Paleo Solution - 378

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Robb: Hey, folks, Robb Wolf here, another edition of the Paleo Solution podcast. Super excited for today's guest. Dr. Jeff Stanley is a member of an ever growing group of fascinating scientists, researchers, practitioners and health coaches who are working with one of the most innovative health companies in the world, Virta Health. We're going to dig into a lot of interesting things, the future of health coaching, the application of ketogenic and low carb diets for type II diabetes and we'll maybe dig into some stuff about what we've been doing here in Reno and the interface between Especially Health and Virta. Dr. Stanley, thanks so much for coming on the show.

Jeff: Thanks so much for having me on, Robb.

Robb: I'm kind of epically renowned for providing the most paltry bios for the most interesting and accredited people in the world. I think yours may have won in that regard and I've done some really, really short bios and introductions. But can you flesh out your background so that folks just know a little bit more about you? Also, I get so many questions from folks about career path orientation. When people explain how they end up in different areas of healthcare or variety of different career field, it's pretty helpful for people.

Jeff: Yeah, absolutely. I'm Jeff Stanley and I'm an internal medicine physician. I grew up in Santa Rosa, California in the North Bay there, and went to UC Berkeley for college and University of Southern California for medical school. Again, I'm trained as an internist and also certified in obesity medicine. I'm currently a physician with Virta Health. I practice telemedicine with Virta Health across the country and I also help work on a lot of our physician and patient outreach programs.

My path to how I became a physician with Virta is I went through the standard path in medical school and then I did my internal medicine residency and after that I worked for about four years as both an inpatient hospitalist as well as primarily an outpatient primary care doctor.

During my years as a primary care doctor, I always really had an interest in health and nutrition. I was working with my patients to try to get them to make dietary changes, try to improve their health and it really became an obsession of mine. I was in a large group and I had about 20 minutes per patient which, or

actually a patient every 20 minutes, so that meant that I had to see them, get on my notes, get everything done in that time frame.

Like a lot of docs you probably heard from, it was a treadmill or hamster wheel. So, seeing patients constantly and I wanted to be able to talk to them about health and nutrition but it was so hard to do during that time period. I had to make a choice. Either I was going to be running an hour behind every day or I had to skip over the nutrition. And because of my interest I was talking to them about nutrition.

Robb: Got you. It's nice that there are finally some cracks in that system starting to appear. The attrition within the physician scene is pretty epic right now because the low job satisfaction ratings and whatnot. It kind of cuts on both sides. The patients aren't happy, the doctors aren't happy, so it will be a great day when we totally bag the current system although, I think, there's going to be a long extended death rows on that and it's going to be expensive and challenging.

But how did you get hooked up with the Virta folks? Sami's background is really interesting as a founder of Trulia. Then you have Doctors Phinney and Volek who are kind of the colonel of the operating system that you folks used. Could you talk a little bit about that history and then how you plugged into it?

Jeff: Definitely, yes. Again, I was just over time, to take one step back in the way that I overall became more interested in low carbohydrate and ketogenic diet was through my own experience with gaining a bunch of weight in college, trying the standard approach of starving myself and spending hours on the treadmill and like a lot of people failed horribly.

And so I found out that for me personally carbohydrate restriction worked really well. I lost about 40 pounds and basically have eaten that way ever since. And then I was starting to dive into the research to figure out is this epiphany for me of what, oh this works for me and it makes sense and there's good data out there so I should utilize this with my patients.

So, I started to just really go down the rabbit hole in terms of all of the research that's been out there, the blogs, podcasts and so forth, and just continually would come across Doctors Phinney and Volek's work. It was interesting. I was actually recommending their approach of nutritional ketosis before I joined Virta.

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But then I was basically on -- I've gone to a couple of conferences in obesity medicine and met some of the people in that world. I was part of this emailed

group of physicians interested in low carbohydrate diets. We basically got an email one day from Jim McCarter who's an MD PhD who's the head of our research team and he said, "Hey, I work with a company with some physicians that you may have heard of." He didn't give the names and said, "We're based out of San Francisco. We're going to utilize telemedicine. Is anybody interested in joining?"

I got goose bumps and said this sounds perfect. I grew up in the Bay Area. I'm based out of Portland, Oregon now but I love to get back to the Bay Area as much as possible. And I just reached out and said, "This sounds fascinating to me. I'd love to learn more." And then I found out that Steve Phinney and Jeff Volek were two of the founders and within a week or so I was planning on leaving my cushy job as a PCP and joining Virta as the 20th employee.

Robb: Awesome. That's so exciting. Could you talk a little bit about that background with Virta? It's so interesting to me that it's almost like a change in operating system. So, within the standard medical model we've had this dominant paradigm of high carb low fat diet. That's the solution for everything even in folks who are carbohydrate intolerant, some variety of insulin resistance or type II diabetes.

And then you guys popped up on the radar and secured quite a bit of funding, quite a bit of backing and really are recommending what couldn't be more diametrically different or opposed to the conventional treatment methodology. How did all of that come about?

Jeff: It's kind of a fun story. So, the way that Virta sort of initially came to be was that Sami Inkinin, who is our CEO and founder, he had founded the real estate company Trulia before he started Virta, and he was a very accomplished athlete. So, actually Iron Man world champion in his age group and just kind of a beast of an athlete. Despite the fact that he was exercising for ten, 20 hours a week, eating exactly what he was recommended to eat, he developed prediabetes and hypertension and just felt awful.

You probably have heard that story a lot with athletes, right? He basically looked at that and said, "What else could I be doing? I can't eat less. I can't exercise more. I can't take better care of myself based on the normal paradigms." He really dove into the science and ran into the work of Phinney and Volek. He reached out to them after learning more about it because him and his wife Meredith were planning on rowing a boat across the Pacific ocean. So, he contacted Steve and to hear them tell the story, basically Steve said, "Don't do it." That was his first recommendation.

Robb: They reached out to me too and they were like what do you think of this? I was like, "You're going to die." It was my first thought. Regardless of whether you can motor across you're going to die.

Jeff: It sounds like they've got from a few folks. Basically, then I think he upped the ante a little bit and told Steve, "Well, I'm going to do it and if anything happens to me it could be your fault." So, Steve took the challenge and basically gave them the nutritional information that they needed and they broke the record for the unaccompanied crossing and did it basically stepping into Honolulu feeling great and looking good.

And so that sort of led, as they talked more, just with their different interests and Steve and Jeff's science background and Sami's entrepreneurship, they just talked about how can we put this together? And so they decided that they were going to basically start a company together and bring together the decades of science. Dr. Phinney has research going back to the late 70s and Dr. Volek has over 300 papers that he's published. They're taking all that research but then figuring out how do we turn this into a scalable alternative that's available and that is in the palm of people's hand.

Robb: Awesome. It's interesting. I've been at three maybe four different, completely different events and evolutionary medicine conference and investor conference and I forget what the other event was but folks talk about the future of medicine, clearly this diabesity related problem is something that will be dealt with one way or the other. It's on track to bankrupt westernized societies. We need to get our hands around it one way or the other.

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But one of the interesting features that came out of this was a recommendation that health coaching and this kind of telemedicine interface was going to become critical. Because we've tried to do Facebook or Twitter type apps, the MyFitnessPal type stuff, that there would be the potential of getting billions of people into a low touch system that magically gets them to eat better and exercise and go to sleep at the right time and it just doesn't work.

What we find is that we do need a reasonably high touch system that appears to be augmented with technology and that really seems to be what you folks are doing. We have the healthcare provider interface and then a really good cross section of health coaches that end up helping in that interface. Could you talk a little bit about that?

Jeff: Yeah, absolutely. What we see is that there's a small percentage of people where all they need is the information. And so you give them the book or you give them

the website they come back three months later and they're 30 pounds lighter, they're doing great and they don't really need much help. That's what I was trying to do with a lot of my patients as a primary care doctor and had some awesome success.

But the majority of people, there's just real life. There's too many obstacles in the way, there's too many things with behavior change and behavior modification. What we have found and I think what a lot of studies are starting to find is that you need this combination of, first of all, the correct advice that makes good physiological and biochemical sense which I think carbohydrate restriction, real food, all the nutritional ketosis, those all kind of fall in that range.

But you can't do all that with a physician in a face to face visit. There's not enough hours in a day and not enough physicians in the country to be able to implement that. What you need to do is basically have this interface where you have connected health coaching. The different pieces that we use. We use personalized health coach. Every patient has their own health coach.

They have biomarker tracking. So you mentioned glucose monitoring, ketone monitoring so that there is -- You're tracking things but you have actionable data to work on. And then you have the physician supervision portion of it to make sure that it's safe. And, of course, in people with type II diabetes or on multiple medications, I know you mentioned this in your book, it's potentially dangerous if people all of a sudden cut out all their carbohydrates or fats and still are on medications.

You need that physician supervision to really do the medication side of things but most of the behavior change comes from this individual relationship that's built between a health coach and a patient.

Robb: Fantastic. I know some people will -- I usually brag that we have six listeners. Six listeners can't be wrong. The next question is probably going to drop us down to one or two. People may commit suicide. They may just fall asleep. But I'm really curious, the payer story is really interesting in health care. I don't think anybody could argue that you could find a worse situation that what the United States has. It's just absolutely a disaster.

But who is saying in paying in this scenario? We've found with our own work at Especially Health, self insured captives, people who are responsible for managing both the money that they have available to provide for healthcare but then also the ultimate cost. Those people the incentive seem to align much more rapidly than some of these really huge entities where they can just keeps getting kicked. Who ultimately is paying for this? Is it employers? I just still found a lot of reticence for people to invest in improving health for their patients.

I'll throw one other interesting, possibly interesting thought on that. There's such a high turnover for people these days within their career whereas at one point people stayed with the company for 30 years, got the golden hand shake and then retired. People are spending maybe three, maybe four years with an employer. I kind of get the sense the employers look at this as kind of a hot potato deal. Can they keep passing the person around? Hopefully you pass them off before they're catastrophic health consequence lands in your lap. That's another piece of all that. But who's paying for this and how is all that working so far?

Jeff: Yes. We have a couple of different avenues. We do accept direct to consumer, basically if people wanted to self pay. We're actually just, as of about a week ago, we are now available in all 50 states. If anyone wants to do this directly, they can go onto our website at virtahealth.com and get more information and sign up. And we do have some patient assistance program and other things.

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But our main way that we are getting patients at this point is through, exactly like you said, the self insured companies. Because again, they are paying huge amounts of money on their employees and particularly we've seen in employees with type II diabetes. So, the average cost for an employee with type II diabetes is somewhere upwards of $10,000 a year.

And so if you look at the potential long term cost savings if you're able to get someone out of the diabetes range. But there are some hurdles in terms of getting people to join up. There is that concern about people who are employees who change jobs frequently, the difficulty of paying up front when the cost savings may be incurred down the line or maybe incurred by one of their competitors potentially.

But we have found that that seems to be in the group that is the most open to employing us. Again, because they can see cost saving really quickly. That's one of the reasons why we are concentrating on type II diabetes is because you can save potentially thousands of dollars very quickly by getting people off of medications. So, you don't have to get that theoretical long term return on investment. If you get someone off of 300 units of insulin within the first month, you're saving money right away.

Robb: Got you. That's fantastic. I want to ask a question and I don't want to make it overly leading but I've had this fascination with the Singapore healthcare system which is kind of health savings account program. What's your gut sense on something like that? Or let's say whether the individual is getting a governmental

disbursement, a disbursement from the employer, what have you, and they're getting pre-taxed dollars put into an account, would shifting that ultimate payer responsibility to the individual, what do you think that would do for this whole system?

To me, it seems like it would fix a lot of these problems. If people are still mobile in their jobs, that's great. But we still -- It seems like there's so many moving parts. And again, if we could provide some safety net, some accountability, all at the same time, that seems kind of net win. Do you have any thoughts around that?

Jeff: Yeah. I think that's a really interesting concept and certainly we're seeing that. Overall people just aren't very used to paying for their healthcare. They're used to paying their premiums but the out of pocket expenses are in general haven't been that high. I think we're starting to see that as those are increasing people are starting to become more invested in their healthcare and deciding where their money goes. So, they're voting with their wallets a little bit more.

But, I think, an option where people could, whether it's more money for health savings accounts or, like you said, pre-taxed dollars where they can decide where this goes, could really allow people to take more control of their health. Because one of the biggest things that I've seen is that there's this myth, I think, that everyone just wants a magic pill or if they could everyone would just get bariatric surgery.

What I found with my patients, if people actually take a fair amount of pride in changing their lifestyle and getting results, so by giving people the option to do that and then to invest their own dollars and save their own money in the long term, I mean, I think it would be a total win-win. I wouldn't be surprised if it starts to move that way a little bit because, I mean, clearly our current system is pretty broken and so you've got to change some of the incentives.

Robb: Right. Totally agree. But, man, that's controversial topic. I will get some hate mail for even suggesting that. We'll shift gears here before we go down that rabbit hole too far. You mentioned earlier on that there is a cross section of folks that they discover what their health situation is, you tell them, "Hey, man, you're type II diabetic. I would recommend this book. Here's maybe a blog or an online program for doing a ketogenic or low carb diet."

This person jumps in, they implement, not a lot of hand holding. They have high degree of success. What are the other buckets that people kind of fall into? And maybe what's the percentage of those? Is there a percentage of people with some of that health coaching with the support network, with the appropriate technology, it's a pretty easy win? And then how big of a cross section of

population of that? And then how many folks you could virtually march them out at gun point firing range like, "Hey, you've got to do this." And they're like, "Hey, give me the blindfold and the cigarette and the bullet. I don't want to do this." How is the population kind of bucketing out in that regard?

Jeff: Yeah. That's a great question. This should be a bit of a guess on my part.

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We seem to think that it's probably maybe around 10% of folks who are able to just, again, give them the pamphlet, give them the book, they get the ground running and they do great with little or no supervision. I think that it probably, to judge by our clinical trials, we've been running a clinical trial in Lafayette, Indiana with people from Indiana University Health. We've got over 200 folks who have type II diabetes and some others with pre-diabetes.

What we've seen is that the number of patients who are staying in trial is at -- It was at about 91% at ten weeks and then stays about in the high 80s as we go on. What we've seen is that the people who drop out, it tends to be that they drop out fairly quickly and they tend to drop out generally because of more personal issues. It's unsupportive family, a stressful situation, an illness in the family, job loss, something like that. It seems to be people who just aren't in the right space to take that on.

When we ask people why they've decided to not stick with it, it's actually very rare where they say, "I can't tolerate the diet. I just need carbs." It tends to be more again these life stressors that keep people from doing it. And so it's probably somewhere in that, I don't know, the remainder there, 50%-60% of people who do really well with the right advice.

One of the big keys, I think, too is that nobody's perfect the whole time and that's one of the huge benefits of health coaching and an app and the connectivity, is that everyone is going to slip up. And what you do though is when they slip up then you have to sort of bring them back as little bumps as possible without judgment and then people restart. Whereas if you don't have that kind of interaction and relationship then people can go three months, six months and then they're completely off the wagon.

Robb: Right. What type of screening or motivational interviewing do you folks do pre intervention? Do you have a sense of, okay, this group of people is in that golden 10%, we'll shoot them a book, pamphlet, what have you, this group is going to be more likely to be that group that is high success rate but is going to require some intervention and this other group we may need to find some old college

nude photos of them and do blackmail to get them to comply? Do you have some sort of a screening process on the front to try to partition people?

Jeff: We do have some initial questionnaires that we do to try to get at baseline motivation, certainly questions about ongoing family stressors and things like that. We try not to at least initially on partition people into the low touch group. Those people tend to sort themselves out and that they don't. So they're able to text with their health coach. We have some people that are texting four, five, six, seven times a day with their coach and other people who they text back, okay, or doing good.

Some of this we have to see based on success which people we need to get dialed in a little bit better and which people we need to reach out to. But one of the things, again, is nice is that together with -- We do weight tracking, the ketones, the glucose. You get a pretty good idea of who is on the right trajectory and who's not and then you focus your efforts on the people who maybe need a little bit extra help.

Robb: Got you. Something that has fascinated me about the Virta approach. Virta and Especially Health, the company here in Reno that I'd been on the board of directors for about seven years, we've had some great interface and have some collaborative work that goes on but I'd been actually kind of critical of our program because it's very lipidology based. We are super excited about Paleo and low carb and keto and all that sort of stuff but our docs are also pretty geeked out on lipidology and we do quite a lot of testing.

What was and continuous to be fascinating to me about the Virta approach is we're really looking at this blood sugar management ketone body production as a binary yes-no story. That seems both inexpensive and credibly actionable. Why have you guys gone down that road and then why is there not the need for this more extensive advanced testing?

And to be honest, I'm completely on the side that you guys are doing which is why I'm a constant thorn in the side of our docs and our system because I have this sneaky suspicion that if we just fix that insulin resistance blood glucose management we could have all kinds of wacky lipidology going on in the background and it's probably not a big deal compared to the dysregulated blood sugar. Could you talk about just that incredibly simple process you guys use?

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Jeff: Yeah. One other point I would make is that we do, in the longer frame of time, we do track lipids and because we have the physician supervision we're able to make some personalized recommendations on someone who does need to be

on a statin or other people we have who absolutely want to avoid medications. We personalize that to what the patients want to do.

In our trial, we are going to be publishing data on the NMR. So, Dr. Sarah Hallberg who works with us is a lipidologist. I know Dr. Bill Cromwell very well. You know him too. We're looking at those things but I think you're right in terms of the day to day basis of what things are actionable and what things do you truly want to track. What we see is that by getting this real time feedback in terms of what people's blood glucose is doing and then just look at the ketone level, so we know if someone is in the nutritional ketosis range, a 0.5 millimolar, that they are restricting carbohydrates.

You don't have to ask him all the specifics of exactly what they're eating and how many carbs they're eating. You can get this sort of objective number. That's very helpful. And then people get these guardrails where they can see if they're doing the right things. They can see based on their glucose. They can see based on their ketones. That's really what helps them on a day to day basis. They know that if those things continue to do well their progress tends to--

Robb: They will feel and perform better, yeah.

Jeff: Absolutely. It's kind of the Fitbit where if you do the 10,000 steps you don't really -- Do you feel better if you do 10,000 steps than if you do 9,000 steps? It's hard to say. But if you have something where you know, okay, I feel better when I'm in ketosis or my blood sugar is now in the non-diabetic range, that is pretty easy to act on.

Robb: Right. One of the interesting profiles that has popped up not enormously frequently but it's perplexing for particularly our non-physician staff at Especially Health, we have somebody who we do the advanced testing on then, be pre-intervention, they're insulin resistant triglycerides are high but maybe their cholesterol and lipoproteins don't look at crazy. They're within what we would usually call normal bounds.

We get them on kind of the low-ish carb Paleo diet, they lose weight, their libido improves, their sleep improves, triglycerides plummet, they gained muscle mass, and their LDL-P, their lipoproteins increase, sometimes dramatically. In that lipidology world framework, that's what you treat. You treat to LDL-P. Dieticians and exercise physiology people are like, "Hey, you don't even need us. Just treat -- You're just going to prescribe a statin."

Granted, it's interesting when we do recommend statins it's usually in that five to ten milligram range instead of 20 to 30 milligrams for Crestor. It's usually alternate days. It's a really, really tiny dose compared to standard of care but I

still have the sneaky suspicion that we don't run around with the statin deficiency. I'm still just perplexed by that whole story. But what are your thoughts around a patient like that?

I know that there's so much individualization present there. You could look for thyroid issues and a host of different factors but what's your thought on that individual? Because it's really perplexing for me and a lot of other folks in this scene?

Jeff: Yeah. That's always kind of a tricky situation to discuss. One thing that again we are really excited about is that we're in the midst of publishing our one-year data and that will include a paper on the lipids, on cardiovascular risk factors. We're looking at carotid intima-media thickness and a number other cardiovascular risks. We're hoping to address this head on but more anecdotally and what I've seen in my practice is that there are this group of folks that tend to the be the "hyper responders" where, like you said, everything else looks fantastic but their LDL-C and/or their LDL-P jumps substantially.

One of the things we see is that, in some cases, is a transient rise. You might see that more in the shorter term and that there's some theories about why that is. It might be due to more sort of cholesterol mobilization from the fat stores. But it tends to settle down a little bit more out of the one-year mark from what we've seen.

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But there are people who still, probably less 5%, but people who remain in that, have a sort of a scary looking LDL-P all of a sudden. What we do in that case is just, again, discuss directly with the patients. We have some patients who say, "I will never take a statin. I refuse." But for someone who is open to doing it, basically, what we'll run though is there's a couple of very easy risk calculators from the Mayo Clinic where you can look at what's the ten-year risk really look like if you take a statin or if you don't take a statin?

We also try to look at what the overall risk profile looks like. I have a hard time believing that someone's cardiovascular risk significantly increases if they have lost 50 pounds, normalize their blood pressure, gotten off of insulin, have a normal A1C. It doesn't fit to me. But we do have to give them the information that this, at this point we truly don't know. We have to give people the risks and potential benefits and then, in some cases, we'll start a low dose statin. But it's really based on that patient-doctor conversation.

Robb: Right. And even in our setting, we found that maybe three to six months down the road we taper that statin off which is already low dose. It's intermittent in

consumption and oftentimes people are fine at that point. But then we do still have some cross section of people that that ketogenic level of food intake is problematic. Do you guys ever back people off that ketogenic level?

We have noticed that getting people up to 50, 100 grams of carbs still high protein, still low glycemic load, we'll pull them down from LDL-P of 3,000 to 1500 or 1200 or something like that doing that. Have you guys played around with that much?

Jeff: I have in a few cases, yeah. And so we've seen -- The other thing I've seen in some cases, in those hyper responder groups, that some people seem to be more sensitive to saturated fat or to dairy fats. I had one patient who she went from LDL-P of 2000 to 1000 by just cutting down on her saturated fat intake a little bit. She would use heavy cream with everything. Again, that's anecdotal so it's hard to say how that translates but I have seen that.

In some cases, we do try to really personalize it. We're not telling everyone you need to stay on a ketogenic diet for life. If someone gets a year down the road, they're doing great but they say, "Let's figure out what's the maximum amount of carbs I could eat without becoming diabetic again or without gaining weight," with the tracking you can do that. Versus sort of the old days of the Atkins diet for instance. People would just add back carbs willy-nilly and then a year later there they're fifty pounds.

Robb: Hopefully not spin out.

Jeff: Right, right.

Robb: No, that's amazing. It was some great insight with that Atkins recommendation which is titrate up to a limit that we don't see problems. But to your point, without those objective guardrails of tracking the blood glucose response and whatnot then that's kind of tough to do. Are you guys mainly relying on finger stick for tracking the blood glucose or using CGMs, the continuous glucose monitors?

Jeff: So, currently, we provide patients with a glucometer and ketone meter, the Precision Xtra, because that one has -- Now, there's the keto-mojo, I guess, it's FDA approved as well but initially on the Precision Xtra was for ketones. We generally use that although we do have some people who are already on a CGM and if that's the case we can use that information. We also have an endocrinologist on staff and so she works with a lot of people who have pumps and CGMs. We can really get down to the weeds and people like that where you can change things by a unit or two in either direction with their insulin. But in general, we're doing it with a finger sticks.

Robb: Great. What are you folks doing as far as monitoring sleep, heart rate variability and things like that? Have you integrated any of that information like the OURA ring seems like a really slick platform for integrating that? Have you seen any value in chasing some of those tracking methodologies?

Jeff: Yeah. I think those are really promising. We've discussed with a few different groups whether it's sleep tracking or activity tracking or things like that. Right now, we basically incorporate whatever the patient is using or we might recommend an app or something else that they could use themselves and then work with their coach to try to troubleshoot.

But the sleep, and I heard your podcast with Kirk Parsley in the past and sleep is of huge interest of mine. I have two young kids, with internal medicine residency followed by two young kids. I basically have been craving sleep for about five years now, ten years now maybe.

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So, I'm a huge believer in the importance of sleep. We're trying to incorporate that more and we definitely see just by having people's coaches track it with them, we see some huge improvements in glucose in some cases.

Robb: Fantastic. Well, Doc, it's so exciting the work you folks are doing. 20 years ago, when I first got into this low carb ancestral health scene, I really didn't think in my lifetime there would be essentially venture capital backed initiative that was going to recommend a program like this. It's really, really exciting and I know you guys have some very aggressive goals treating 120 million diabetics by 2025. Is that the correct number?

Jeff: Yes. Our stated goal is to reverse diabetes or to reverse type II diabetes in 100 million people by 2025. And so that includes a worldwide patient base, of course, or about 30 million people with diabetes in the United States right now. We're hoping to expand beyond the United States. Unfortunately, with the trajectory right now, there's probably going to be 50 million people with diabetes before long in the US.

Robb: Right. Well, I've joked somewhat darkly that somebody could -- We have amazing job security in this space. Somebody could come up with the most slick solution imaginable and it's unlikely to put us all out of work in what we're currently doing which is, I guess, both good and bad. Doc, can you let folks know where they can track you down on the internet, where to get more information about Virta Health?

Jeff: Yeah, absolutely. The best ways to get more information is just to go to virtahealth.com. On there, there's a couple of links. If someone is interested in joining as a patient there's a link for that. We also have a physician page so if people want to get more information about working for Virta one day, referring patients or just want to get some or our, update on our science that's available. And also there's a career link as well for anybody. We're hiring data scientists and engineers and everybody across the board. I can honestly say it's the best group or company I've ever worked for and a ton of fun so I would encourage anybody to look into that. I'm also on Twitter @jeffstanleymd. Interesting side story. You were actually my first Twitter follower.

Robb: Oh, wow. Okay. Cool.

Jeff: I don't know what was on my profile but that caught your attention a couple of years ago. I thought that was funny.

Robb: I'm good at stalking the super promising smart people. That's another one of my super powers. Dr. Stanley, thank you so much for the work you're doing. Given how much work there is, even though you're sleep deprived right now, you may not be sleeping that much between now and 2025 but the work you're doing is amazing, really a huge fan of everything that Virta is doing and best of luck in the future. Maybe at some point down the road we could get you back on, we could open this up for some listener questions and circle back on this.

Jeff: Yeah, I would absolutely love to. And our one-year paper is being reviewed at this point so we're hoping to publish that shortly and that will be really exciting. It's going to be a game changer in terms of showing people what's possible in this space. I'd love to discuss that and I would be happy to answer any questions that your listeners have.

Robb: Fantastic. It's a date. We'll get you back on soon then.

Jeff: All right. Well, yeah, thank you so much, Robb. I really appreciate it.

Robb: Thanks, Doc. Take care.

Jeff: Take care. Bye.

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