

Jake Kushner MD - Dietary Guidelines Explored Especially for Type 1 Diabetes
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Ivor Cummins	00:00	We're here in University of Houston-Clear Lake. And I've caught up with Jake Kushner, Dr. Jake Kushner. Great to see you again.
Dr. Jake Kushner	00:06	Nice to see you, Ivor.
Ivor Cummins	00:07	Excellent. And we were going to talk a little bit about why we eat the macronutrient ratios that we do eat and things around that whole scenario.
Dr. Jake Kushner	00:18	Yeah. So I've been obsessed on this question. Because if you go to a nutritionist, and you ask them, "Hey, I have diabetes, what should I eat," they'll often give you these very precise macronutrient ratios, and they'll say, "Ah, so this comes from this thing that I learned back when I was in nutrition school," and they'll say, "There's a document it's called the Institute of Medicine. It's the acceptable macronutrient distribution ratio, and they define the macronutrients quite precisely. So nutritionists around the world will tell you that carbohydrates should be between 45 and 65% and the protein and the fat are roughly equal of the rest.
	01:00	I heard this over and over again, as a physician, as a pediatric endocrinologist, when we were working with children who are newly diagnosed with diabetes. And families often said to me, they were surprised at how many carbohydrates they were being told to eat. In many cases, children who were diagnosed with diabetes were being told to eat more carbohydrates than they had been previously. So I got curious about this and I went to the source document, which is published by the Institute of Medicine, now renamed the National Academy of Medicine, it's the acceptable macronutrient distribution ratio. And what I discovered was there was an argument between these two different ideas. One was if you eat too many carbohydrates, well then you're going to have lots of triglycerides and you're going to have a lot of small atherogenic LDL particles, and so that might be bad, "so don't eat all carbs," so they said. And then they said, "But if you eat too much fat, what's going to happen is you're going to gain weight, just like the rodents gain weight when they go on a high fat diet.
Ivor Cummins	02:02	So called high fat diet.
Dr. Jake Kushner	02:03	So called high fat diet, actually high fat and carbohydrates, but that's a whole another story. And so they said, "If you eat too much fat, you'll gain weight because it's calorically dense. And

as a result, you'll end up consuming a lot of saturated fat and then therefore, you'll be in trouble with risk of cardiovascular disease." And so these experts in the field back in 2002 published these guidelines and the guidelines say you should choose a happy [Inaudible 00:02:28] between the two. So the numbers that we are forced to eat according to nutrition are actually a precise compromise in between these two extremes.

Ivor Cummins	02:39	Which is hugely ironic because you could argue with ultra low fat, high carb, you can achieve insulin sensitivity on a non diabetic or like a vegan diet or whatever. And with a low carb, very high fat diet, you can achieve an insulin sensitivity in a different way. But right in the middle with 50/50 is not ideal and foods in nature rarely are 50/50. They're usually fatty foods or the opposite.
Dr. Jake Kushner	03:07	So I was astounded by this because I wondered why were we putting our patients with newly diagnosed diabetes on so many carbohydrates? And when I asked the five why questions, I discovered that it actually didn't matter. If you read the source document and you read what the experts are saying, they're actually implying that there's much more metabolic flexibility in our bodies than we give ourselves credit for. So it's the 600-page source document and it's amazing. It's filled with lots of subtlety and really smart people. But the problem is at the end, they have lookup tables. And so no one reads it, they just go to the lookup tables. They're like, "I don't have time to read 600 pages, just tell me what it says." And so those lookup tables were adopted by people who wrote all of the major textbooks in university. So when people go to learn nutrition, they end up being taught by these textbooks which are written by people who haven't read the major source document; they just read the lookup tables.
	04:06	And so these myths are propagated throughout our population. And again, for the group of people that I've been most interested in as a physician, people with type 1 diabetes, all those carbohydrates are just incredibly difficult to deal with.
Ivor Cummins	04:22	And essentially as most diabetes can be described, I think Professor Feinman said it's a disease of carbohydrate intolerance in many ways. It defines on type 1 because of a lack of insulin, you're obviously highly intolerant. And type 2, similar with insulin resistance. So a disease of carbohydrate intolerance, but you pile in, not only pile in carbohydrates, but you mix fat and carbohydrate together, which is even more straining on the system.

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Dr. Jake Kushner	04:49	Right. I guess the other problem I found with type 1 diabetes is that we believe that you can have a very precise sense on the carbohydrate ratio. So as physicians we think that, "If you only followed my instructions and you carried out a precise amount of insulin with the precise timing right before the meal, and you consume a precise amount of carbohydrates that you'd have glycemic perfection, and you minimize your risk of diabetes complications. But it just doesn't work like that. What I found in working with people with type 1, being around people with type 1, becoming friends with them, is that on the standard protocols and the standard American diet they struggle to achieve anywhere near glycemia perfection.
Ivor Cummins	05:34	Yeah, it's quite shocking to see some of these glucose curves particularly in young type 1 diabetics. And I know Bernstein, Dr. Bernstein type 1 guy, he called it the Law of Small Numbers that if you keep the carb inputs really small, you can much easier achieve a steady control level with your insulin.
Dr. Jake Kushner	05:54	So I've seen the extremes of this actually. One time when I was at diabetes camp, I saw teenagers having a carb eating contest. You know, teenage boys doing what teenage boys can do. Act foolishly. And there was a boy who ate 250 grams of carbohydrates. So imagine the dose of insulin that's required. Imagine the glycemic response afterwards. He has no idea after those 250 grams of carbohydrates whether his blood sugar is going to be 50 or 500 milligrams per deciliter.
	06:30	It's also true of many standard American diets. And part of the problem is, not just so it's difficult to count the carbs you don't ever actually know. But there's also the effect of fat and protein on the absorption of carbohydrates. And so that it can't really do the calculus as we imagine it. These macronutrients are not an isolation, they're together as food and their glycemic absorption is very different. So it's quite challenging,
Ivor Cummins	06:58	And it'll vary based on individual dynamics of the individuals, it'll vary based on whether they've exercised or even if they've had a good sleep. It is myriad factors.
Dr. Jake Kushner	07:09	Right? Sleep, stress, all of that. I guess if this were merely an academic exercise, that would be okay. But as it turns out, the people with type 1 diabetes on average around the world have very high rates of cardiovascular disease. They're at risk for short lifespan. There was a recent paper that was published in The Lancet describing how people were diagnosed with type 1

diabetes before the age of 10 had on average and expected lifespan reduction of 17 years,

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| Ivor Cummins | 07:41 | I had heard figures of that level, 15 to 20 years, which is really shocking because there're the 30 years of kind of when you have all your experience in life, you know, you might be able to retire, you have grandchildren, I mean, these are hugely golden years, and they're all gone and you don't need to even lose a month if you actually eat the right way. Is that fair to say? |
| Dr. Jake Kushner | 08:05 | Yeah, there are people with type 1 diabetes who have lived into their 90s. But they've learned these tricks. And the problem is they're rare and the global community of type 1 isn't not that well connected. So people live in isolation. I find that quite often, people with type 1 diabetes won't know that there are other people with type 1 diabetes in their community and so they're not able to talk and learn. Social media has made a big difference. Again, you mentioned Dr. Richard Bernstein, and his amazing book, "The Bernstein Diabetes Solution" but there's also this Facebook group that's devoted to his followers called TypeOneGrit. |
| Ivor Cummins | 08:42 | That is an amazing group. I will just interject there briefly, Jake. So yeah, typeonegrit, and that's already [Inaudible 00:08:53] Deichmann helps on that. |
| Dr. Jake Kushner | 08:54 | Yes! That's right. |
| Ivor Cummins | 08:55 | It's amazing. I told a group of Irish doctors recently, you have no idea all these people are going on with their children's blood glucose all over the place, and then they take on the right approach with low carb and the higher protein and they're just running blood glucose almost like an ordinary person. |
| Dr. Jake Kushner | 09:12 | Yes, it's remarkable. They're able to get these spectacular results. And these are families with growing children or adults who have type 1, and the kids are growing and they're healthy, and they're thriving and they're living life. And compare and contrast that to somebody who's on a standard American diet who has type 1 diabetes, who is living a glycemic roller coaster with frightening excursions, sometimes people will have low blood sugars and [Inaudible 00:09:37] caused them to have seizures. People get into car accidents. It's terrifying. |
| Ivor Cummins | 09:43 | It's terrifying and it's a life of all those terrifying experiences and limitations, and then probably 15 years knocked off the end of it. If you put it together, it's actually shocking. But what really |

makes it shocking is relatively simple changes you can negate all of it. Now that stuns me that the diabetes associations do not have a simple pamphlet telling you, "All you need to do is x y, z, w, and you'll be fine." But they don't.

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| Dr. Jake Kushner | 10:14 | Well, they've started to open... in the guidelines, they're open to the possibility of low carb, but they won't embrace it. And I think, you know, part of the problem is low carb nutrition is complicated, it's different, and it requires a whole leap of faith in terms of how you think about food. These traditional systems move at a glacial pace. So part of the problems that we face in the low carb community is many of the people who are in this community are people who embrace novelty and change and they're highly motivated, really serious people and they're exploring for new options. Those people almost by definition, are going to be on the lead of any real major cultural movement. But in these big institutions with a lot of bureaucracy and career bureaucrats, it's a whole different story. It's, "Let's move slowly. Let's figure out what happens," despite the fact that the way that they are practicing medicine and nutrition itself was never proven with a randomized controlled clinical trial. |
| Ivor Cummins | 11:17 | Exactly. |
| Dr. Jake Kushner | 11:18 | They're going to hold a low carb, high fat or low carb, high protein nutrition in type 1 diabetes to the standard randomized clinical trial. |
| Ivor Cummins | 11:28 | Yeah, because this is one of the areas, it's the same with coronary calcium scanning, that the Framingham risk score and the stress tests. None of them are randomized controlled trials, and yet for coronary calcium now because they rejected it for years, they don't really like it for many economic reasons. So now some of them demand an RCT which is absurd. It's kind of very analogous. Now, these organizations as well it's not just not wanting to move too fast, I guess if low carb higher healthy fats becomes a mega solution, which it looks like, it does make you feel very bad about what you've been doing for 30 or 40 years. |
| Dr. Jake Kushner | 12:08 | That's right. There's some defensiveness, it's hard. And I can tell you at a personal level as a physician, I do worry about the times when I told people to eat high carb, low fat solutions. I was part of the problem before I became part of the solution. I'm willing to come clean about that. But I think it's, I would like to see the field change. Now there is some hope, and part of the |

reason is young people are embracing these kinds of things. And there are physicians who want to make a difference, who are really compassionate, who want to support their patients, who are looking around. And so part of the beauty of the social media and low carb is it is going from the outside into the medical establishment. And so there are system professors, there are young people who are looking to make a name for themselves.

12:57 One of the reasons I give a lot of these talks on Low Carb and Type 1 is I'm trying to speak to the young people who were in the establishment to make them think, "Hey, maybe I could carry out an experiment and test the impact of low carb in my population as it relates to growth or mental health or overall diabetes control," or maybe your cardiologist and you want to think about cardiac markers. And my hope is that these young people who are ambitious who are thinking about their careers will gravitate towards these new hypotheses as a way to sort of advance their career.

Ivor Cummins 13:37 Excellent. Yeah, nothing like incentive to drive new ideas forward for sure. And it just reminds me there, you mentioned about cardiovascular disease being huge in type 1 and of course, type 2, and yet we have Bernstein himself, I believe, got a calcium score of zero in his 80s.

Dr. Jake Kushner 13:54 He's 85.

Ivor Cummins 13:55 85. He had believed in the last few years he got a zero. Now, for any human to get a zero in the 80s is extremely rare. But for a type 1 diabetic, have a duration 60 plus years to get a zero calcium, isn't that stunning?

Dr. Jake Kushner 14:10 Well, let's also talk about him. I mean, so he's been able to reverse major diabetes complications and he had diabetic neuropathy, he has early signs of gastroparesis, which is diabetic neuropathy of the enteric neurons that innervate the stomach, and he had signs of retinopathy and that's gone away. And there are many people who have described reversal of early diabetes complications with low carb high fat, and that's been described for both type 1 and type 2.

14:43 Now, obviously, if you've had diabetic retinopathy and you've lost major portions to your retina, it can't grow back. But there are early vascular changes in the eye that might be reversible with normal blood sugars. And that's wonderful. I've heard anecdotes around diabetic neuropathy kidney disease. So

diabetes is the most common cause of end stage renal disease. And many of those people who end up on dialysis, if they don't get a kidney transplant are at very high risk for death within five years. So there are very few people who are on dialysis for a decade or more. And the reason is the cardiovascular fluids are all changed and there you have this so called water hammer effect. So the heart ends up pumping against this massive, completely changed system and they're high risk for heart failure.

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| Ivor Cummins | 15:35 | Of course. And I think I remember just that you mentioned that Jake, chronic kidney disease, CKD, I know someone quite close to me who's a stage 3, and I reached out and I think it was Dr. [Inaudible 00:15:46] he's seen 4 go to 3 and 3 go to 2 with a well formulated keto diet, but not complete reversal. But a 3, that would have inevitably become a foreign and beyond, goes to 2 and sits there nicely. It's amazing! |
| Dr. Jake Kushner | 16:03 | Many healthy young adults with type 1 diabetes who are on standard American diets will have so-called microalbuminuria. So they have early signs of leaky kidneys where the albumin that's present in the serum is leaking into their urine. And that is a harbinger of diabetic kidney disease. We know this and we also know that you're supposed to treat that with an ACE inhibitor, with a blood pressure medicine. So that is emerged as standard of care. But I wonder whether a ketogenic diet would be far better. Because when when you go on an ACE inhibitor, and you have early signs of diabetic kidney disease, we know that it's only a matter of time before you're going to progress down the road. But if we could have a proper RCT (randomized control clinical trial) where we apply ketogenic or low carb, high protein nutrition with appropriate support, I'd love to know whether adults could reverse diabetic neuropathy for type 1 or type 2. |
| Ivor Cummins | 17:07 | That would be fascinating. I only know of one actual human trial with very low carb for kidney issues. And it was Dr. Josie [Inaudible 00:17:15] in Brazil who spoke in London a couple of years ago, I met him and he talked on this. So I might be able to dig that out. It just shows that the creatinine and the various numbers got much better with a low carb high protein diet, which flies in the face of protein being a challenge for the kidneys, you know? |
| Dr. Jake Kushner | 17:33 | By the way, you don't have to consume a lot of protein if you're on low carb, high fat. And one of the tricks I find for people who are interested in low carb type 1, they really should find ways to |

eat more fat. And the reason is, if you have type 1, you're going to need to use regular insulin to cover the protein or long extended pump boluses. And one challenge we see over and over again with people with type 1 is they hear, "Okay, I heard about that low carb thing," "That crazy Dr. Kushner, he had this cool thing, I'm going to try it. So I'm going to have a meal and I'm not gonna eat any carbs. So I have a big ribeye steak and some green vegetables, and then I won't take any insulin."

18:15 Okay. So if you do that, what happens ? All that protein turns to glucose and the glucose drive goes up and up and up. And sometimes people are actually much more hypoglycemic than they would have expected for a meal that contains no carbohydrates. Okay. So a big part of the Bernstein method is using regular insulin or extended boluses from your pump, or a couple of doses of insulin to cover the protein and the ratio is about 0.6. So what do I mean by that? So if you consume a 50 grams of protein and you have type 1, you should view it as 30 grams of effective carbohydrate. Take the 50 and multiply it by 0.6 to get 30. And imagine that it's not going to be immediately absorbed but absorbed over some extended period of time. Four to six hours. So now you have to find a little dose of insulin to give at the start of the meal, and maybe another one at the end of the meal. Or if you have a fancy pump that can give a square wave bolus, you could do that. Or you could use this older form of insulin called human regular insulin. But again, the Bernstein method, the Bernstein book describes this in great detail, and covering protein is a big deal.

19:28 Now, another option that I found that a lot of people with type 1 do is they'll actually simply start to eat more fat. I met this guy, I went to low carb down under and I gave a talk, I was in Melbourne, and I met this young man who had type 1 diabetes. And he said, "You know, I discovered that when I eat more fat, I'm just less hungry, and I don't need much insulin." I said, "Cool! So what do you do?" I said, "Do you eat a lot of nuts?" He goes, "No." He goes, "This sounds gross." He goes, "I consume eight ounces of olive oil every morning."

Ivor Cummins 20:04 I would find that very difficult. To drizzle it on the salad, yes. He jugs it well.

Dr. Jake Kushner 20:13 But, how clever, right?

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Ivor Cummins	20:14	Yeah. If it's taken [Inaudible 00:20:17] on its own but no carb or protein, then there'd be zero insulin response but he fuels himself for the day.
Dr. Jake Kushner	20:25	Right. With movements, with mono unsaturated fatty acids.
Ivor Cummins	20:27	Yeah. A healthy fat. Wow!
Dr. Jake Kushner	20:32	Isn't that amazing?
Ivor Cummins	20:34	That is amazing. Now, the only thing, slight little thing is if you taken a large amount of fats that's just olive oil, it can have relatively few nutrients. So you're not getting a lot of nutrient categories, but if your other food is highly nutrient dense that day, you're cool.
Dr. Jake Kushner	20:49	Yeah. And so I do this at home myself. So I don't actually try the olive oil. I'm buying macadamia nuts in bulk. I buy these two kilogram vacuum sealed containers from Hawaii and I get eight kilograms at a time and we keep them in the fridge and I will eat them in a bowl with a spoon.
Ivor Cummins	21:13	Wow! And they are very tasty especially if it has salt in them.
Dr. Jake Kushner	21:15	Yeah, these are unsalted.
Ivor Cummins	21:17	Unsalted. I salt them, or I get salt, they are quite delicious. They've got a creamy texture. I used to call them solid olive oil because they are massively mono unsaturates, I think.
Dr. Jake Kushner	21:27	Yeah. 90 to 95% fat by calories, it's basically fat and a little bit of insoluble ash.
Ivor Cummins	21:34	And you know what, some nutrients in there I'm sure are relatives to the olive oil I'm getting right bits and pieces, maybe some magnesium...
Dr. Jake Kushner	21:41	... and some fiber so it gets your GI tract working in the morning.
Ivor Cummins	21:44	So, it's all good.
Dr. Jake Kushner	21:46	Yeah.
Ivor Cummins	21:46	Would you know, these are 100% macademia [Inaudible 00:21:50] all the time.
Dr. Jake Kushner	21:50	No.

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Ivor Cummins	21:51	There was a guy, we're just talking earlier. I think it was Dr. Christian Assad, and he's talking to the guy who was 20 or 30 years eating 25 eggs a day approximately. Nothing else. He had some mental issue about this, it was a fixation and his cholesterol profiles were beautiful and he was in stunning health.
Dr. Jake Kushner	22:09	No. We live in Texas so we barbecue. Ribeyes. Yeah, yeah. Beautiful cheeses and lots of other things like this. I have a Sous Vide machine, we sous vide steaks.
Ivor Cummins	22:23	Oh, nice nice! My kids actually has Sous Vide brand out.
Dr. Jake Kushner	22:27	That's right! It's amazing.
Ivor Cummins	22:28	Yeah. You got it all optimized to be the best in the world and all that. So get one of those.
	22:33	So any other key points? I know we're tight in time and you have to get back down south.
Dr. Jake Kushner	22:37	well, I guess the most important thing I would say is that if you have type 1, and you're interested in low carb or you think you know someone who's interested who has type 1, and by the way, many of these tips and tricks apply to diabetes in general, what I would say is find someone else to share in your journey because all of this is not easy and doing it alone is difficult, and building a community either online or in person makes an enormous difference. Because living with chronic illness or facing your own mortality, or you facing a major life change is not easy. And so being part of a community, I think really makes a big difference. It's made a big difference for me, I'm sure it has for you as well.
Ivor Cummins	23:18	It's hugely motivational. And I mean, as you probably know, I'm pretty out there. And I've a lot of arguments for a lot of people for the best reasons, but a lot of pressure back on me and having this huge community of doctors, professors, researchers, professionals, and of course, lay people, you've got this whole family and it keeps you motivated to keep going and get the messages out.
Dr. Jake Kushner	23:40	Because I think collectively, we're all making a big difference on behalf of our society. And my hope is that we will be able to spread this message to more and more populations and it will go.... there will be you know, low carb events all over Brazil. And that would be great, you know, all over the world.

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Ivor Cummins	23:59	Well that's that's a great way to finish it up, Jake and delightful here talking to you, a great advice for people. And just the last thing to people out there, ihda.ie, our charity website that supports this podcast, please help get it out there, share buttons on the homepage. And yeah, just as Jake says we got to get the message out and without your help, we can't do it.
Dr. Jake Kushner	24:21	Keep up the great work, Ivor.
Ivor Cummins	24:23	Thanks a lot, Jake. Great stuff. Cheers!