Fourth Trimester Podcast

Episode 135: What The Research Says About Vitamin D & Your Baby's Health with Celeste Beck PhD

Sarah Trott: [00:00:05] My name is Sarah Trott. I'm a new mama to a baby girl and this podcast is all about postpartum care for the few months following birth, the time period also known as the Fourth Trimester. My postpartum doula, Esther Gallagher, is my co-host. She's a mother, grandmother, perinatal educator, birth and postpartum care provider. I've benefited hugely from her support. All parents can benefit from the wisdom and support that a postpartum Doula provides. Fourth trimester care is about the practical, emotional and social support parents and baby require, and importantly, helps set the tone for the lifelong journey of parenting.

When I first became pregnant, I had never heard of postpartum Doulas, let alone knew what they did. So much of the training and preparation that expecting parents do is focused on the birth and newborn care. Once a baby is born, often the first interaction parents have with medical or child professionals, other than the first pediatrician visits, is the six-week checkup with the OB/GYN. *What about caring for mama and family between the birth and the six week doctor visit?* What are the strategies for taking care of the partner and the rest of the family while looking after your newborn?

Our podcasts contain expert interviews with specialists from many fields to cover topics including postpartum doula practices, prenatal care, prenatal and postnatal yoga, parenting, breastfeeding, physical recovery from birth, nutrition, newborn care, midwifery, negotiating family visitation, and many more.

First-hand experience is shared through lots of stories from both new and seasoned parents. Hear what other parents are asking and what they have done in their own lives.

We reference other podcasts, internet resources and real-life experts who can help you on your own parenting journey. Visit us at http://fourthtrimesterpodcast.com

Sarah Trott: [00:00:00] Hi, I'm Sarah Trott and welcome back to the Fourth Trimester Podcast. Today we are talking about vitamin D, and it's really all about how vitamin D supports a healthy pregnancy and postpartum. And we have a special guest who's done some new research on this topic. So we're really diving deep in particular on what this new research reveals. Joining us is Celeste Beck. She's a researcher at Helena Health. Celeste is an expert in maternal and child health with a dual title PhD in Nutritional Science and Clinical Translational Science. Plus she has over 15 years of experience in public health research. Her work focuses on the impact of nutrition on pregnancy outcomes and translating research into real world clinical care and public health programs to improve maternal and infant health.

Sarah Trott: [00:00:48] Celeste just published a groundbreaking new study on maternal vitamin D levels. Her research sheds light on why this essential nutrient is crucial for both parents and babies. The risks of deficiency and how we can ensure better health outcomes through simple but powerful changes. So we'll cover the when, how, why to take vitamin D to ensure you have as healthy an experience as possible for your pregnancy, your postpartum, and frankly, your whole lifetime as a busy parent. So whether you're expecting or newly postpartum or supporting someone on this journey, this episode is really going to be packed with insights that can help you make informed choices for a healthier start. Celeste, welcome to the show.

Celeste Beck: [00:01:29] Thank you so much for having me. I'm excited to be here today.

Sarah Trott: [00:01:32] Yeah. Thank you. I really appreciate the work that you do and that you have joined us to talk about this really important subject. I'd love to hear you introduce yourself in your own words.

Celeste Beck: [00:01:42] Okay. Well, thank you for that very nice introduction. I'll just add a little bit, maybe from a personal level as well as the professional that you shared. I am a nutrition scientist, and I've been working at the interface of nutrition and maternal child health for several years now. I currently work for a nonprofit organization, Heluna Health, as you mentioned. And they highly support work in this area. they support

nutrition for mothers and babies. And so I really enjoy working in this capacity at the interface of research and public health and specifically helping mothers and babies and more.

Celeste Beck: [00:02:20] On a personal level, I became interested in this topic myself when I was a new mom many years ago. I have two teenage boys who are 15 and 13 years old, and when I had my first newborn, my oldest son, and I was trying to navigate this, that was actually the time point when I became very interested in nutrition. It really came on my radar as a mom and wanting to feed my baby, give him the nutrition he needed, give myself the nutrition I needed. and so I actually went back and completed a PhD in nutritional science after having my two boys and I've been conducting research in this area for the past several years. You also mentioned public health. That's also a love of mine, because I believe that there's so much opportunity for application in the public health realm of these important research findings that we have regarding nutrition and maternal child health. And so that's really a passion of mine, is finding a way to apply these findings. So I'm excited to discuss it here today.

Sarah Trott: [00:03:24] Yes, I can only imagine that your kids have the best, healthiest packed lunches at school compared to everyone because their mom is a nutrition scientist.

Celeste Beck: [00:03:31] And I'll tell you, I think that they just took it in stride when they were little. But now that they're older, I don't feel like they always appreciate that as teenage boys, to be honest.

Sarah Trott: [00:03:41] Well, yeah, I mean pizza once in a while. That's all right.

Celeste Beck: [00:03:44] Absolutely. We have pizza every single Friday night.

Sarah Trott: [00:03:47] You heard it here. Pizza is okay.

Sarah Trott: [00:03:48] Okay, so you told us a little bit about your inspiration, and that ties to you being a parent. Do you have any stories or insights that you want to share from your own fourth trimester experience?

Celeste Beck: [00:03:58] Yes, and I think this might not be the best example, but it's a true example. So I mentioned that my oldest son is 15 now, and so I was going through this process of pregnancy and giving birth and postpartum 15 years ago. And so hopefully, maybe some things have changed since then. But I remember when I was pregnant and also postpartum, not really receiving any kind of nutritional guidance. It was more clinical based. And I would go to all of my appointments and I had fantastic clinical providers. And so I don't mean to disparage them in any form. I'm merely saying that nutrition was not a focus of the care that I was receiving. And so I don't remember ever receiving any kind of guidance about vitamin D or what I should be eating, except for one time when I was pregnant, and I mentioned to my clinical provider that I was more tired than usual. And so they immediately said, okay, let's have you take some iron supplements, because it's known that women can become iron deficient through pregnancy. But that was it.

Celeste Beck: [00:05:03] And so kind of tying into the postpartum phase as well, I went for, I believe it was a six week checkup postpartum just to make sure that I had healed properly, that everything was good. But again, I don't really remember at that time receiving guidance nutritionally. And so I think that would be my experience. More to share that. I hope that through this kind of research that I'll share and that we'll talk about today, then we can have more conversations about nutrition in pregnancy, how it impacts the postpartum phase, and be able to have more discussions between women who are pregnant, who are postpartum, and their providers.

Sarah Trott: [00:05:44] Yeah, for sure. This is really relevant for people who are perinatal professionals because they'll be working with clients on their own, and this will be new information they can share, as well as people who are parents and other family members and friends who can help advocate for themselves with the professionals who they work with. So I really appreciate that. Thank you. So tell me more about this

amazing research you've done. What are some of the key points and findings on your study and what was the goal of the study?

Celeste Beck: [00:06:09] So I would love to share. The goal of this study was to really examine associations between different time points and pregnancy of vitamin D status for the mom, specifically looking at first trimester and early second trimester. So kind of that early pregnancy time period and how maternal vitamin D status related to pregnancy outcomes, ones that we examined, included preterm birth. We also looked at growth trajectories of the fetus.

Celeste Beck: [00:06:40] And let me go back a little bit and just tell you who we examined. As for this research, there was a very large study done back in 2010 to 2013, and it was a multi multi-site study, meaning that there were multiple hospitals, research centers that participated in this study across the United States. And with this study, during that time period, they enrolled over 10,000 women. And what they did is they followed these women throughout their pregnancy. It was a very robust study done where women would go in during each trimester. So the first trimester, second, third at delivery, and they would provide blood samples. So they would give blood samples at those time points. And then also all of their medical record data would be recorded to allow researchers like myself to then be able to use those blood samples that were collected, which is what we did using blood samples that were shipped to us. At the time I initiated this study, I was at Penn State University, and so we had some of those blood samples shipped to us. And I personally did a lot of the lab work and learned a ton about vitamin D, where we measured the maternal serum vitamin D levels from the mom.

Celeste Beck: [00:07:54] So the concentrations of vitamin D using their blood samples in their first and second trimester. And then I used all of those data on the growth of the baby, which was measured using ultrasounds throughout pregnancy. So again, at each trimester time point then ultrasound measures would be done. And then also measures at birth. So head circumference length of the newborn and using those ultrasound and birth measures then what I did was I constructed fetal growth curves. Think about it. If you've ever been to the pediatrician and they measure your child every year for the

checkup, and then they may have come and shown you a chart where they show a curved line and they show you a growth curve of how the growth of your child is compared to other children. And that's what I did with these data. But it was just for the fetus as it's growing, using multiple time points.

Celeste Beck: [00:08:51] And so looking very early in pregnancy and then at later visits third trimester, there are measurements of birth and creating growth curves and comparing the growth of babies who were born to mothers who had lower versus higher vitamin D status.

Celeste Beck: [00:09:08] So circling back around kind of to the goal of our study, a limitation to a lot of previous studies that had been done examining vitamin D in relation to pregnancy outcomes. Most of them had looked at maternal vitamin D status at mid pregnancy and not earlier. And there's a reason for that, because those of us who have been pregnant, we may know that a lot of times you don't realize that you're pregnant until you are close to the end of your first trimester. I think when I was pregnant with my first child, I ended up going in between maybe 11 and 13 weeks and having it officially diagnosed and starting my clinical care. And so for that reason, it can be difficult as researchers to enroll women in their very early stage of pregnancy.

Celeste Beck: [00:09:55] And so for that reason, there really wasn't a lot of information about that first trimester vitamin D status and how that relates to pregnancy outcomes. And that's important because it's a question of timing, right? Where as women contemplating pregnancy or inner pregnancy, it's really important to know at what time points are. Vitamin D status or just general nutrient status is most important for development of that fetus. And so that's what our study, one component that it really added that had not been studied a lot prior to it, where we did have blood samples from the first trimester starting as early as six weeks of pregnancy, ranging from six weeks to 13 weeks of pregnancy that we were able to examine, in addition to second trimester maternal vitamin D levels and then see how outcomes pregnancy outcomes compared for women depending on their vitamin D status.

Sarah Trott: [00:10:56] So really this is one of the first times people have had this much research on that first trimester, which is really cool. And so what's the headline here? What are we learning from this amazing research early, early in pregnancy.

Celeste Beck: [00:11:09] Absolutely. So one of the, I would say maybe surprising findings, again, because this was more novel research, is we found stronger associations between first trimester vitamin D status and these outcomes that we looked at preterm birth length of the baby than we did when looking at second trimester. And what that means, if you translate that is it seems like that kind of indicates that that first trimester vitamin D status seemed to be more critical in relation to those outcomes compared to the status later in pregnancy.

Celeste Beck: [00:11:45] And by that, I don't mean that later in pregnancy is not important. I want to clarify that it is very important throughout pregnancy, but it was a main takeaway of that very first trimester, indicating that that is a critical time point early on. So that was one of our main findings. And then also we found that looking at those growth curves and specifically looking at length, I mentioned we used ultrasounds where they measured femur length during gestation and then looked at total length once the baby was born on delivery and babies were longer.

Celeste Beck: [00:12:20] Putting all of those data together and creating a growth curve, we found that women who had higher first trimester vitamin D status had babies that were born longer compared to women who had lower vitamin D status. And then I would say the other important finding that we had is looking at risk of preterm birth. And we looked at a lot of different cutoffs for vitamin D status for women, because I think this is a really important point.

Celeste Beck: [00:12:50] You don't want to always say higher is better, and I don't want that to be the message from today that get as high as you can and and then you're going to be better off. Because we know that there are actual toxic levels of certain micronutrients that you need to have all things in balance. And there are recommendations, but we really wanted to examine different levels of vitamin D and make comparisons. And so a couple of findings we had, we did a comparison looking at

women who were insufficient according to the Institute of Medicine. So the Institute of Medicine real quick has standards for what are vitamin D concentrations should be as women to be healthy. And they have cutoffs. They use um units of measurements called Nanomoles per liter. And that's really just the concentration in your blood of vitamin D when you measure it. And if you have less than 30 nanomoles per liter, you're considered deficient if you have between 30 and 50. You're considered insufficient, so you really need to have 50 or above nanomoles per liter to be considered having adequate vitamin D status. And that's really important because it ties back into the comparisons that we made. How high of vitamin D concentrations do you need, and which ones really had an impact on these findings that we had. So we had very few women in our study with very low status deficient, less than 30 nanomoles per liter.

Celeste Beck: [00:14:22] That was a limitation of our study, but we did have sufficient numbers to just do a comparison and say, let's look at these outcomes for women who just combining everyone who had insufficient status. So less than 50 nanomoles per liter, the recommended concentration for health compared to women who had adequate status. And looking at just those, I would say more using larger bins of comparisons. We didn't see any differences in women who had less than 50 versus higher than 50 nanomoles per liter when looking at these outcomes of preterm birth. Their growth trajectories of the baby. And so I was really curious to look across a wider spectrum. And so we were able to compare women who had less than 40 Nanomoles per liter. So not quite deficient, but a little bit closer to that level compared to women who had very high concentrations, which was above 80 nanomoles per liter, so higher than what the Institute of Medicine recommends. But we did have a fair amount of women who had 82 over 100. I want to say our range was going up to around maybe 110 to 130, but women over 80 nanomoles per liter. And when we made those comparisons, one major finding was that women who had very low, who had low vitamin D status, so specifically less than 40 nanomoles per liter compared to women who had the highest concentrations, which was defined as being higher than 80 nanomoles per liter.

Celeste Beck: [00:15:58] They had more than four times the risk of preterm birth compared to those moms that had that higher vitamin D status. And that was a really major takeaway from this study. So I definitely wanted to just say that caveat. And that's

just more of a general statement, not necessarily from this research, is that with any kind of nutrient, you can have toxic levels. And so I just didn't want women to take away from this to take super high supplements, get as high as you can because then you're going to have better outcomes. And so I wanted to be really specific because what we found wasn't actually about that middle ground. It was actually that the women had better pregnancy outcomes as far as preterm birth. They had less risk of preterm birth when they were in that higher category of over 80 nanomoles per liter. And so and that was comparing women who had low status that was insufficient. Nearing deficient status. So less than 40 nanomoles per liter. According to the Institute of Medicine, anything less than 50 is insufficient. We got to go a little lower than that and say less than 40. And women who had less than 40 had over four times higher risk of preterm birth compared to women with very high levels, which we categorized as over 80 nanomoles per liter.

Sarah Trott: [00:17:18] I see. So if someone's getting their blood work done with their doctors, what should they be looking for in there while they're pregnant?

Celeste Beck: [00:17:24] Yeah, absolutely. So if somebody feels they might be at risk for deficiency, it is a great idea to have their doctor test them and be able to find out what their vitamin D status is, what their levels are. And I'm going to go back and rely on that Institute of Medicine cutoff where really anything less than 50 nanomoles per liter is considered to be insufficient. And if women do have an insufficiency less than 15 animals per liter, then that's definitely something to work with our health care provider on ways to improve that number. And I would say that our research supports that with our finding that women that had less than 40 and so kind of going into that insufficiency realm and nearing deficiency, comparing their outcomes with regards to preterm birth to women who had over 80, that we found that they were more likely to have preterm birth. So definitely, if women find from their doctor that they have low vitamin D status, then they should definitely be working with their clinical provider to improve that level, which our findings do support.

Sarah Trott: [00:18:35] Yeah, and that's probably like a good level. I mean, no one pregnant or not, right. For any human like we want to have a sufficient level of vitamin

D, so it sounds like it's something that's worthwhile checking on, even if you're not pregnant or even if you're postpartum, like, you want to make sure you've got those right levels. So thank you for clarifying, I appreciate it.

Sarah Trott: [00:18:54] Okay, so I think we talked a lot about why a vitamin D is so important and what the risks are of deficiency. So feel free to add anything else there you'd like. But I'm also curious, are there specific groups that are more at risk than others for deficiency.

Celeste Beck: [00:19:08] So this is a really great question about being at risk. There are definitely some. There are definitely some groups that are more at risk for vitamin D deficiency, which is known, and it's based on some different factors that we can talk about. First, I want to point out that having an insufficient vitamin D status is actually really common in the United States. It's common in the general population. But specifically with regards to this conversation, it's common among women who are pregnant and lactating and there are some data to back this up. Some recent national statistics showed that 28% of women who were pregnant or lactating had insufficient vitamin D status. And that's a large number that's over a fourth, almost a third, right. When you think about women who are at risk for insufficiency or who had insufficiency. And so why might women be insufficient? Well, there are a lot of reasons. And it kind of ties into sources of vitamin D. So first of all, we don't have a lot of vitamin D sources in our food. Some of the sources that we have that are really good, great sources are fatty fish like salmon. So if a woman regularly eats a lot of salmon, then she's going to be getting a lot more vitamin D, potentially just from her diet, from someone who does not eat a lot of fish.

Celeste Beck: [00:20:40] Other sources that don't provide quite as much vitamin D, but do provide some vitamin D are things like egg yolk, but again, not as much other sources of vitamin D that we have. We know that following sun exposure, then we can actually produce vitamin D in the skin. And so if we're in the sun a lot, but going back to risk for vitamin D deficiency, I would say it would be if we're not getting a lot of it in our diet. Other sources would be fortified food products such as dairy milk or nondairy milks. If you look at the nutrient panel on the back, then one serving usually provides maybe

about a quarter of your vitamin D needs just to give some context. And so if you were to try to get all of your vitamin D through drinking milk, then you would need to be aware of that, that you might need multiple servings a day, that kind of thing. So if you're not having a lot of food sources with vitamin D, you might be at risk for deficiency. See also.

Celeste Beck: [00:21:40] Thinking of the sun. If you don't spend very much time in the sun unprotected. Meaning if you go in the sun and you're always wearing protective clothing, which is recommended, right? For some protection if you're wearing a lot of sunscreen. I know I always wear sunscreen and going out, so I fall in that camp. So if you're not or if you live at latitudes or places where there's not a lot of sun exposure, or during the winter time when it's often cloudy and you're not really getting the UVB rays then. So if you're not getting that sun exposure, then you can also be at risk for vitamin D deficiency. And then there are some other factors that play into as well. Even if somebody lives in a place with high sun exposure, say somewhere with sun more year round, like Arizona or somewhere like that, and you're trying to go out in the sun certain amounts of times.

Celeste Beck: [00:22:33] Another factor is physiological, and it is darker skin because of the melanin in darker skin that pigment, it absorbs the UVB rays and so it hinders production within our skin of vitamin D if we have darker skin. And so we know that some of those populations are at higher risk for vitamin D deficiency. So I hope that answered your question. That kind of covers a few different areas that could really make someone prone to vitamin D deficiency to just be aware of.

Sarah Trott: [00:23:03] Yeah, that's really helpful. So we talked about food and sunshine. Are there other ways that pregnant and postpartum people can really help ensure they're getting enough vitamin D?

Celeste Beck: [00:23:12] Absolutely. So if you want to get enough vitamin D, one of the quickest ways maybe, I don't know, maybe one of the easiest ways. It would all depend on the person, right? But we know that we have supplements that contain vitamin D where you can either have a supplement on its own that is just vitamin D, or if you are taking a prenatal vitamin or postnatal vitamin or just a multivitamin in general, then

those generally contain vitamin D in them. And so a supplement that's often a recommended way and often a recommendation during pregnancy and during the postpartum phase to be taking a supplement. And we did find in our study that women who were taking supplements because we were able to measure that. And it was asked, are you taking supplements? And we measured their vitamin D status that women who were taking vitamin D supplements or it was actually multivitamin supplements, women who reported taking a multivitamin supplement had higher vitamin D concentrations compared to women who did not report taking a vitamin D supplement. So that can be an easy way to make sure that you are getting your recommended levels of vitamin D, and you'd have to talk to your provider about how much you should be taking.

Sarah Trott: [00:24:29] Okay. So sun, is it kind of a myth that someone, if they're outdoors a lot, that they can get all the vitamin D they need? I mean, we sort of talked about it. We're wearing sunscreen. We're covering our bodies. That's good. Right? Our doctors tell us to use that protection, so obviously it plays a role. But would it be enough for just being outside?

Celeste Beck: [00:24:46] It's definitely not a myth that you can get enough vitamin D from the sun. That is definitely possible. But there are some factors that need to be considered, and it can be kind of a tricky space because you're also trying to balance that with protecting your skin from the sun and thinking of things like skin cancer, right? Or even heat exposure can also be a consideration, but it is possible in the aspects to consider would be again, latitude. If you are living somewhere that is cloudy and rainy and overcast for a good portion of the year, it's going to be really difficult to get enough UVB rays. Sun exposure to be able to develop to produce vitamin D in your body that is adequate and so to be able to produce vitamin D, then you really need to have say like a full sunny day where you're having a lot of UVB rays coming down. And then also it depends on how much of your body is exposed. So if you're going out and it's just your hands and your face, you're not going to produce much vitamin D, but generally you need to have a lot of your body parts exposed your limbs, your face, your hands. And there have definitely been studies conducted showing that if you are getting a lot of sun exposure, I mean, even within 15 to 30 minutes, if you are getting direct sun and say

you're in a bathing suit and you have a lot of your body that is getting that exposure, then yes, within 15 to 30 minutes you can actually produce a lot of vitamin D in your body.

Celeste Beck: [00:26:24] Now, how realistic is that for most of us to be going out and sunbathing every day? Probably not realistic for a lot of us. And so yes, it's true that we do produce vitamin D in our bodies, and that's not a myth that we could theoretically produce enough. But it comes down to realistic lifestyle. And knowing that we would need to have quite a bit of sun exposure with a fair amount of our body not being covered up in direct UVB rays on a continuous basis to be able to do that.

Celeste Beck: [00:26:56] And I'll just share with you Sarah just a little bit example, because there are people who are studying these kinds of things. And in preparation for this call, then I looked up, there was one clinical trial that was done, and I think it was India, and it was of 108 women. And so they were measuring for these pregnant women starting at 20 weeks of gestation, and having some of the women go in the sun and have sun exposure for 15 to 30 minutes, three times a week, and having their face, arms and their legs exposed. And what they found is that for those women than they did have. Vitamin D levels improve throughout the exposure, and they had higher birth weights compared to control groups. But then, interestingly, they also showed in that same study they had a group of women who took 1000 IU's of daily supplements of vitamin D. They also had their vitamin D levels increase, and they actually increased more than the women who had been in the sun. And so, you know, you just have to kind of think about balancing your sun exposure with what you need.

Celeste Beck: [00:28:06] And something important to point out. There are recommended daily allowances for what we should be getting for vitamin D. And I'd like to reference that now where it's 600, IU's a day. And so if a woman listening is wondering how much vitamin D do I need to be getting? If I am going to take a supplement, then what? The recommendation is 600. I use a day and that is during pregnancy and during lactation. And so that can just be something to be on their radar. If they're considering their different sources where they might be getting it from.

Sarah Trott: [00:28:39] So, Celeste, what do you wish health care providers knew about vitamin D?

Celeste Beck: [00:28:45] Okay, so I want to say, I think that health care providers in general do a really great job. I work with healthcare providers in some of my research on this research that I just conducted. It would not have been possible without collaborations between medical practitioners and myself, and it was really at the hospital clinical level where they conducted this study, and they collected all of these wonderful data and had these questions. And there are amazing MDS and clinical researchers that I partner with. And so they definitely do a wonderful job and have a lot of these questions. I think when it comes to practice and what is currently being done in clinical practice, than in order for that to happen, you have to have a lot of evidence From a lot of credible studies that point to a specific clinical change in action in order for that to then become a guideline.

Celeste Beck: [00:29:40] And that's where I feel like our research really contributes, and I hope it can contribute, is to more conversations in the clinical community, and that it can contribute to a pool of evidence indicating that perhaps screening could be important for women for vitamin D when they are contemplating pregnancy or in their early pregnancy. And right now, I'll share that there are official recommendations. The American College of Obstetricians and Gynecologists, Acog, you may have heard of them. Then. What they say in their current stance on this is just that there's insufficient evidence to support a recommendation for screening all pregnant women for vitamin D deficiency. And so for this reason, then it's not routinely done. And so if I were to say something that maybe I would hope to come from this research project that we just completed, is that there would be more conversations about the importance of screening women in their early pregnancy, or even, again, when they're contemplating pregnancy, because we found that that early pregnancy, early pregnancy, vitamin D status was so closely tied to these outcomes of birth length and risk for preterm birth that it appears to be a critical time point for women to really consider and have on their radar.

Sarah Trott: [00:31:02] Thank you. And people can advocate for themselves, right? If you are thinking about getting pregnant, even if it's not routine, it is possible to work with your healthcare providers and make that request and see if it's something that they'll work with you on.

Celeste Beck: [00:31:14] Yes, absolutely. And I would say that that's something I love, how you shared that women can be proactive about this, that you can definitely ask your doctor if it's just ask them if maybe you could be tested for vitamin D concentrations and find out where you are so then you have an informed stance going into your pregnancy. But it's definitely something that we can request and have that conversation about.

Celeste Beck: [00:31:41] And I think that a lot of providers would love to have those kinds of conversations but because it's not on the guidelines, it's just not routinely done as screening and a couple of other things that I wanted to point out. Sarah, if it's still okay, is just about from a parental standpoint and thinking about these mothers and myself when I was younger and wish that I would have had more guidance.

Celeste Beck: [00:32:06] I would love to talk for a minute about why vitamin D is so important in pregnancy, and what its roles are, and kind of why this first trimester finding that we had is so important, and how it relates to these outcomes. Would that be okay for a minute?

Sarah Trott: [00:32:23] I would love that. Please do.

Celeste Beck: [00:32:25] Okay, perfect. So I just wanted to talk a little bit more about vitamin D and why it's so important in pregnancy. So one of the big roles of vitamin D is helping us to absorb more calcium, which is very important, especially during pregnancy, because we are creating this baby. Right. And so that baby depends on us for all of its nutritional needs and also for its growing skeleton, all of its bones, everything which is requiring a lot of calcium. And so as mothers going through pregnancy, then our bodies are requiring higher and higher amounts of calcium so that we can help support the development of this growing baby. And vitamin D directly helps

us absorb more calcium. So what happens is vitamin D is converted to its active form, which happens increasingly throughout pregnancy to help us absorb more calcium into our bodies and have that be available. And so what has been found through a lot of research prior to ours, is that there are risks when women have insufficient vitamin D status that have been linked to low birth weight of the babies. It's been linked to neonatal hypocalcemia. What that means is that when you have the newborn hypocalcemia, they don't have enough calcium. It's been linked to poor postnatal growth of the infant bone fragility, and then even things like preterm birth that also we found in our study. And so just for women to be aware that vitamin D is so important to help us have the calcium absorption and availability needed for the skeletal growth for this growing baby, and then also another one that I'll just point out, there are other roles of vitamin D that we're still exploring.

Celeste Beck: [00:34:12] And it's been found that vitamin D is also related to immune function. And our finding of first trimester vitamin D being associated with preterm birth. Then you might think, why is vitamin D in that very early stage of pregnancy when your fetus is still so very tiny. How could that even be related to preterm birth or these outcomes? But vitamin D is known to be involved with immune function. And so that's one hypothesis that even when you're first developing the placenta in very early pregnancy and immune function that's happening at the interface of the placenta, then that could be very important for later outcomes also for placental vascular growth. There have been studies suggesting that vitamin D is involved with that.

Celeste Beck: [00:35:03] And so having healthy and full development of the placenta, which later is very necessary to provide all the nutrients for the baby. So there are mechanisms and things happening on early in pregnancy in regards to vitamin D that make it so important that I would love to to explore further in future research. But I just think it's important to understand that vitamin D does have crucial roles for women during that very first early stage of pregnancy. And that's why it's so important to be considering and thinking about even prior to becoming pregnant.

Sarah Trott: [00:35:35] Perfect. That's really good context for this entire conversation, right? Like, it's not just vitamin D and isolation. It's how it impacts everything else in the

body, the immune system and bone growth. So where can parents find reliable information and support for optimizing their vitamin D levels?

Celeste Beck: [00:35:50] Finding information about vitamin D from credible sources is very important. We know now that there are so many talking voices out there, so many different opinions and places that we can go. And so what my recommendation would be, there are a few suggestions, but there are others as well. But in general, maybe look for official medical organizations. So if you see a hospital website that is has a page giving recommendations for women and vitamin D during pregnancy, that would be seen as credible also. The American College of Obstetricians and Gynecologists, Acog that I mentioned before. Then they are very credible organization that they base their guidelines on evidence based research. Also, the centers for Disease Control and Prevention, the CDC, the National Institutes of Health, your doctor's office, maybe public health at the local level or your state public health agency looking to see what they have to say. They often have pages that, again, are based on evidence based research. And so just looking for some of those credible sources.

Sarah Trott: [00:36:59] Perfect. Yeah. when I was doing my research, when I was pregnant and thinking about it, I was really overwhelmed with how much information there was online, just so much. And for every book or every post or something you find with recommendations, you can often find opposing ideas. So it can be really overwhelming by the volume, but also kind of confusing. So I appreciate kind of pointing us back to major societies, CDC, Acog, places that are reliable and trustworthy? I couldn't agree with you more.

Celeste Beck: [00:37:28] Absolutely.

Sarah Trott: [00:37:29] Celeste, do you have any final thoughts you want to share with listeners?

Celeste Beck: [00:37:32] I'm just really happy that we're having this conversation. Maternal child health is so important. It's so important that we take care of ourselves during pregnancy, as well as our growing babies, and just having conversations like this

and helping mothers everywhere to be aware of ways in which they can be proactive in bringing up these conversations with their health care provider, in recognizing steps that they might need to consider and think about for their health and the health of their baby. So I'm just really happy that we're having this conversation and hopefully moving in the right direction to promote more of these conversations.

Sarah Trott: [00:38:09] Wonderful. And we're very excited about your future research. Celeste, it sounds very interesting, and we'll have you back when you have your next research paper. And also, I just want to ask if people want to find your paper or get in touch with you or learn more. Where could they go to find that?

Celeste Beck: [00:38:25] Absolutely. So we published this paper in the American Journal of Clinical Nutrition. They can even just type in Google my name, Celeste Beck, American Journal of Clinical Nutrition, and it should come up when we publish. We did make this article so it would be available for free to everyone. And so it should be readily available for anyone that just finds it online. It's called maternal vitamin D status, Fetal growth Patterns, and Adverse Pregnancy Outcomes in a multi-site prospective pregnancy cohort. It's a very long title, but if someone wants the actual title, there it is. And then also I'm on LinkedIn. If anybody wanted to find me and and talk through LinkedIn as well. But yes, thank you for asking.

Sarah Trott: [00:39:09] Perfect. Okay. And then we will put links to all of those that you just mentioned in our show notes. So someone can also access that really easily there. Well, thank you so much Celeste. I really appreciate the time.

Celeste Beck: [00:39:19] Thank you so much, Sarah. It's been a pleasure.

Sarah Trott: You can subscribe to this podcast in order to hear more from us. **Click here for iTunes and click here for Spotify**. Thank you for listening everyone and I hope you'll join us next time on the Fourth Trimester. The theme music on this podcast was created by Sean Trott. Hear more at https://soundcloud.com/seantrott. Special thanks to my true loves: my husband Ben, daughter Penelope, and baby girl Evelyn. Don't forget to share the Fourth Trimester Podcast with any new and expecting parents. I'm Sarah Trott. Goodbye for now.