



Lily Nichols, RDN

Gestational Diabetes: Prevention And Treatment

SUMMARY KEYWORDS

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Hello, everyone. I'm Dr. Debb Hamilton. And today I'm interviewing Lily Nichols. Thank you very much for joining us and Lily can you say a little bit more about you and your background? Sure,

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yeah. So my training is actually as a registered dietician, nutritionist and certified diabetes educator. And my specialty focus for most of my career has been prenatal nutrition, and gestational diabetes. So most people who know me know if my work through one of my books, either real food for pregnancy or real food for gestational diabetes. And ultimately, I wrote those books because what I observed in practice from working clinically in the public policy side of things with the state of California is diabetes and pregnancy program, and through a lot of consulting and different research projects was that there is quite a big gap between what our conventional nutrition guidelines recommend and what's actually optimal For the health of a pregnant person and our baby, and so I'm trying to help bridge that gap a little bit. It often takes quite a while for new research to make it into practice. It's been estimated to be up to 17 years before that's reflected in practice. And so I'm hoping that my work can kind of carry us through until the guidelines get updated.

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Great, that's, that's wonderful. As you know, we have basically, as I said, I'm a pediatrician, so



our children getting sicker and sicker. So really going back and having a mom be healthy and eat well, and I think was the most important things. So I'm glad that you're joining us today. So in terms of what are the healthiest foods to eat during pregnancy?

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Yeah, well, my recommendations often surprise people because they expect that I'll say fruits and vegetables and I have nothing against fruits and vegetables. I think they're an important part of the diet as well. But I like to look at what are the nutrients most commonly lacking in a pregnant woman's diet and let's sort of reverse engineer the diet to include those foods that provide those micronutrients. And when we're looking at some of the things that are most efficient, we actually find a lot of those nutrients in animal foods. So for example, eggs are fantastic, nutrient dense food to include in pregnancy. They are one of the richest sources of Choline which is a B vitamin like compound that works right alongside folate in the prevention of neural tube defects and helping with brain development and helping with placental function, nutrient transfer to the baby. We even now have research on how that can help prevent preeclampsia as well. So it's just vitally important to pregnancy and you find it really most concentrated in egg yolks and then second to that liver but not many people eat a whole lot of liver in it at all or during pregnancy. I would also say is salmon, fatty fish and seafood are also really wonderful food sources to include in the diet. That's going to be your number one source of tha, which is another nutrient really important for brain development. Quite a bit of the research actually on what nutrients we need for pregnancy are focused on what's used for brain development. And, you know, we have this short window of time to set that brain up for health for the whole lifespan, and that's during pregnancy and through the first two years of life. So, those are two of the top food sources I recommend, but we can go into more. I know we have quite a few questions you want to touch on though,

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right? Well, that kind of goes into the whole seafood issue because people do worry about seafood as a source of mercury. So yeah, there are certain seafood that are safe. How often can you eat seafood?

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Yeah, so I do agree with the FDA has a specific fish that they recommend you avoid during pregnancy due to their high mercury content, but they do recommend up to 12 ounces of fish per week from low mercury sources. So the only ones that are high mercury that are on their list to avoid are swordfish, king mackerel, shark and tilefish. And then they recommend limiting tuna to less than six ounces per week. Everything else is pretty much fair game. And actually, when you look at the data on it, one of the largest studies on fish consumption and brain development was out of the UK had 12,000 mother and infant pairs and they actually found that the mother



consumed, the most seafood 12 ounces per week, and children with the best neurological outcomes and those who consumed no seafood whatsoever had the worst neurological outcomes. So I think it does speak to the fact that it you know, it's not just tha that's in fish, but it's also one of the number one sources of iodine in the diet, which is also vital to brain development. It has Selenium which actually helps prevent you from absorbing much of the mercury that's that could be in the fish. It has a lot of protein by Vitamin B 12, vitamin B six, it has a lot of beneficial nutrients in it beyond dha. But ultimately, the evidence so far suggests that even with the mercury consumption you might get from that 12 ounce surfing the week, it still is ultimately a boon to your baby's brain development. Now, that's great to know.

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So definitely a lot of people do not eat seafood either. So that's right, you know, something to think about?

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just encouraging. Some is better than none.

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That's true. What about organic foods? People always ask about organic foods and sometimes cost is an issue for people.

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Yeah, is that I mean, ultimately, I do think that there so there is data on pesticide exposure and how that can impact pregnancy outcomes, birth outcomes, back to the brain development thing that is just a very sensitive organ that's developing in pregnancy and we do have some data showing some neurological differences depending on hypothesis. sight exposure. Of course, most of that is with children of agriculture, agricultural workers, so people who are exposed to workplace pesticides or who live nearby conventional farms that are using a lot of pesticides. I mean, yeah, there, there are measurable differences. It's not all made up. At the same time, we do have to take into account you know, people's access to foods because, you know, ultimately vegetables and fruits and really all food. I mean, you need food to live, but ultimately, there's a benefit. We usually think of pesticide exposure from fruits and vegetables, though, technically, it can come in from all sources. Right, right. I know. Ultimately, there's a benefit to including fresh foods in your diet, even if they're conventionally grown, right. So I think it becomes a matter of thinking about which foods that you are eating most frequently say, apples are something that you really like to consume and maybe since that's something you eat Higher quantities, you could prioritize getting that organic or just from a source that doesn't spray with pesticides, because there are farms that are not certified organic, but don't use a lot of pesticides or use any pesticides. So that's something where you, if you have the access to a farmers market or



something and can talk to the people who are growing, you could do it that way. You could look at the Dirty Dozen list and the clean 15 lists that the Environmental Working Group puts out. And you could opt to buy organic for the ones that are on the Dirty Dozen list, which are the ones that are most commonly contaminated with pesticide residues, and then forego the ones that tend to be low and pesticide residues. So for example, avocados and onions tend to be pretty low and pesticide residues so maybe you don't prioritize getting those organic but you can prioritize getting your leafy greens organic and peaches and berries, organic you know, so you can kind of pick and choose but also Similarly, you know, just buying Whole Foods that you prepare from scratch versus buying processed, packaged and restaurant foods even if they're not organic is still ultimately a benefit over the latter.

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Right That's what I was gonna ask you know, cooking at home versus eating out in terms of nutritional quality of food.

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Yeah, no doubt more and more today cook less I feel

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well it's convenient and especially

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you know, I have two young kids so I have a baby and a toddler and it's, it's like getting food on the table sometimes. So, I mean for for us, sometimes it is just a matter of convenience you are going to eat out so you just make the best choices that you can, you know, knowing which restaurants serve more healthful items than others. And then making eating at home as easy as possible. So,

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batch cooking.

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I like to use you know, our slow cooker Instant Pot it can take me 5/10 minutes to get a meal going in there. And then it just the appliance does the work while I tend to everything else. It's like sitting there and sataying individual ingredients over the stove isn't going to work but a sheet pan dinner cooking in bulk, using slow cooker or electric pressure cooker like the Instant Pot can really save you a lot of time. So, you know, I get it, but we're all just doing the best that we can.



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Yeah, that's I know. I've said I have kids also.

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Is there a difference? You know, there's different trimesters in pregnancy. So I think about are there different nutritional needs? Are there anything specific you need to concentrate more on one trimester than the other?

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Yeah, so it there's it's surprising that there's not more research on how nutrient needs shift at different trimesters of pregnancy. Essentially, all the things that are beneficial to you, in the first trimester remain beneficial in the second and third year. trimester right. That said there are some shifts in nutrient requirements and pregnancies. So the first trimester is generally assumed there's not a whole lot of extra nutrition that's needed. We do want to focus on getting some of the nutrients that are involved in the closure of the neural tube. So very, very early brain development, and that's especially like folate, and coline, vitamin B 12, vitamin B six, glycine, which is a nutrient found in high amounts of collagen rich foods. All of those things are involved in that very early cell division and multiplication and neural tube closure. And you actually are pulling from your preconception nutrient stores a lot during that process as well even if your diet is not perfect because of nausea and all the stuff that goes along with the first trimester. Later in pregnancy, those you get to the second and third trimester, that's when your energy needs are going to start to increase and that's also when especially your protein needs increase. And it's actually been found there was a study in 2015, which was actually the first ever study that directly estimated protein needs in pregnant women. And they found that in late pregnancy, protein requirements were actually 73% higher than our current recommended intake. So, ultimately, yeah, so you need prioritize protein. This will make it simple prioritize getting protein rich foods in your diet, preferably having a source of protein at every meal, whether that's from eggs, meat, fish, poultry, nuts, seeds, beans, legumes, dairy products. Getting some protein in there is really important because every cell in the body, it has protein in it. I mean, it's it's really a very essential nutrient. And not only that, but your protein rich foods have a lot of these micronutrients that are the ones that people are most commonly deficient and so if you prioritize getting some of those in, you're not only meeting The protein requirements, but you're really doing a lot to get your micronutrients in as well.

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Now, that's great. So now that we know what to eat, and the question always what kind of foods do we need to avoid? Of anything specific, what not to eat right, what to eat and then what not to eat?



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Well, I mean, conventionally, the recommendations are to avoid foods that might contain bacteria, viruses, parasites, things that could make you sick. So often, there's this really extensive list of foods to avoid like deli meat, undercooked eggs, raw fish, etc. It's funny when you actually look at the data on that you're most likely to get sick from fruits and vegetables. 46 million foodborne illness outbreaks are from raw fruits and vegetables, but only say 2% in the whole country are due to eggs. So I don't personally take those like to the letter. I think it's up to you and what's gonna reduce your anxiety. In pregnancy, whether or not you want to interpret that super strictly or whether you're, you know, smart about food handling, you trust your nose and can smell if something's off. If you're unsure of the safety or freshness of something, either not eating it or cooking it very thoroughly. I your best bet. But ultimately, it's kind of I don't think those lists actually reflect what the evidence says if they did, we'd be like a lot of other countries where you tell pregnant women to not eat salads and raw fruits and vegetables, which we certainly don't do in the US. What I will say though, in terms of things that you should actually avoid, raw shellfish is one that I think is smartest to avoid. So like raw oysters, those are actually 73% 75% actually, of the foodborne illness outbreaks from shellfish in the United States or from seafood, I'm sorry, are from shellfish specifically. So sushi is like, you know, it may be okay. It may not be in the UK, it's fine in Japan, it's fine. It's assume that because it's flash frozen, you've actually eliminated a lot of the risk of parasites and such. So as long as it's fresh, probably okay, but raw shellfish is just so commonly contaminated with bacteria and viruses that I would steer clear of that and do cooked instead. And I would also say that aside from the food safety issues, there's a lot of foods that just don't have many micronutrients in them that are not adding to your overall nutrient intake. And so things like refined vegetable oils, so like corn, canola, cottonseed, peanut oil, soy oil, they don't have much going for them. They're highly processed, and they have a lot of inflammatory fats in them and there's quite a bit of research showing that excessive intake of that can be problematic. Find sugars and refined carbohydrates. So all of your white flour foods, white sugar, corn syrup kind of foods. They're just, they're not adding anything beneficial. Sure, they might taste good, but they're just displacing healthier things from your diet. So you know, I don't think people need to be super super strict like I never have any sugar whatsoever in pregnancy, but making sure that it's not a staple in their diet and having it just as like a treat every once in a while is best for those foods.

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What about artificial sweeteners, like your diet soda, your diet coke? Yeah.

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I am personally not a fan of artificial sweeteners in pregnancy. I have a section in chapter four of real food for pregnancy, which is called foods that don't help don't build a healthy baby. So



it's all the things right and talking about. There is a section on artificial sweeteners in there and ultimately, there is some questionable research on whether those are really a good idea to consume. So some of the artificial sweeteners especially Splenda seems to disrupt your gut microbiome. So the healthy bacteria, the probiotics that live in your gut, can actually be killed off by Splenda, and even at doses that are pretty low. And if you look at the structure of it chemically, it's a chloro carbon. And we often use things that contain chlorine or chloro carbons to disrupt life and disrupt bacteria. And so it makes sense that it would have that effect. There's also some questionable studies on exposure to artificial sweeteners and pregnancy and then the risk of the children becoming obese, or diabetic later in life. And so it seems to play some sort of role, whether it's hormonally or microbiome mediated or via insulin sensitivity or something else, but it seems to have some sort of a fetal programming effect. On the children, and so I think it's ultimately best to minimize or avoid those. I would actually rather people just do small amounts of the real thing and sort of get used to things just being less sweet and consuming sweets less often overall, versus seeing artificial sweeteners as well. It doesn't have sugar, so it's fine. Right? might it might not be, we're having more and more data come out on that these days.

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Right. I mean, that makes sense. And it doesn't offer anything nutritionally beneficial.

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That That's

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right. So I mean, that there's no you know, no readout. What about caffeine? You know, everybody likes our Starbucks in there. Obviously, a lot of sugar but the whole idea of caffeine is that safe and if so, how much

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So yeah, it's safe in a moderate amount. Currently, depending on which guidelines you're looking at, they recommend limiting caffeine intake to 200 to 300 milligrams per day, which is equivalent to approximately two small cups of coffee a day. But keep in mind the cups of coffee are like, spreadsheet ounces, right? It's not like the typical giant Starbucks that people, right. So some is okay. There have been studies trying to look at can we define better? Where the risk threshold is like, could we get away with a little more should we restrict it more like even less than 200 milligrams, and there hasn't been enough consistent evidence to say otherwise. So currently, it's like what the guidelines say is really what we should stick to so little bit of coffee is fine. And other than coffee, or like energy supplements or things that have actual added caffeine to them. Other than those two things, you're really not going to exceed caffeine



thresholds through any type of black tea, green tea, white tea, or chocolate. It's really going to be coffee or an Anything that has added caffeine that you want to have on your radar.

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Right, some of those energy drinks that you know, the teenagers like

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those definitely avoid.

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Right? Yeah, I would think yes, definitely avoid those. What about genetically modified foods?

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Yeah, so there's those. There's like, not a whole lot of research on specifically on the safety of genetically modified foods in the context of pregnancy. But I am personally, not a fan of most of the genetically modified foods that were coming in contact with our soy and corn and maybe canola, which are specifically modified to be Roundup Ready so they can withstand high doses of Roundup, which is a commonly used herbicide that contains the active ingredient glyphosate, and we have quite a lot of data actually on glyphosate now being highly toxic. Specifically in pregnancy it is toxic to the placenta. It does have adverse effects on the developing fetus. And it does so even at concentrations that people are exposed to on on the regular. So just from that stance alone, the fact that most genetically modified foods happens to be sprayed with a lot of pesticides and have higher pesticide residues is enough for me to be like,

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no, right? Yeah, I organic instead.

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But I would say there's still not a whole lot of research as a whole on the safety of genetically modified foods and pregnancy. So it's like in the absence of enough data, I'm not comfortable recommending them in high amounts, but again, the ones that most people are exposed to are going to be soy and corn and you can buy those organic instead or avoid those foods or just minimize their consumption.

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Right. I mean, that makes sense. I also learned that glyphosate, just like you mentioned with artificial sweeteners can hurt the microbiome that glyphosate also can hurt the microbiome. It can



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Yep, there's a whole section in chapter 10 of real food for pregnancy is about toxins. And there's a section on pesticides in there and I spend a good amount of time talking about glyphosate. Recently, I was really surprised to see how much research we actually have on it. So yeah, it's one too. It's a, you know, feather in the hat for the our organics movement, and definitely, you know, a tick against the genetically modified foods because they're so often contaminated.

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Right. And I, as I said, I think we just don't know. And if we really don't know, there's so many other foods and safer foods. It just makes sense to avoid some of these foods, you know, we don't want to is that our children are getting sicker and they're exposed to a lot of these. So yeah, since for the pregnant women, I said we can start early. That's the best.

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Yeah, exactly.

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So I have a lot of people who are into very specific diets like everybody likes the Paleo or the keto diet, which is a little more restrictive. do have an opinion about some of the different diets and pregnancy and the impact that they might have?

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Sure. So I actually just wrote about this on my blog. The first ever study on a paleo diet and pregnancy was just published november of 2019. And, you know, it wasn't a clinical trial, but it was a cohort trial comparing a group of women who followed a Paleo Diet before and during pregnancy versus people who didn't. And ultimately, they found better outcomes. So significantly less anemia in the mother's eating paleo, lower weight gain. Trying to remember the last Oh, and and fetal weight was not statistically different but a little bit lower in the Paleo group a little bit higher in in the other group. There's one other outcome Oh, they also were more likely to pass their glucose tolerance test. So there was a lower rate of gestational diabetes in the group eating paleo, which makes sense because a Paleo Diet tends to be lower on the glycemic index. And there have been studies showing that overall, that's linked to reduced weight gain less likelihood of having a large baby at birth, less gestational diabetes. And of course, the anemia. Finding makes sense as well because you're tend to be eating red meat and iron, iron rich foods, specifically the heme iron you get from animal foods and you're also not eating foods that have anti nutrients, things that interfere with the absorption of iron, like you would find in grains, for example. The downside I see potentially with paleo and I talked about this in the article is that there is some newer data showing that exposure to allergens like



allergenic foods, like peanuts, tree nuts, dairy, eggs, grains, gluten, those things during pregnancy might actually have a beneficial effect on the baby and helping reduce the risk of allergies later on. So if there's absolutely strictly no exposure, it potentially could increase the risk of allergies. But this is still something that's hotly debated in the literature. So I don't believe that people need to be super, super strict paleo. In fact, I defend the the nutritional value of high quality dairy products in my book. I think legumes can be a fantastic source of nutrition. I don't think everybody needs to go 100% grain free or gluten free unless there's an underlying health reason for it. But ultimately, if you're eating paleo, you're also not eating a whole bunch of processed foods, a whole bunch of refined carbohydrates, a whole bunch of added sugars, and that's certainly beneficial. So I think it's, you know, take it for what it is. If you feel great eating paleo, I don't see a problem with avoiding you know, Non paleo foods and pregnancy, but I don't think everybody needs to be strict. And then as far as keto,

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so a lot of people know my work, because I was the first dietitian to publicly defend a lower carbohydrate diet during pregnancy. And I have to say that it's in the context of what the guidelines are because the guidelines are 45 to 65% of our calories coming from carbohydrates. So about half or more of your diet they want coming from carbohydrates, or, at the very least, a minimum of no less than 175 grams of carbohydrates per day. And what I have found in practice with my gestational diabetes clients is that often fails to control their blood sugar. So that's what led me on this whole crazy research quest and all of these books you know, to prove that that actually, a is not evidence based on b we can do differently. And if your diet is coming mostly from carbs, you're You're actually going to be limiting a lot of these other foods that are the most nutrient dense and have the micronutrients you need for a healthy pregnancy. Now, does that mean that you need to go down to a ketogenic level of carbohydrates? Not necessarily. I mean, a lot of people, even those with gestational diabetes can drop their carbs down to 151 20, maybe even 90 grams of total carbs per day, and have excellent blood sugar control, and not even require blood sugar lowering medication, or insulin. Do they need to go lower than that? Most often? I've found Actually no, they don't need to. But I don't think we have enough evidence either way to say keto is A always a good thing or B always a bad thing. It depends on people's definition of keto, because some people I mean, if you're going to restrict carbohydrates to 20 grams of total carbohydrates per day, which some people do that would mean that you have to count your carbs from kale and almonds and raspberries. You know, if you're getting to that level where you're now restricting otherwise nutrient dense foods purely because of their grams of carbohydrates. I don't think that's necessarily a smart thing. But if your definition of keto just means that you're not eating grains or large portions of starchy foods, you're not eating sugar and you're instead making your diet come mostly from Whole Foods. So meat fish, poultry, eggs, nuts, seeds, lower carbohydrate



dairy products, lower sugar fruits, non starchy vegetables, fats from healthy whole food sources. I can't argue that that's a bad thing. Right? So it depends on people's definitions of it.

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Right because what you mentioned all those foods sound really healthy.

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Right and they are and they would all be part of a well planned Whole Foods potentially ketogenic diet, depending on People's definition of how many carbs they're going to try to stick to right?

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Because I always worry about something very severe keto, it also in children, we have the restrictive diet too much in terms of growth, right? The same thing becomes too restrictive in pregnancy that that might influence the outcome. Yeah.

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And and back to the definitions, if you're like in the dietetics field, most people are familiar with the ketogenic diet as it's used for the treatment of epilepsy, which is very, very restrictive. I mean, 90% of your calories are coming from fat. Now, by default, that would be a really bad idea in pregnancy, because as we talked about earlier, protein requirements are higher, right? So you're not going to be able to meet the protein needs and the growth for the fetus on that type of a ketogenic diet. But in the sort of lay persons popular media kind of ketogenic diet that most people are talking about now, which is really just a low carb diet. You might be totally fine but absolutely Do not restrict protein.

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Right? That makes sense. Yeah. Because that's what I learned is the very severe ketogenic diet for executive epilepsy. So really, I guess we're talking about like a modified keto diet.

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Exactly. And that's the difference between like somebody like yourself, who's a doctor myself, who's a registered dietitian, what we understand as keto, is that like clinical epilepsy, Charlie Foundation, kind of a strict ketogenic diet that you would use in a clinical setting. And most people's definition of keto these days is actually just a whole food. low carb diet might or like a grain free.

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Exactly, exactly.



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Yeah, that sounds I was worried about anything too restrictive. But that sounds everything you said. terms of modified sounds very healthy.

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Right, exactly.

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So in terms of just weight gain, you mentioned weight gain. What is like a healthy amount of weight for a pregnant woman to gain it doesn't matter depending on what she starts with her baseline weight.

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Well, you've set me up perfectly for good answer here. Yes, it does

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depend on her baseline. So the recommendations are for a healthy weight woman and how it's defined nowadays, for better for worse is by the BMI categories. And for somebody in the normal weight BMI category, pre pregnancy, it's 25 to 35 pounds, and then it would be more or less depending on where you started in pregnancy. There is some data now showing that people in the underweight BMI category might benefit from weight gain even beyond what the IOM the Institute of Medicine, weekend guidelines are, so they might benefit from more than 40 pounds of weight gain. And on the flip side, there's also data now showing that people who are in the obese or or greater than 40 BMI category, which I don't like the name but it's obese and then greater than 40 is morbidly obese right? But in that category, there actually is some data showing that less weight gain. So the lower cutoff is usually 11 pounds, less weight gain or even less, less weight gain to the point of weight loss or no weight gain whatsoever might be linked to better outcomes. So ultimately, for me, I mean, I think it's helpful for people to have the information based on their BMI category, sort of what to expect, they're not surprised to see the scale, move in the direction that it's moving. But I also think ultimately focusing on the health behaviors that would be supporting gaining within that guideline is most helpful. And that's really taking the time to talk to your clients about healthy behaviors, the foods that are going to be most beneficial, and also just activity levels. Keeping moving as much as you can during pregnancy seems to be helpful, but they do find that people are more likely to get within their respective weight gain categories, if they're given that information during their pregnancy versus if they're not given that information whatsoever. It's about 40 to 50% of people exceed the Institute of Medicine, weight gain guidelines. And in some cases, it's no big deal. And in some cases that can be linked to a higher risk of certain pregnancy complications like preeclampsia,



gestational diabetes, having a higher birth weight, baby, and then of course, other birth interventions as a result of those things.

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Right, that makes sense. any final comments or any kind of summary that you'd like to give to women thinking about getting pregnant and what they need to eat?

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Honestly, I mean, I think we're, we're all just doing the best that we can. And I think with pregnancy, we're throwing a lot of different differing opinions on topics and so I think it's really up to you As the person who's pregnant to do your reading, taking the information from all the sources and see what you think makes sense or doesn't make sense other References Citations to back it up. Is it just some hearsay on the internet so you can really make the best choices for yourself and really a lot of my work is just about empowering people to trust their bodies. Understand the benefits of certain foods and pregnancies, you can optimize your chances of having a healthy uncomplicated pregnancy, uncomplicated birth, easier postpartum recovery as possible, so my books are out there if if you want to check those out, definitely real food for pregnancy unless you have gestational diabetes, that's going to be the one to to get to guide you on all those choices.

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Right. Well, thank you so much for all your information and for joining me today and I'm sure this will be benefit a lot of women. So thank you. Thank you

