VIDEO_ Sarah Hallberg - Interview (San Diego 2017)

Dr. Andreas Eenfeldt: If you are a doctor and you want to help your patients with type 2 diabetes to reverse their disease, how do you do it? You can start by watching this video, because I'm here with Dr. Sarah Hallberg. Thank you for being here.

Dr. Sarah Hallberg: Thank you for having me.

Dr. Andreas Eenfeldt: And you have quite a lot of experience. You even did a popular TEDx talk on the topic how to reverse type 2 diabetes and you've been doing it for years in your clinic. Can you tell me just a little bit about it?

Dr. Sarah Hallberg: Yes, so I started doing this in my clinic at Indiana University Health Arnett and they asked me to open a weight loss clinic and as I was kind of researching what we're going to do as far as how was the clinic going to operate, what kind of interventions were we going to offer, I went to the literature and realized that the best evidence there supported a low-carb intervention.

So that's how we began the clinic. But really quickly our focus shifted from being a weight focused clinic to really being a diabetes clinic. Because what we were seeing in the patients with type 2 diabetes was nothing short of remarkable. I mean we were getting them off of their medications, we were seeing normal A1cs, I just couldn't believe it.

So I went into the literature to say, "Who else is doing this with the diabetes? And where are these clinics?" And I found frustratingly little and so I decided therefore I needed to jump into the world of research. So went from being just a clinician for a really long part of my career into being a researcher as well.

Because if this was happening for my patients, why couldn't this happen for everyone? And so I started with a small pilot study and then joined with Virta Health to do a very large study. So right now we are just about to hit the two-year mark on the largest and longest study ever done, looking at a low-carb intervention, nutritional ketosis for type 2 diabetes.

Dr. Andreas Eenfeldt: So how many patients do you have in that study?

Dr. Sarah Hallberg: So we have almost 400 intervention patients. So again it's a big study.

Dr. Andreas Eenfeldt: So what kind of results do you see?

Dr. Sarah Hallberg: So we have published our early results already and it's just quite remarkable. Not only do people's A1c go down significantly... I mean in the first 70 days of our trial A1c dropped by a point. I mean that's significant. But what's more remarkable is that it was happening simultaneously with reduction or elimination in medication. So again you have these two things that were in the past thought of as being mutually exclusive.

Dr. Andreas Eenfeldt: Exactly.

Dr. Sarah Hallberg: We're removing glycemic medication and improving A1c. And you had to have the glycemic medication to improve the A1c. Or you can just change what they're eating. Not how much they are eating, but what they are eating. So again the important thing is both in the clinic and in study that we're doing with Virta Health is that these patients aren't calorie restricted. They are just instructed to reduce their carbohydrates.

Dr. Andreas Eenfeldt: So down to what level? About what level? How much of the carb restriction do you do for your patients or in the study?

Dr. Sarah Hallberg: So we always have our patients doing under 50 g of carbs, but for patients with type 2 diabetes, really they need to be even lower. So we really push people to do under 30 g of carbs at least initially.

Dr. Andreas Eenfeldt: Per day? Is that net carbs or total carbs?

Dr. Sarah Hallberg: Per day, total carb. So less than 30 g of total carbs per day.

Including fiber in this case, huh?

Dr. Sarah Hallberg: Exactly, including the fiber. And then we help people individualize that. So some people will eventually be able to increase that and some won't. And really I think the biggest difference on who can eventually go up on their carbohydrate intake and who can't is going to be determined by what's left of their beta cell function.

So people who don't have the beta cell reserve, they may need to stay lifelong with that really reduced level under 30 g of carbs whereas people who have some beta cell reserve left they may eventually be able to go up on carbs to some degree.

Dr. Andreas Eenfeldt: What do you think, you know, they could go up to? 50, 100, 200?

Dr. Sarah Hallberg: 50 I would say. Most patients with beta cell reserves can comfortably get by just sticking with under 50.

Dr. Andreas Eenfeldt: And that's more... you know, not so strict.

Dr. Sarah Hallberg: Not so strict, I mean staying under 50 g of carbs once you've been doing carbohydrate restriction is really quite easy.

Dr. Andreas Eenfeldt: So then you mainly avoid bread, and pasta, and rice and sugar, processed foods.

Dr. Sarah Hallberg: Absolutely, I have a saying that I like, which is no GPS. So even for those people who can increase maybe up to 50 g of carbs, I say you'll be successful as long as you remember the no GPS, which is no grains, no potatoes and no sugar. So if they could stick with that...

Dr. Andreas Eenfeldt: And remember that rice is a grain.

Dr. Sarah Hallberg: And remember that rice is a grain, yes, good point.

Dr. Andreas Eenfeldt: So maybe doctors are watching and they have done this themselves and they are interested in it but they are concerned about starting to do this with their patients, afraid that something bad might happen, that it's not evidence-based perhaps... What would you say, is it safe to get started? Do you need to do anything specific to do this with your patients to help them to reverse their type 2 diabetes?

Dr. Sarah Hallberg: Yes, I think you just need to be really alert with what the potential safety concerns are. I mean number one, no patient with type 2 diabetes who is on medication should be doing this on their own. It really needs to be done in conjunction with a physician who knows how to adjust those medications appropriately.

And for the physicians knowing where the dangers are and the biggest danger is with hypoglycemia. So we always have to have that number one on the list. So as a patient gets started on a low carbohydrate diet I would rather have that patient floating a little bit higher than we normally would have as a goal, then too low.

Dr. Andreas Eenfeldt: Slightly high is not immediately life-threatening?

Dr. Sarah Hallberg: It's not immediately life-threatening and that's as we're decreasing medications. And obviously the goal changes.

Dr. Andreas Eenfeldt: How high is okay for you?

Dr. Sarah Hallberg: My goal in the first few weeks for patients is usually to have their blood sugar between 120 and 180. If we stay in that range, we're pretty comfortably able to stay

away from any hypoglycemic events. Now patients are really counseled on this. Any blood sugar under 120, they need to let us know about it.

Now through our study and through Virta Health it's very easy because we do everything through an app, it's all app based. And so the physician gets alerted to any low blood sugar very quickly. But if you are doing this in a clinic situation you need to make sure that you have your patients well educated that for those blood sugars under 120, they need to be calling.

Especially if they drop under 100. Patients really need a good number to call, understand how to get a hold of you. During those first few weeks though, that's the period of time where safety with hypoglycemia is a real concern.

Dr. Andreas Eenfeldt: Right. As a family doctor myself... I mean the different kinds of glycemic drugs with different risks of hypoglycemia, obviously insulin maybe the highest risk... Could you talk a little bit about... I mean there are some medications that might even be, you know, not any risk? Like metformin perhaps?

Dr. Sarah Hallberg: So when we say the goal of 120 to 180, I should definitely say that's for patients on what we would call meds of concern. So there's three classes of diabetes medications that I would consider a medication of concern. And that's insulin for sure, sulfonylureas and SGLT2 inhibitors. So when a patient comes into the office, you know, out of those three meds of concern, the number one that we eliminate is the SGLT2 inhibitor. So we take that off--

Dr. Andreas Eenfeldt: Even before insulin, huh?

Dr. Sarah Hallberg: Even before--

Dr. Andreas Eenfeldt: Why?

Dr. Sarah Hallberg: Because low carbohydrate nutrition increases the risk, when someone is on an SGLT2 inhibitor, for diabetic ketoacidosis.

Dr. Andreas Eenfeldt: How common is that because sure, I've heard of that. Have you seen it?

Dr. Sarah Hallberg: I have. Actually we've had a number of cases at our hospital, not associated with low-carb. But the SGLT2 inhibitors do put patients at risk for ketoacidosis.

And again one of the known risk factors is carbohydrate restriction, either because you're trying to implement it through nutrition or maybe even accidental, like they're fasting for some reason or they had surgery so their, you know, P.O. intake isn't the same.

So it's just a known risk factor for this. We don't have super data on how common this is exactly, but I anticipate that that's going to come out soon. But diabetic ketoacidosis--

Dr. Andreas Eenfeldt: That's a scary thing.

Dr. Sarah Hallberg: I found it really interesting myself, because that's an attractive drug for other reasons, you know, you get the sugar out of the body, you can accelerate the reversal of type 2 diabetes potentially with that risk then of ketoacidosis, which is terrible.

Dr. Andreas Eenfeldt: So you actually take that away first before insulin, I find that very interesting. Even if their blood sugar is really high.

Dr. Sarah Hallberg: Because we're going to get them down really fast with taking out the carbohydrates. So yes, SGLT2 inhibitors are the first things that we take off. And the other interesting thing is people are like, "I like it, it was helping me lose weight." But if you actually look, the weight loss happens in the first few months and then it plateaus out.

So taking it away from patients, initially if you can talk that out with them and say, "The weight loss that's going to occur with this medication is likely already happened." Patients get a little bit more comfortable and then I talked to them about the risk. And I say, "Here is the risk with this medication", so that they understand why we are removing in.

Dr. Andreas Eenfeldt: And the next one after SGLT2 inhibitors is...?

Dr. Sarah Hallberg: Is sulfonylureas and short-acting insulin. So patients who are on short-acting insulin they get new instructions from day one. Because we really need to decrease short-acting insulin and give them a blood sugar usually 120. I say if your blood sugar pre meal is less than 120, no short-acting insulin from the get-go. And then as far as the sulfonylureas go, why would we remove that before insulin?

You know the biggest reason is quite simple. Initially when patients are beginning a lifestyle change and shifting to low carbohydrate to help their diabetes it is so fantastic that within the first few days to a couple weeks we can entirely remove a medication. And you can get people off of sulfonylureas very fast.

And you know what that does for patients. That increases their motivation, it makes them feel good. It's just fantastic for them. So that's why I actually target sulfonylureas first, because oftentimes it might in some people not in everyone take a little bit longer to get them off of the long-acting insulin and we want to be able to give them a reward for their hard work right away.

So getting rid of the SGLT2 inhibitor first, making changes to the short acting insulin second and getting rid of the sulfonylurea. And then the last of the meds of concern that goes is the long-acting insulin.

Dr. Andreas Eenfeldt: So about the insulin I've heard different approaches. A lot of people adapt doses from day one, maybe cut it by 50%, maybe even more... What do you do?

Dr. Sarah Hallberg: It depends, I look at two things when I decide. So a lot of time patients who come in maybe they're not even on any of those other medications. They are not on sulfonylureas, they're not on SGLT2 inhibitors or even short-acting, so we're talking about cutting long-acting right away.

And the decision I make on how much to cut it is based on their most recent A1c, but also their blood sugars over the last two weeks. So I cut the long-acting insulin based on those two factors generally anywhere from 20% to 50% at the beginning.

So if they're very uncontrolled and in some cases, if their blood sugars are just really high, I may not cut it even at all. If they are running in the 300s all the time and their A1c was 14, which we all know happens more frequently than we'd like to believe...

Dr. Andreas Eenfeldt: Then they might leave it for a while. At least say their A1c is 7, 8, so a little bit more normal, what could you do?

Dr. Sarah Hallberg: I would ask them what their blood sugar was over the last couple of weeks and if their blood sugar over the last couple of weeks was the same and reflected that reasonable control, not good, but reasonable, and then that would probably be a 20% cut initially in the long-acting.

Dr. Andreas Eenfeldt: Who would get a 50% cut from you?

Dr. Sarah Hallberg: Who would get a 50% cut? Some of those really well controlled people who come in... That are already well-controlled and they are on really high dose long-acting and they are getting hypoglycemic events already. They report to you, "I had three hypoglycemic events last week." They need 50% cut right of the get-go. Because you're going to exacerbate that like crazy unless you are preemptive about it by cutting the carbohydrates.

Dr. Andreas Eenfeldt: So this is a start. Anything else you do in the beginning, except from giving them the eating guidelines and so on, anything else you do before starting? Any specific blood testing or anything else?

Dr. Sarah Hallberg: We always have everybody come in with blood tests. Which is a recent A1c, we usually do a comprehensive metabolic panel, check their kidney function, electrolytes,

things like that, we look at the baseline cholesterol as well. Those are the most important ones I think at the beginning.

Dr. Andreas Eenfeldt: So anything that causes concern for you to go on a low-carb diet? Let's say the kidney function is not great... Would that change anything for you?

Dr. Sarah Hallberg: No, it wouldn't. We do low-carbohydrate diet for people with all ranges of kidney functions, even dialysis, even kidney transplant patients.

Dr. Andreas Eenfeldt: So it's not a cause of concern.

Dr. Sarah Hallberg: It's not a cause of concern for me.

Dr. Andreas Eenfeldt: Good, so how about cholesterol, what if the cholesterol is slightly high? Would you be concerned about that?

Dr. Sarah Hallberg: No, I mean for most patients, if we look at an aggregate data, the cholesterol actually got better with a low-carb high-fat diet. So we watch it.

Dr. Andreas Eenfeldt: So you don't have any thresholds or... let's say 300, 400, 500?

Dr. Sarah Hallberg: Of starting it?

Dr. Andreas Eenfeldt: Yeah.

Dr. Sarah Hallberg: No, if it was 300, 400, 500, I would tell you right now that I would say, "Why hasn't this been treated already?" And that's a person I would send for a Coronary Calcium Score and have a big a really big risk factor modification discussion with. But it wouldn't change my desire to do a low-carb high-fat intervention with them.

Dr. Andreas Eenfeldt: But that's a separate thing.

Dr. Sarah Hallberg: Yeah, that would be a separate thing.

Dr. Andreas Eenfeldt: Doesn't cause you to say, "No low-carb for you."

Dr. Sarah Hallberg: No, it would not.

Dr. Andreas Eenfeldt: So, once you get started you cut the medication to avoid hypoglycemic episodes. How do you follow up on it in the first days, weeks?

Dr. Sarah Hallberg: So again it depends on if they're in the clinic, or if they're in the trial, or Virta Health. So it's much easier to do this all app based and that's how we run things at Virta Health. So the patients are inputting their blood sugar, it's going right to the physicians and their health coach and we're able to make adjustments in almost real time.

Dr. Andreas Eenfeldt: Let's talk a little bit about that. So Virta Health is an online clinic that's specialized in reversing type 2 diabetes.

Dr. Sarah Hallberg: Right.

Dr. Andreas Eenfeldt: And you're the chief medical officer?

Dr. Sarah Hallberg: I'm one of the medical directors there.

Dr. Andreas Eenfeldt: Medical director, yeah. So this is a US based, basically all of the US can use this service.

Dr. Sarah Hallberg: Correct, that's true.

Dr. Andreas Eenfeldt: But if you're outside, you're out of luck, so you have to do it yourself.

Dr. Sarah Hallberg: Right.

Dr. Andreas Eenfeldt: So can a doctor use that service to make it more simple for them to help their patients...?

Dr. Sarah Hallberg: Absolutely, I mean physicians can refer patients to Virta Health if the patients are based in the US. At least right now Virta Health is only available in the US. We hope to expand on that at some point, but right now it's just for the US.

Dr. Andreas Eenfeldt: And you need some insurance covered or the employer covers it, or you need to pay out of pocket?

Dr. Sarah Hallberg: Pay out of pocket right now, it's not cover by insurance, or be an employee at one of the companies that we're contracting with.

Dr. Andreas Eenfeldt: So how can that help a physician to treat their patients?

Dr. Sarah Hallberg: Well, it takes all that blood sugar monitoring off their hands. So if they refer patients to Virta Health, we would work in partnership with them. We wouldn't be taking away care from the primary care physician, we would be working as a specialist, being the one who is dealing with any blood sugar changes and medication adjustments. So that doesn't have to be done in the clinic and use up valuable clinic time.

Dr. Andreas Eenfeldt: Right, so you save time making it more simple. But let's say you do it yourself, maybe you're outside US or you prefer to do it yourself, How would you recommend following up oh the blood sugar, the medication and so on?

Dr. Sarah Hallberg: I think that's really important and I'll stress it, number one, the patient has to understand what a low blood sugar is at this time period, different than low blood sugars that have been in the past for them, right? Under 120 we want to start alerting the physician, under 100, we want to do it like ASAP. They need how to get a hold of you.

We have a whole handout that we give to patients that kind of explains this and make sure that they understand, "Here's the number to get us." And then as far as follow-up goes, if they're on one of these meds of concern, I want to see them every week at the beginning and then as we start to decrease the medications, as we see those blood sugars stabilize, we see them every couple of weeks and then of course space out over time, every month depending on how they're doing, and hopefully we get them off completely the meds of concern. And then again that blood sugar becomes less of an issue.

Dr. Andreas Eenfeldt: Then you can relax.

Dr. Sarah Hallberg: You can really relax, right. So the SGLT2 inhibitors and the sulfonylureas and the insulin of course.

Dr. Andreas Eenfeldt: Those are the three meds of concern... that you're worried about. And if they're on other kinds of drugs, you're not that worried. So GLP1, metformin, they're fine?

Dr. Sarah Hallberg: Yeah, they're not going to lower their blood sugars too much, so of course our goal and the patient's goal is they'd like to get off of as much medication as possible. And that's what we're striving for with all of our patients. Is to be able to have good blood sugar control with no medications. But once we get the meds of concern off, you know, those other medications that won't cause hypoglycemia, which is the number one safety concern that we have, we can relax a little bit.

And then usually those medications are going to be based on A1c. So if let's just say someone is on a DPP4 and their A1c comes back at 5.6, we can get rid of it, right? And so occasionally we'll have eliminations of those medications just based on the blood sugars that the patients are reporting, but a lot of times those adjustments come when the A1c comes in.

Dr. Andreas Eenfeldt: So the number one thing you're looking out for is hypoglycemia. Do you see any other complications, anything else that is important to keep in mind, or...?

Dr. Sarah Hallberg: The number one concern is that patients-- I will tell you how patients feel, is sometimes patients tend to do a little bit too much protein.

So if your physician is monitoring someone and they come in and say, "I was feeling really good at the beginning and now I'm feeling a little draggy or I'm feeling a little nauseous", the number

one thing to ask a patient in that situation is, "How much protein are you getting and how much fat are you getting?"

Because the biggest cause of kind of a draggy feeling is that they've reverted back to protein. And they may still be sticking with low-carb, but they're just not getting in enough fat.

Dr. Andreas Eenfeldt: So they may need more fat?

Dr. Andreas Eenfeldt: Dr. Sarah Hallberg: Mm-hmm, more fat and a little bit cut down on the protein.

So what do you tell them? Have butter on your food or pour olive oil on your salads?

Dr. Sarah Hallberg: We talk a lot about where is your fat coming from. I mean the problem, the underlying cause of this being one of the major problems is that for so long people were told to eat low fat. And at the very beginning, when they're just getting started, they're thinking about fat all the time, so they're getting it in, but after a while they start to revert back, even without thinking about it to those old ways. "Okay, I can't eat carbs, so--"

Dr. Andreas Eenfeldt: So it's no fat and low-carb and it's more like a starvation high protein. How about fluid and salt that's something that people talk about to avoid side effects, do you discuss it with your patients?

Dr. Sarah Hallberg: Yes.

Dr. Andreas Eenfeldt: What do you tell them to do?

Dr. Sarah Hallberg: So, again, watching blood pressure, but for more patients we add salt. Even patients who are on blood pressure medication. If their blood pressure is well controlled I have tem do a little extra salt.

Dr. Andreas Eenfeldt: So how do you do that in practice?

Dr. Sarah Hallberg: Bullion, salting food extra or pickles. So those are all pretty easy ways to get people's salt up and they feel a lot better. And then of course hydration as you pointed out is critical, too.

Dr. Andreas Eenfeldt: So bullion, is it like one cube a day, or two cubes a day?

Dr. Sarah Hallberg: One or two cubes a day usually is enough to keep people's sodium up enough, to keep them well-hydrated. So those symptoms that people feel, tired, headache early on, a lot of time is just due to depleted volume and if you increase the salt, make sure they stay well-hydrated, you keep their volume up.

Dr. Andreas Eenfeldt: So in your experience how long do they need that? Forever or is it just in the first week?

Dr. Sarah Hallberg: Some people forever, some, more important, early on we find. But for many people they just get used to it and they feel better that way so they continue on.

Dr. Andreas Eenfeldt: Any other complications you see, maybe not in the first few days, but long-term do you see any problems?

Dr. Sarah Hallberg: You know, we get that question all the time. You know, "This can't be good for people in the long-term, what's happening long-term for patients?" But again in my clinic I have people who've been doing this for years and the complication is they have to get used to feeling better. And people find that to be pretty easy. So we don't see these big complications coming up. People do incredibly well eating this way. Short-term, long-term. They just need the support.

Dr. Andreas Eenfeldt: One final question about something that people might feel worried about... As a doctor, do you risk anything by doing this? Could you be sued, could you get into trouble for telling your patients to eat low-carb? Is it evidence-based, you know, what would you say?

Dr. Sarah Hallberg: I would say actually there is a number of studies done on this. There is quite a big evidence based for low-carb even in type 2 diabetes. So yes, it's evidence based and the thing is, as far as getting into trouble, we have to think about it this way... We put patients on medications all the time and you read the PI associated with these medications. How many problems do we run into with even, you know, the most basic Tylenol, right?

Dr. Andreas Eenfeldt: The list of complications is long, yeah.

Dr. Sarah Hallberg: Here our goal is to get patients off those medications and have them eating whole foods. So it's really hard to imagine that a physician instructing their patients to eat a whole food-based diet with the goal of better glycemic control and removing medications while there's evidence to support this is going to get themselves into trouble.

Dr. Andreas Eenfeldt: Do you know of anybody in the US where we are who has got into trouble for this?

Dr. Sarah Hallberg: I don't.

Dr. Andreas Eenfeldt: And they are quite a few, I guess.

Dr. Sarah Hallberg: Yes, and more and more every day I think. Physician who are saying, "I'm so tired..."

Dr. Andreas Eenfeldt: Probably thousands of doctors, right?

Dr. Sarah Hallberg: Yeah. "...Tired of seeing my patients get worse." And that's one of the big drivers for me. I can remember my days in primary care where I can say what I felt more than anything was that I was a legal drug dealer. Because that's all I did all day. It was, "Here, you're worse. You're worse again." And now I am in this completely different area of my career where I'm taking people off of medications, I'm de-prescribing instead of prescribing. And definitely the title of legal drug dealer is gone from my repertoire.

Dr. Andreas Eenfeldt: So what do you patients say when they come back and you get them off the drugs and their blood sugar is still good and they feel hopefully good, what do they say?

Dr. Sarah Hallberg: You know, I say I have such a great job because of exactly that. So I spend so much of my day deflecting credit. So patients come in and they are like, "Oh my gosh, it's so fantastic, I feel so great, you saved my life."

And again I have to go back and say, "I may have given you the instructions, but this was you, this was all you." I mean what kind of a job is that to be able to spend your day deflecting credit? It's fantastic. And to be able to walk with the patient through a journey like this that changes their lives, is amazing.

Dr. Andreas Eenfeldt: That's really awesome. So just to finish, do you eat low-carb yourself?

Dr. Sarah Hallberg: Yes I do, and I have for a very long time. My whole family does.

Dr. Andreas Eenfeldt: So what's your favorite low-carb food?

Dr. Sarah Hallberg: Oh, wow, I have so many... So casseroles are one of my favorite low-carb foods and probably right now, you know, how you go through phases where one thing is your absolute favorite... Brussels sprouts au gratin. If you haven't tried that... that's kind of become a regular in our house.

Dr. Andreas Eenfeldt: Awesome... so thank you so much for the interview. I hope it's really helpful for a lot of doctors.

Dr. Sarah Hallberg: Thank you so much for having me.