Episode 213: Making Food Allergy Prevention Easier With Ready, Set, Food!

Child: Welcome to my Mommy's podcast.

This episode is brought to you by Joovv… there are my go-to for red light therapy, also called photobiomodulation. So what on earth is that and why do I like it so much? In short, it is a way to support the body using specific wavelengths of light. The research show that this can improve mitochondrial function, increase ATP (cellular energy) and create all of the benefits that go along with that. Used around the world for its anti-aging and skin benefits, as well as to calm inflammation. I've noticed the benefits personally for hair growth, skin health and as part of my regimen to keep my thyroid healthy. I have a big Joovv light at home and use it all the time, but I miss it when I travel…. Which I do a lot these days. That's why I'm so excited about their new handheld device. It's called the Joovv Go and it gives you all the same Joovv power, but in the palm of your hand, so you can take it anywhere. It's also less expensive, which is a plus. This means I can make sure my thyroid and face still get red light therapy even when I'm traveling so I can function at my best and keep wrinkles away. Here is a tip: I also like to use a dab of castor oil on my eyelashes and hairline just before using the joovv as it is also great for hair growth and the joovv seems to intensify the results. You can learn more and get a free gift with any purchase at joovv.com/wellnessmama with the code wellnessmama

This episode is brought to you by Organifi and I'm so excited to finally tell you about them! Here's a confession… I've known about them for a long time and even though so many of my friends and experts I trust rave about them, I never tried their stuff until recently because I thought… how can it actually be that good? Well, I tried it and it turns out that it is not only that good, it's even better! Organifi has green juice, red juice (which is an antioxidant red drink that is delicious) and a golden milk turmeric drink, along with a plant-based protein shake. They are all organic and they actually taste good, unlike a lot of other green drinks and protein powders. I've especially been loving their red juice lately, especially this time of the year with immunity. It tastes amazing and has a blend of antioxidants from strawberries, cranberries, blueberries and pomegranates along with beets, cordyceps, reishi, rhodiola, and more. This particular blend is formulated to increase energy, boost metabolism and reduce factors that lead to aging. Their green juice is minty and delicious and I noticed it has almost 800 5-star reviews… You can check it out, along with their whole suite of products and save 20% by going to organifi.com/wellnessmama with coupon code WELLNESS20.

Katie: Hello and welcome to "The Wellness Mama Podcast." I'm Katie from wellnessmama.com. And today's episode is going to answer a lot of questions and requests that I get from you guys, and I cannot wait to share my guest with you because I am here with Dr. Katie Marks-Cogan who is a board-certified... She's board-certified in allergy and immunology and internal medicine.

She treats both pediatric and adult patients. She's originally from Cleveland, Ohio. She received her MD with honors from the University of Maryland School of Medicine. She then completed her residency in internal medicine at Northwestern and her fellowship in allergy and immunology at the prestigious University of Pennsylvania and CHOP.

And after finishing her training, she moved to Southern California where she currently works in private practice and also serves as the chief allergist and a member of the scientific advisory board for Ready, Set,

Food. And in short, she's super, super smart and incredibly qualified to answer a lot of the questions I know that you guys have about food allergies. So, Dr. Marks-Cogan, welcome and thanks for being here.

Dr. Katie: Hi, Katie. Thank you so much for having me on today. I'm really looking forward to this.

Katie: I can't wait either. And unfortunately, I know you share my concern in this. This is a rising issue and an important one certainly for...especially all of our children. So I'd love to start with could you kind of explain your background and how you got into immunology?

Dr. Katie: Oh, of course, absolutely. After medical school, I went into internal medicine training. So I did a three-year residency in internal medicine. And during that residency, I knew that I wanted to specialize because I am someone who likes to know a lot about a few things rather than the opposite. And so, again, I knew I wanted to specialize and I wanted to find a field that allowed me to really work one-on-one and have relationships with my patients and also allowed me to really use my medical knowledge to sort of be an investigator, being a detective. And so allergy and immunology allowed me to do that.

And really, the immune system has always really intrigued me. And so, in addition, while I was in training, I was thinking a bit about balance and about quality of life. And so I knew that this field would also allow me to have balance. And so that's all in the end why I ended up choosing this. I got very lucky. Northwestern has an amazing allergy program. So I was able to be exposed to everything early on. That really helped me choose my path.

It is a rising problem. In fact, many of us are saying that it's really become an epidemic in our society. This is very different than when our parents and grandparents were children. Again, it's become an epidemic, and currently there is no cure. And so when we think about chronic diseases and chronic issues like that, you really have to get down to prevention. And there's the quote, "An ounce of prevention is worth a pound of cure." I think Benjamin Franklin said that. And so he was obviously a very smart guy. And he's right. Some of the thinking now, some of the theory behind why food allergy is increasing has to do with food allergen avoidance. And so we'll obviously touch much more on that as we go through the conversation. But that's one of the main things I'll be discussing today.

Katie: Got it. So can you explain from a physiological standpoint what the difference is between an actual allergy versus someone just being intolerant to something?

Dr. Katie: Absolutely. I'm so glad you asked that question. I get asked that a lot. And so let me start by just telling you what a food allergy is sort of just in basic terms. So basically, a food allergy is when the body's immune system mistakenly responds to certain foods that it thinks are harmful. So our immune system defends and protects us from certain viruses and bacteria. We can call them foreign invaders. And so basically, food allergies occur when the immune system sort of over-defends or overreacts and treats certain proteins in

foods as foreign invaders. These proteins are actually called allergens, and our immune system makes special allergy antibodies called IgE antibodies to these allergens to help fight them off. And so these antibodies can help our cells cause a reaction when a person eats a food they're allergic to.

This reaction can lead to symptoms like, skin symptoms like hives or swelling of your lips and your tongue or stomach upset. It can even lead to more severe problems that can lead to a very life-threatening reaction called anaphylaxis for which, really, the only cure that...or, excuse me. The only treatment that we have for that is epinephrine. We can get into that more later, but specifically with these food allergies that have the IgE antibodies, if a reaction ensues, the symptoms usually occur within seconds to minutes and almost always within two hours. And so this is very different than a food intolerance.

So again, a food allergy is where there's an immune response that occurs rather quickly and it can be life-threatening whereas a food intolerance is rarely ever life-threatening. And it usually involves the digestive system. So for instance, lactose intolerance is an example. And that's where people can't digest certain sugar in milk and therefore, they get gastrointestinal symptoms like gas and bloating and stomach pain. Another example of intolerance is gluten intolerance, and so that's very different than someone having an IgE-mediated wheat allergy.

Katie: Got it. I think that's really, really helpful context. And is the process by which each of these are happening, is it a similar immunological process or is there a difference? For instance, what would be the difference in the body of why someone would be triggered to get an allergy versus just an intolerant?

Dr. Katie: Another great question. So we think there are multiple factors involved to why we end up becoming allergic to specific proteins in food. It's, again, the immune cells play a role. The immune cells all sort of talk to each other. They're all friends and they talk to each other and tell each other what to do to help the body sort of fight off a foreign invader, like I mentioned. And so again, once they determine that a certain food protein is a foreign invader, then on each time they're exposed to that food protein, they're going to try to get rid of it and create a reaction. And that's very different than an intolerance. Again, we can look at lactose intolerance just as an example. There are many different types.

You can be intolerant to many different foods but just because it's a very well-known example, we'll use that. And the difference there is that if you have lactose intolerance, you don't have a certain enzyme in your gut that helps you break down one of the sugars called lactose in milk. And so if you can't break it down, you can't easily digest it and then it brings on these other sort of gastrointestinal symptoms. And so you can see the difference there. One is the immune system and the cells talking to each other and creating a response. And the other one is just sort of the lack of something that helps you digest a certain substance in a food.

Katie: Gotcha. Okay. That makes perfect sense. And I guess a follow-up to that would be...at least from my side, granted I'm not a researcher or a clinician. I'm not seeing patients like you do. But just from the feedback I'm getting from moms, it definitely seems to me like these problems are both on the rise but probably maybe

even allergies a little bit more so, like I hear from a lot of moms who have children with even anaphylaxis-based allergies. And I know from hearing from them, it's a very scary thing. Why do you think we're seeing a rise right now or are we seeing a rise? Maybe I'm just hearing from a lot of moms. Do you think this is a problem that's rapidly on the rise?

Dr. Katie: So, you're absolutely right. We are seeing a rise and it's well documented in studies about prevalence. How many people actually have the diagnosis and how many people are being diagnosed every year? We are seeing and it's... We're seeing a rise and it's actually quite drastic. Currently, it's estimated that about 8% to 10% of children in the United States have a food allergy. So if you sort of break that down, that's about 1 in 13 children. And if you think about school-aged children, that's two children per classroom. So that's quite a few. We also know that these rates are rising and specifically if you look at peanut, the rate of peanut allergy has actually close to tripled over the last few decades.

So when we think about food allergies, really, very few people are not either directly or indirectly affected by food allergies in today's society, which is unfortunate. There are a few major theories for why we are seeing such an increase. And so I'm happy to get into those and then obviously if you have more questions, I can give details. But just to give an overview, one of the theories is that we are becoming or have become slightly more vitamin D-deficient and because vitamin D can help with our skin barrier function and can help with regulating oral tolerance, if we're deficient, then we might have weaknesses in those two things. And so there are currently studies underway looking at vitamin D supplementation in infants and how this may or may not protect from food allergies. So that's one of the theories.

Another one is the well-known hygiene hypothesis. And so I think most people know about this. It was first mentioned in the late '80s. And basically, the theory says, the idea is that we're too clean. We have become a society that's too hygienic, too sterile. We've kind of washed and boiled and put Purell on everything, every toy and cup and bottle and paci, and so because of that, our children's immune systems are not exposed to enough normal or, you could say, good bacteria and therefore, the immune system might not be developing and educating itself early on and so it's getting skewed towards allergy.

Along with this theory is the fact that we have a very high use of antibiotics, almost an overuse of antibiotics. And so again, that goes along with this. And now, we know a lot more about the microbiome and we each know that we each have our own sort of personal microbiome. And the microbiome in the gut plays a big role as well, and so all of those things play into that theory. It's actually really interesting. There have been some animal studies where they removed all microbes from mice. So they're called, like, germ-free mice. And what they see is they cannot induce oral tolerance. So those mice cannot become tolerant to foods. They think it's because they lack sort of a normal flora. They lack this normal microbiome. So that's one amongst many, many studies that have helped support the theory, the hygiene hypothesis theory. Again, that's another major theory for why food allergies are increasing. And then I'll mention a couple others.

Another one is called the dual-allergen exposure hypothesis. So it's a really fancy way of saying that at a young age, if a child with eczema is exposed to food allergens through contact with their skin, but is also not being

exposed to those same food allergens in high doses through their mouth, through their GI tract, then they're actually at a much higher risk for developing food allergy. Again, the reason for this is that scientists and doctors believe that exposure through the digestive system is what offers the immune system a buildup of tolerance. And so if you get exposed to these same things through compromised skin such as skin with eczema, you actually are more likely to build a sensitivity to it. And there's actually been quite a few studies to help support these theories as well. And so this brings us to one of the last ideas that I'll mention with regard to why food allergies are increasing.

It's basically, the impact of food allergen avoidance. Historically, the medical community believed that avoidance was the best practice. And so they used whatever information, what data they had available and made a decision that in 2000 helped them make guidelines. So back in 2000, the American Academy of Pediatrics put out guidelines recommending that parents avoid giving their babies allergenic foods until they were older. So for instance, peanut wasn't recommended to be introduced until age three. Eggs were supposed to wait until the baby was two. So that went on for many years. However, since that time, numerous studies have been conducted that have actually shown that the exact opposite is beneficial to preventing food allergies. Guidelines have since been reversed, and a lot of energy has gone into spreading awareness and sort of educating the public and physicians that avoidance is really not the answer. And unfortunately, that was incorrect. And now, as I mentioned, there's robust evidence saying the opposite. So those are some general ideas. I'm happy to get into it more but that's the summary.

Katie: I love that. I love that you brought up the hygiene hypothesis, too, because that's something I've been saying for years just from the limited research that I was seeing is that I think we are over-sanitizing our environments and not to say we should be purposely exposing to dangerous bacteria, but there are a lot in the natural environment that we're not getting. And I know that I've seen various different potential links between even just having a pet that goes in and out of doors and brings the bacteria and reduced allergy risk or children spending more time outside, which, of course, we know has many benefits beyond just that. But I love that you brought that up and I also love that you...that last point you brought up about the avoidance because I think there's so much confusion, especially among parents, of which many of the people listening are parents, about what are we supposed to actually do when it comes to kids and allergies because...my oldest is 12 and I feel like even in that time from different doctors, I've heard different things of, "You should avoid these things when you're pregnant," "You should not," "You should purposely eat them when you're pregnant," "You should not." And so I feel like as parents, sometimes we're left trying to figure out amongst all these theories, what are we actually supposed to do? So what is the actual research saying right now from the best you can tell about what is the best way with our children to put the odds in their favor?

Dr. Katie: Yes. So I'm a mom also and I totally understand where you're coming from. As parents, we have to sort of dissect all of the information that's out there, and now because of our access to the internet and social media, there's so much information. And it really is hard to figure out which information's right, what to trust, what to be skeptical about, and so I totally 100% get it. From a food allergy standpoint, from a prevention standpoint, I can say that the evidence is and the research is there and it's actually...it's quite good and it's just...right now, it's just finding a way to explain it where people understand it and where people realize how they can sort of fit it into their lives because we're so busy. And so I'll talk to you a little bit. Again, I'll go back a little bit about the history.

I mentioned how the American Academy of Pediatrics sort of reversed their thinking and their guidelines and that was about a decade ago. And so at that time, researchers were sort of thinking to themselves, "Why are food allergies increasing," and, "Is avoidance the best thing?" And one of sort of like the landmark studies that was done that precipitated a lot of these other randomized controlled trials that have been done actually in the last five years, one of the studies was a study that looked at children in Israel compared to children in the UK. Some researchers in the UK got together and they were chatting about why peanut allergy was...the rates were increasing. And they said, in Israel, not many children have peanut allergies. And why is that? Well, they knew that children in Israel were actually exposed to peanut from a very early age. There's a snack called Bamba that Israeli children eat from very early on. And it's like a peanut puffed corn snack and it's introduced into their diets very early. And so they were getting exposed to peanut very early and very often and children in the UK were not exposed to peanut early and often and actually was delaying their introduction. Peanut wasn't a part of their normal diet.

So anyway, they took two populations of Jewish children in each place, so a population of school-age Jewish children in Israel and one in the UK and they sort of matched them. And they found that children in the UK had a 10 times higher rate of peanut allergy compared to the children in Israel. And they hypothesized that it was because of this early and often exposure to peanut. And so that was sort of one of the motivators to have researchers begin structuring these trials to compare avoidance and early and sustained allergen introduction. And one of the big trials that came out was called the LEAP trial. LEAP stands for "Learning Early About Peanuts." And this was actually one of the trials that made this Bamba snack so famous and that's why everyone knows about it. Now, Trader Joe's has their own version of it.

But basically, that study looked at about 600 babies who were considered high-risk. So that means they had severe eczema or they already had a diagnosed egg allergy. And they split them into groups and some of the children...all of these babies were aged 4 to 11 months of age. And so one of the groups was asked to be...the parents were supposed to feed the babies peanuts multiple times a week for many, many months while the other group was supposed to avoid the introduction of peanuts into the babies' diets. And what they found at the end, which was many years later, was that the group who had been eating the peanut for all of those months and years had a much, much lower risk of diagnosed peanut allergy at the end. So there was about an 80% risk reduction when you compared the two groups. And so this was huge news and really exciting and really precipitated a lot of what we know now.

There are studies ongoing, but there have been multiple studies since that have shown similar results with the introduction of allergen foods into babies' diets around that same age. And so this study, this one study, the LEAP trial actually caused the National Institutes of Health, the American Academy of Pediatrics, and other national organizations, allergy organizations and even international organizations to put out guidelines in 2017 recommending the early introduction, the early and sustained introduction of peanuts into babies' diets. And so as I mentioned, other studies have been done that have looked at other foods as well. And we know that there is evidence for this for other allergenic foods. And this is really now what the thinking is is that we have to get these allergens into our baby's diet early and we have to expose them often. And so by doing that, we

can sort of train the immune system to be tolerant to these proteins. And maybe by doing this, we can actually decrease the rate of food allergies.

Katie: That's huge. And it's sad to know that for so long, we thought avoidance was the best option and probably that was actually creating more problems than solving them. But it's great now, I feel like, to have that understanding and to know of the risk factors you mentioned like if your baby has eczema, you wanna keep an eye out if there's early allergies or a family history, you wanna keep an eye out but now to also have a well-researched tool for how to incorporate these foods safely, hopefully, and to reduce that risk over time. So to that note, you mentioned that all of these organizations had come out with guidelines. Are there specifics for parents as far as the timing and the amounts and how often these things should be introduced?

Dr. Katie: So right now there are specific guidelines with peanut. Hopefully, in the near future, there will be other guidelines with other foods. But in other countries, there are guidelines for basically all allergenic foods. And so what we know is that we need to introduce the foods. What we know is that there's basically...we can call it like a window of opportunity, like a golden window where we can sort of mold the immune system either towards becoming tolerant to a food versus becoming allergic to it. And so what we think is that this window starts around four months of age and we don't know exactly how long the window's open for. But based on the studies, we believe it's around four months of age and it's less than a year of age. So we want the foods to be introduced within that time frame.

So when I talk to moms and parents about this, again, it can be very confusing and I like to try to use analogies, especially like parent-mom analogies because it just makes things easier to think about. So often in clinic, I'll talk about Play-Doh. So I have a three-and-a-half-year-old and a six-month-old, but because of my three-and-a-half-year-old, I'm, like, very well-versed in Play-Doh. So what I like to say is when you first open Play-Doh, it's like fresh and new and soft and you can mold it into anything you want. You can make zoo animals or hearts or stars or anything you wanna make. You can mold it.

If you leave that Play-Doh out and you don't put it back in its cup with the lid and you sort of find it three days later maybe in your shoe or somewhere your toddler hid it, you pick it up and it's a little harder. You can't really mold it as well into what you want it to be. Maybe you can make it seem somewhat similar to a zoo animal but you don't have...it's not as easy. And so we don't know exactly what the window is where the Play-Doh went from soft to hard, but we know it's somewhere in that few days. And so I look at the immune system sort of the same way. When babies are born and we have this small period of time when they're infants and when we're able to mold the immune system into what we want it to be, it's easy. We can do what we can to help mold it, and so if we let that go too long, it just becomes harder and harder to do that. And so I hope that makes sense. Again, I like to use analogies.

Katie: I love that.

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Katie: And I'm curious. So my audience, I feel like, is very typically well researched and very educated. And I have talked a lot in the past about leaky gut or gut permeability as it's more accurately called. And I know that at least from some of what I've read, and correct me, certainly if I'm wrong on this, but that babies naturally have a little bit more permeable of a gut from what I've read so that things like the antibodies they need from breast milk and things can transport through that and into the bloodstream. And if I'm correct on that...well, first of all, am I correct on that? And the second question would be is this part of the reason, like is there a time frame of that that is it basically allowing this exposure, I would guess, in small amounts through breast milk as well?

Dr. Katie: To answer your first question about whether or not the gut is leaky, the job of our gut, of sort of the surface, the lining of our intestine is really to be the police and let certain things in and then protect us and stop certain things from coming in. If you think about actually the surface area of our gut, it's really interesting. You think about maybe the skin as being the major police in terms of letting things into our body, but the gut, the lining of the gut is actually 200 times that of the skin. So the gut has a much bigger challenge and really has a very large part in terms of immunity and being part of total immune function. And so what we know is that the intestine and sort of the gut itself is actually mature within a few days after birth and then it

continues to mature during months after birth and it has the ability to be permeable to let macromolecules and food proteins and antibodies and bacteria in to train the immune system and help it become tolerant to these things. If that's what you mean by leaky, then yes. I mean, it is somewhat permeable. But again, it is at a mature level, as I mentioned, within a few days after birth and then continues to mature. If we sort of let it go without exposing it to all of these different macromolecules, then it won't continue to mature in the way we want it to. So it won't learn.

One of the ways I like to talk about this when parents ask me is by using sort of a police analogy. So you think about police, the gut lining is the police for our body, and so it's like rookie police versus sort of policemen who have been practicing for years and years and maybe the rookies don't know who to let in and who to keep out. And so you have to teach them. You have to show them different examples of who is okay to let in. And over time, they become experts and then they just know and it's not a big deal. Think about it, the same thing with food. If we show our immune cells over and over at an early age when it's learning, if we keep showing it these harmless things over and over, then it'll just start ignoring them. It'll just leave them alone and let them do what they need to do and the same with, like, good bacteria, the bacteria that we want to hang around and help us. So hopefully that answered your question. If not, you know, definitely let me know.

Katie: It did. I wanna in just a minute definitely transition to solutions because I know that you've been part of a team that's developed actual solutions for this. But one more question I often get and I wanna get your take on is the role of breastfeeding. Obviously, the World Health Organization and the AAP and all these organizations recommend breastfeeding and we know about the benefits. But one thing that often is talked about is that there seems to be a slightly reduced risk of food allergies in babies who are breastfed, but I also know that I've seen recent research that this alone is definitely not enough to prevent food allergies. So from your perspective as an immunologist and also as a mom, what do you think if anything is the role and the benefit of breastfeeding specifically related to food allergies? Of course, I'm not arguing that it's not beneficial in many, many other ways, but how do you see it coming into play specifically with food allergy?

Dr. Katie: Absolutely, great question. And so, yes, I as a mom and as a physician think breastfeeding is extremely beneficial. I'm currently breastfeeding my six-month-old and breastfed my son as well. Breastfeeding exposes the baby to mom's antibodies and certain chemicals called cytokines and mom's microbes and mom's immune cells and also nutrients. I think it's wonderful if you can do it. With regard to food allergy, while we know that breastfeeding can be beneficial, it has not yet been proven that moms can actually prevent allergies by eating allergenic foods and then exposing the baby through breast milk. One of the reasons why is it's somewhat difficult to study because every mom metabolizes foods differently. And so although you can find food proteins in breast milk, it varies from mom to mom. Now, that being said, there is some evidence that breastfeeding along with early and sustained allergen introduction has benefits for preventing food allergies.

And it may be that when food allergens are sort of transmitted through breastfeeding and along with mom's antibodies and mom's immune cells, they can sort of be packaged all together and it might prime the immune system to develop tolerance when those food allergens are directly ingested within a few months by the baby. And so again, there is research there but it's...there's nothing that has been fully proven in order to change the

guidelines. And so currently, the guidelines are moms who are breastfeeding and even moms who are pregnant should not specifically avoid allergenic foods thinking that it will prevent or protect their baby from developing food allergies. So we want moms to have a varied diet and include allergens in their diets, pregnant moms and breastfeeding moms, if they're able to tolerate those foods and not avoiding them for specific reasons. But we don't believe that breastfeeding alone without early oral exposure to foods that's frequent, we don't believe that that on its own is protective for food allergy or is beneficial in preventing food allergies.

Katie: Got it. Okay. So a sign of hope for all those pregnant mamas who have craved peanut butter and been afraid to eat it. It's probably fine but also not the only step you should take, which brings me to the part I'm the most excited to talk about because I hate talking about a problem without being able to give any kind of a solution or hope. And I know that you have been part of a team that has developed a completely scientifically backed system based on all the research that you just talked about that's designed for parents to be able to safely introduce these foods in a way that hopefully will not lead to allergies or intolerance. So can you talk about the process and then what you have developed through that research and through that process?

Dr. Katie: Absolutely, I'd be happy to. So, I'll give you just a brief background of how it sort of came to be. I have a friend who is a physician and his second child unfortunately was diagnosed with multiple food allergies at around seven months of age. And he's very smart, very educated but didn't have, really, any food allergy in his family, so wasn't fully aware about food allergies and early allergen introduction. But he knew that he had to get allergens into his son. And so when he gave his son peanut butter around that time, unfortunately, his son had a reaction.

And so that motivated him to think about how this potentially could have been prevented. And he thought of the idea of what came to be our product, Ready, Set, Food, and talked about it with his brother-in-law Daniel. And so Andy is the name of my friend. And so those two, Andy and Daniel have actually co-founded this company and they called me and asked me my thoughts on this idea of creating a product that could help parents get important food allergens into their babies at an early age where they could do it often and where it could be easy and safe and evidence-based. And that's what led us, after multiple, multiple discussions and meetings and studying all of the literature and the trials and the science behind early allergen introduction and talking to other top experts in the allergy world and in pediatrics and in GI, that led us to create what we have now, which is called Ready, Set, Food! It's an all-natural organic infant supplement that you give to your baby on a daily basis and it can be mixed with breast milk or formula or even pureed food.

And so the idea is babies at four months of age are not necessarily able to eat. Any of us that have kids know that trying to feed a four or five or six-month-old is not easy. I actually tried to do it with my son, David. When he was five months old, I remember sort of spending a lot of my time making different purees and little concoctions of almond butters and peanut butters and scrambled eggs and things and trying to feed him these on a consistent basis because I knew that early allergen introduction even back then, that was right after the LEAP trial came out. And so I had been advocating this in my clinic to my patients and I knew it was important. But even though it was important, it was so hard to do, and so that was another sort of motivating factor for us when we were creating this product. And so in terms of ease, it's a daily packet, pre-measured packet that

you pour into a bottle. It dissolves in the bottle and then you feed your baby the bottle. In terms of safety, we've taken a lot of the national guidelines and evidence-based studies and used that to help with our protocol. So basically, we start the initial phase, the build-up phase with very low doses of peanut, egg, and milk. And we increase those over time.

We also introduce sequential introduction where we introduce one food at a time. And that's based on the American Academy of Pediatrics recommendations with allergenic foods. They say to introduce one new food every three to five days so that just in case of a reaction, you can be aware of which food was the precipitator. And so the reason we chose peanut, egg, and milk is because those are the most common food allergies in children. So even though about 170 foods can cause food allergy, there are 8 common food groups that are recognized by the FDA as the most important food allergens. And so of those...well, I'll just mention them. That's peanut, egg, milk, tree nuts, soy, wheat, fish and shellfish. And so of those, milk, then egg, then peanut in decreasing order actually make up 80% of childhood food allergies. So that's huge that those three foods cause so many food allergies.

Now, peanut often gets a lot of airtime because it can cause very severe reactions. But when you think about very young children, babies and preschool-age children, you really need to remember that egg and milk are so important. Milk is actually the number one cause of food allergic reactions in school and in preschool and school-age children. And when it comes down to quality of life, those are actually the hardest foods to avoid. I mean, anyone with children knows about birthday parties and preschool events. Milk and egg are in almost everything. And so that can be very isolating for these children. And so thinking about the impact on quality of life is really important here. And so that's one of the reasons we chose those foods for the product.

Katie: Got it. And I think an important key point I wanna make sure that we highlight that you just talked about is that you're starting with incredibly small doses. I know you can elaborate that a little bit more to define just how small, but obviously this would be difficult, I would think, to get exactly right from the immune perspective if you were trying to do it on your own because I know there are parents out there, DIY type and I'm that way myself thinking, "Oh, why couldn't I just do this at home with the foods and introduce them a teeny bit?" But you guys are actually using the scientifically studied amounts. And from what I've read, they're actually very, very tiny amounts. It would be difficult to get in a correctly measured dose into a baby, correct?

Dr. Katie: Yes. That's exactly right. So if you want to think about it in actual food, you can think about...and again, the powders that we're using are actually food powders. There's nothing added to the product. There's no added sugars. There's no preservatives. It's really just these whole foods and we're able because of all the research we've done to kind of mirror what was done in the clinical trials when we get to the maintenance dose.

But in terms of the build-up, we used our knowledge to create this safer way of introduction. And so, if you look at the milk, it's actually less than a teaspoon of yogurt. The peanut is actually about an 1/8 teaspoon of peanut butter and the egg is about 1/250th of an egg. So, yes, you're right. These are tiny, tiny amounts, actually less than what families would typically first feed their infants. Again, it builds up. There's sort of two

phases. There's a buildup phase and then the maintenance phase. And when you get to the maintenance phase, the doses are built to mirror what was done in clinical trials.

Katie: Cool. And in the clinical trials, just to go back to that point for a minute, they were able to show a very dramatic...I'm not remembering the number off the top of my head, but there was a very, very dramatic reduction in food allergies in these children, correct?

Dr. Katie: Yes. So in the major trial, the LEAP trial, they showed about an 80% reduction, and in some of the other trials, it was very similar. The range is basically anywhere from 67% to about an 80% reduction in food allergy. These are huge numbers. And I think that's why it's so important to get this information out and to have people understand that early and sustained introduction really can be beneficial. Now, I do wanna point out that...well, there's a couple things I wanna mention. You had mentioned risk factors, and so I just wanna go back to that for one second. In terms of risk factors for food allergy, eczema is probably the biggest risk factor. Eczema is a skin disorder where the skin becomes sort of red and itchy and bumpy and dry. What we know is that babies with severe eczema, almost 70% will go on to develop a food allergy. And even babies with mild eczema, around 25% will develop food allergies. So that's a huge, huge risk factor.

Now, the guidelines do state that if your baby has severe eczema, you should not do early allergen introduction without speaking to your pediatrician because you will likely need a blood test or a skin test prior to introduction. So I wanna state that, I wanna make sure everyone understands that. And then just continuing on about risk factors, yes, family history is a risk factor. But that being said, only about 50% of children who are diagnosed with food allergy have a direct family member with food allergies. Genetics are not the only thing that are playing a role here. And so I wanna stress that.

Katie: Got it. And I wanna talk a little bit more about the timing as well because I know a lot of the moms listening are more naturally minded, and like even, for instance, for me, I never introduced any solid foods whatsoever to my babies until they were at least six months old. And I know you said that range was 4 months to 11 months, like can a parent safely introduce the Ready, Set, Food at any point during that, like could a mom wait just until six months and then introduce it then if she was more comfortable or is there a time that seems to be the gold standard within that range?

Dr. Katie: That's a really good point. And so what we know is basically, the earlier, the better. So while the studies showed that even with introduction as late as 11 months, there could still be benefits. As you wait later and later, there is an increased risk of becoming allergic to those specific foods. So although that this is a window, we think that the earlier the immune system is exposed to these food proteins and if it's done on a consistent basis, then the better chance you have of preventing food allergy. That being said, if there are moms out there that have six, seven, eight-month-old babies right now and are sort of deciding if they should be introducing, I think the answer is yes. The answer is to do it in a safe and effective way. Using Ready, Set, Food can be very helpful and, as I mentioned, make life a little bit easier. But even if you wanted to DIY and do it at home yourself, I think that's great. I think really the message is to just do it.

Katie: I agree. I think it's so exciting that we now have this research and we know that there is something that we can do as parents that improves the outcome so drastically up to 80% for children. And so I echo that for sure. I know you guys make it very easy, but to any parents listening, I echo that 100%. This is definitely something to research and make sure that you consider for your children. Something I didn't know about when I had mine and thankfully we don't have any with food allergies, but I have many close friends who have children whose lives are affected daily by food allergies. And I'm so excited for the work that you're doing and the whole team on trying to reverse this trend. I think it's one of the many things that our children are facing at higher rates than we did. But like we mentioned in the beginning, it's rising so much more than the rates of other things, like we know that chronic disease for instance is affecting children at a much higher rate, but allergies are really, really rapidly rising. So I'm just so grateful for you guys and the work that you're doing on trying to reverse these trends. And so I just wanted to say thank you for that and for your time and being here today and for explaining this. I know that both as a mom and a researcher, you share such a passion for helping the next generation. And I'm just so grateful for the work that you do.

Dr. Katie: That's very sweet. Thank you for saying that. I totally agree with you. It's actually a really exciting time to be in my field and learn about all this really new information. I think as an allergist, I'm sort of innately interested in public health because I see so many chronic diseases diagnosed early on in children and I see how they affect the patients, the family, the community. I'm also really interested in education and always have been. A lot of my job is actually educating my patients in clinic and sort of talking about misconceptions in allergy. And lastly, like I'm really passionate about innovation and thinking about how to think of things differently, how to have new ways of thinking. And so this topic allows me to incorporate all of those things and it's really fun. I tell my husband all the time I'm quite lucky to be able to really enjoy what I'm doing and also see the potential for how many people we could help by doing this. So thanks for saying that. It's very, very exciting.

Katie: Absolutely, I agree with you 100% and I'll make sure that in the show notes, there's a link for people to find out more. I know that you have put together a lot of resources and educational videos that explain this more in depth as well as they can find out information on the clinical studies that we talked about and all the current research as well as finding out more about Ready, Set, Food and what to do for those of you who have babies in that age range, things you can actually do to help reduce their risks. So all of that will be linked in the show notes at wellnessmama.fm. You can also just google "Ready, Set, Food" and all of it comes up as well. But Dr. Marks-Cogan, thank you so much for being here. I feel like this is, like I said at the beginning, a drastically important topic. I'm so glad you're talking about it and I'm so grateful that you were here today.

Dr. Katie: Oh, thank you so much, Katie. I really enjoyed it, I really appreciate it. Thanks so much.

Katie: Of course, and I think we'll have to reserve some time for a round two when we get questions. And in the meantime, thank you to all of you for listening and for sharing your most valuable asset of your time with us today. And I hope that you will join me again on the next episode of "The Wellness Mama Podcast."

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