be able to detect any plaque. So it's a little bit more sensitive than just the calcium score.

Spencer: And as I'm learning more into it, because I really want to understand, I do want to work with cardiologists who understands the imaging a little bit more. As I am learning, you can actually look at the plaque quality a little bit more with the CT angiography. So, I do think that we would need to do that and say, "Well, look, you know... three, five years we're comparing the groups." Is it similar progression?

And it's not just like a 20, 30 ml/dL increase that you see with some of these individuals, we're talking massive increases; 100, 200 ml/dL. We should see an effect... similar timeframe, area under the curve, APoB, LDL particles that you would see with someone with familial hypercholesterolemia.

Yeah, they've had it since youth, but you should see in a similar timeframe that progression. If we don't see that massive progressions or any progression or any difference you know, maybe there is something else going on there, that's protective. Just the study that came out is talking about scavenger receptors and how we thought that the LDL particles moved passively-- you know, depending on their size in the endothelium. Just this new study showing that maybe they had to go through their scavenger receptors, you know.

Bret: So, scavenger receptors are called scavenger receptors because they tend to pick up more of the modified and oxidized LDL, not so much the normal LDL, they're not like the normal LDL receptor basically?

Spencer: Well, so something that's just published, you know, you maybe want a link to it, it's just interesting because as we thought the LDL articles move passively in and out of the endothelium regardless of whether they're oxidized or not. And there are scavenger receptors in the endothelium and it may-- so hypothesizing further, trying to argue for-- so I am a LDL proponent, but arguing if I were a ketogenic proponent, and LDL... more of an LDL skeptic...

Maybe there's something protective about the ketogenic diet that down-regulates this process. And I just think it's fascinating because I just want to look... Dave and I talk about it. It's a win-win situation... I just want to see... maybe this would be a breakthrough, and if it does show massive progression as I would predict, then you know, that's the data we need to know.

Bret: -We need to know that, absolutely.

Spencer: But if it's protective that actually has major public health implications, because then we can say look, we have this amazing tool; places like Virta, whatever, is going to skyrocket, people are going to love, you know, a low-carb cardiologist, you would be like, look we had this tool that is actually protective, don't worry about your LDL particles. Or if you have these patients who have massive increases, like hey, actually this is dangerous, we have some strong data here to show that, either way I'm just interested in the data. I think it's fascinating.

Bret: And that's one of the reasons, one of the things that sort of attracted me to you and wanted to have you come on the show is because you're not one of these people just dig your heels in and say this is the right way, this is my way and I'm going to defend it. You want to know... you want to help your patients and I think that's the world more of us need to live in.

It's… don't be so ideological, but really search for the data, understand the data and understand what we don't know and what we need to know and help us get there. And we talked a little bit-- I guess this segues a bit into people... who they are in person and who they are on Twitter and it's humorous because people can be such jerks on Twitter and it sort of makes you lose sight that what we're really doing is trying to help people improve their health. So why do you think that is? That people just become so just snarky on Twitter?

Spencer: You live behind the computer, I mean you talk about trolls and things like that and just say things you wouldn't ever say to somebody's face. As a physician you have to have that bedside manner you would never-- I won't say never I know some doctors that tell their patients they're fat and whatever things that are just like, "Oh, my gosh... I don't know how you became a doctor."

But in general when you're behind a computer you don't have that personal connection, like can you imagine me saying certain things right here to your face are here that are just like all my gosh... that some of the people say on Twitter... Like swearing, almost threatening in certain ways.

I think if we step back so take for instance, I don't know, vegans or whole foods plant-based individual proponents and then the people on the other end to be like the carnivores like Dr. Baker and how a lot of people is yelling at each other and kind of making fun of each other and I don't mind teasing each other in good fun but I think when you step back and go to someone like Disneyland and Walmart and see there's a lot of people... they'll never follow a whole foods plant-based or a carnivore. I've tried to prescribe a carnivore diet as much as I like--

Personally I don't think it's probably optimal but I've actually prescribed it to patients who I thought it would fit and they just wouldn't stick to it, which is interesting. So if you take a step back most people are just eating just absolute horribly. If we can even get them closer aligned to any type of these diets, ketogenic, low-carb high-fat, whatever you want to call it or a vegan-esque type of diet, I think we have proven most people just have no awareness.

And so I think if we all kind of-- We're all trying to help people. I do think more people need to come across the party lines or whatever, go to each other's conferences, understand where you're coming from and I do think, you know, there's industry involvement that's kind of pushed us maybe one way or the other and there is influence there and I would be naïve to say, no, it has nothing to do with it.

I think we do need to be skeptical about a lot of things and I think we all should just come together and realize we just try to help people.

Bret: Yeah, I think that's a great point. I mean so often we lose track of what we agree on because we are focusing so much on what we disagree on. Well, that's important because the details matter. It's so important to realize that our goal is to help people live better, healthier, happier lives. And there's more than one way to do that. So give us an idea... what is a day in the life of Dr. Spencer? What do you eat? How do you exercise? How do you live your day? What are some of the main things you do during your day to improve your health?

Spencer: I am very relaxed now because of my job. I will be going back to training next in a few months actually but wake up, get my coffee, black coffee, I don't add anything to the coffee. I don't have much of an appetite in the morning so I drink basically an egg white protein shake and I have a little bit of fruit with that, brush my teeth... Exercise, lifting weights, whether I run, bike, lift weights or now I am getting into jujitsu, because it's not as hard in the body as wrestling was...

Lots of vegetables, lean protein, a little bit of healthy starch, healthy fat thrown in there. That is kind the way I do it. Eight hours of sleep... very standard kind of boring stuff, but like the stuff that we know is good for you. Very, very simple.

Spencer: Very simple and obviously it's working for you. Your metabolic health has probably doubled and it's as good as it can be, right now.

Spencer: Yeah, so since medical school I've got my NMR a few times a year basically, watched LDL particles change and insulin is always very low. Actually is interesting, my A1c on a lower carb diet... I've gone ketogenic... actually starts going up a little bit interestingly... may have something to do with the red blood cell life... Anyway, we don't have to get into that, but yeah, very metabolically healthy. There's some variance depending on what kind of diet I am doing at the time.

Bret: And sounds like a lot of exciting things on your horizon starting with the preventive--preventive medicine fellowship?

Spencer: For me it's technically a fellowship because I am already board certified, but it's a residency for people who aren't already board certified.

Bret: Plus a Master's in public health from that and then working on a lot of projects so I look forward to seeing more from you coming on the pipe. So thank you for taking the time to join us.

Spencer: Thank you for having me on.