



**Episode 443: How Plastic Chemicals Are Changing Your Family's Health & Hormones and What to Do About It With Dr. Mantravadi**

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Katie: Hello, and welcome to the "Wellness Mama" podcast. I'm Katie from [wellnessmama.com](https://wellnessmama.com) and [wellness.com](https://wellness.com). That's wellness with an E. That is my new personal care line. And I am here today with Dr. Manasa Mantravadi, who is a pediatric hospitalist and also a mom. And I'm here to talk to her about plastic exposure because this is a topic I have written about quite a bit in the past and taken some heat for writing so strongly about. But she has gone deep on the research side of this, and as a pediatrician has seen the new studies and paper from the American Academy of Pediatrics recommending that we reduce plastic exposure in children.

And in this episode, we go deep on all the ways that plastic chemicals, not just BPA, but a lot of different chemicals affect the body, and the endocrine system, and hormone levels, and stress levels, and so many other things that really affect our children and our families. And she explains all the things we need to know about plastic exposure and how to make some safe substitutes that can really reduce your levels. It can certainly be overwhelming when we realize how big of a problem this is but she also provides a lot of hope talking about how with certain changes, we can see blood levels drop in just three days. So, lots of practical

advice in this one. I know that you will get a lot out of it. I certainly did. And so, let's jump in. Dr. Mantravadi, welcome. And thanks for being here.

Dr. Manasa: Thanks for having me, Katie, today.

Katie: I'm so excited to chat with you because I think there's gonna be a lot of topics we can jump around to, but one that I know that you are really well versed on and I'm really excited to go deep on is the idea of plastics, and understanding, they are obviously a huge part of our lives there. We've all heard some of the stats about how much plastic we use and some of the environmental problems it's causing. And I've written pretty extensively about this. I think there's a lot of misconceptions that go along with this as well. And a lot of things people maybe don't even understand when it comes to plastic exposure and unintentional sources. So, to start broad, I would love to hear how you first, kind of, started getting into researching this and realizing that we had a problem.

Dr. Manasa: Sure. So this, kind of, presented itself to me on a text message chain. So I'm a pediatrician by training and I'm a mother of three young kids. And so, my fellow friends from residency, we all trained to be pediatricians and then we became mothers. We're always texting back and forth about various topics, whether it's our kids or, you know, patient-related kind of questions. But one of my friends who's a neonatologist, I remember very distinctly in July of 2018 texted, you know, "Have you ladies seen this American Academy of Pediatrics policy statement on plastic? What are you gonna do with all of your plastic dishes? I've been putting the water bottles in the dishwasher. Oh my goodness, I didn't realize this was such a, you know, big deal." And so, that was when the first, kind of, I think from a scientific standpoint, from the medical community that I had heard about it as a clinician.

Growing up, I had heard about it from my mother because I'm Indian. So I was born in India, came here, and we've always used stainless steel at the dining table. And in that AAP statement, they said, "Try to avoid using plastic because we actually think that there's harmful chemicals in plastic that interfere with children's hormones, their growth, their brain development. And, you know, rather use glass or stainless steel. And so, that's the first time I heard it from a scientific standpoint. I had heard it growing up because my mother wouldn't really let us use plastic. And when my own children were born, she, you know, made me switch out any degree of plastic I had to stainless steel for the children because she herself was worried about, you know, chemicals, and specifically with heat, chemicals leaching. So, go figure, lo and behold, the science proved my mother correct. So, mother knows best, I suppose.

Katie: Yeah, it's amazing to me the more I research health, the more that we find that our grandmothers and mothers' wisdom was right all along, and then we just understand the science as to why I think there's, like, tremendous value in understanding that kind of, like, long-held wisdom in a lot of different areas. But certainly, this is another one because plastic is relatively actually extremely new as far as human interaction with this. And I think, also, like plastic has, in many ways, been simplified to just things like BPA or most people think, "Well, it's BPA-free, it's totally fine." And I know that there's other forms of bisphenols, like FNS, and a bunch of others.

But let's, like, talk, kind of, on the broad level of that because plastics have only really been introduced for widespread use within the last half-century. And we have drastically ramped up how much we're using it, and that continues to be the case. I know there are huge floating islands of trash that's mostly plastic in the ocean. We now know, for instance, my original doctor, Dr. Christianson, talks about how we've found plastic chemicals below many feet of ice in places like Antarctica, which means we've reached a level of relative planetary saturation with these plastic chemicals. And this is a really big deal because these are not inert chemicals that our body's used to interacting with. But let's talk about some of those components within plastic that are problematic and why. Can you, kind of, give us an overview of some of the things that we need to understand when it comes to plastic?

Dr. Manasa: Yes, I think that's...So I think you touched on a lot of things. I think everyone really, kind of, understands that, oh, plastic's bad for the environment, right? It was made to be indestructible, right? Like, that's why it was made because it was cheap to produce. It's actually cheaper to produce more plastic than to recycle it. And it's indestructible. So, the problem is that it is indestructible. So it's bad for the planet because it never goes away. But it is also affecting children's health. So, I think the big picture thing is just understanding why plastic's bad, and then I can go into, kind of, the, I would say, three big categories that we think about.

So when we think about plastic, in general, plastic is essentially the chemicals in plastic. So bisphenols, as you mentioned, BPA is, kind of, the one that got the bad reputation, but really, it's in a family of chemicals of similar compounds, right? So bisphenols, in general, is a family. So you had mentioned other variations. So BPS, BPF, and there's multiple, which are as bad if not worse than BPA. So I think that's really important, like, step one to understand that there's multiple chemicals, even within a family. Phthalates is another one. It's what makes plastic and vinyl relatively flexible for plastic tubing and it's used in industrial food production. So, that's another one that we think about often as far as a chemical in plastic that affects health. And then some of the other ones that we, you know, think about, like, perchlorate is another one, but I think the big, big ones are bisphenols and phthalates.

And so, you know, what about these? What about these chemicals? How does it affect human health and how does it affect children? So, I think to understand that we have to understand that these chemicals, think about it like a lock and a key. So, the key is actually the chemicals and the lock is an organ system. So we call it the endocrine system. So you may have heard of like the hormone system, things like your thyroid, your pituitary, your adrenals, all these organs that are responsible for puberty and fertility down the road. So, these are all part of the endocrine system. And so it's a big hormonal system and all of these hormones act as basically chemicals or an actual key, right, to the lock, which is the organ.

And so that's what naturally occurs when your body is growing, and you're born, and then as you continue on through life, each of these hormone chemicals inserts into a lock, which is your organ. And that allows you to grow, and develop, and be fertile, and have babies, and all of these things. Well, these chemicals in plastic, the bisphenols, the phthalates, the perchlorates, all of these different chemicals that we find in plastic act like

that, so that we call them endocrine-disrupting chemicals because they're real sneaky. They kind of look exactly like those hormones that are supposed to be the key. And so it really messes up that communication.

And so it's important for everybody, you know, whether you're pregnant, whether you're a male, it actually has been linked with decreased sperm count. But for children, it's exceedingly important because when children are born, they are not fully developed, right? So they go through rapid growth and development, which is why honestly go to your pediatrician, every few weeks at the beginning and every month in the beginning. There's such a rapid growth and development phase for children. And guess what organ system is really important? The endocrine system.

And so that's where the American Academy of Pediatrics stepped in and, kind of, linked all this stuff together. And this is not just American Academy of Pediatrics, the World Health Organization, that Endocrine Society, all of these major, major medical organizations made of clinicians and scientists are really sounding the alarms here saying. "These chemicals called endocrine-disrupting chemicals found in plastic are really interfering with our very important endocrine system. And that's especially important in kids because they need it to grow, to develop, to go through puberty, and even for their brain to develop." And so, that's why it's such a big deal. But it happens to be such a big deal, you know, that no one knows about yet. We're just, kind of, really understanding enough to talk to other parents and to other clinicians and pediatricians about this.

Katie: Yeah. And you mentioned that heat is especially dangerous, using plastic in the microwave, for instance, or the dishwasher. Can you explain why heat makes plastic more problematic?

Dr. Manasa: Yes. So when you think about this in terms of...So there's two things that make it more problematic, heat, and etching and scratching. And so, we talk about materials in the substrate, right? So, you know, for example, you have a plastic dish or a plastic water bottle, plastic serving tray, whatever it is, and you're putting in the dishwasher, it's already made of plastic. It's already made of these chemicals that we just discussed. But because it's contacting your food, there's a chance that you can what we call leach or transfer, migrate from your tray or your plate or your cup, whatever it may be into the food that you're eating or into just the exposure when you're touching and handling it. So, heat will increase that probability of it leaching.

The other one is etching and scratching. So if you've ever had like that Tupperware or children's dishes that are made of plastic and you see those scratches and, kind of, fraying and etching, that also increases the chance of those chemicals, the bisphenols and phthalates, going into your own system. And so, those are the two times that we really say, you know, if you're gonna use...Well, first try not to use plastic, but if you're gonna have to use plastic, please avoid, like, putting in the microwave and putting it in the dishwasher. And if you see that your plastic dishes or your serving ware are etched, it's time to, you know, put them away and not use them for that function anymore.

Katie: Got it. Okay. And I'm 100% with you on these being problematic, especially for kids. And I think, you know, I've heard some of the stats about how, for instance, men now have a third of the testosterone that

their grandfathers did just a couple of generations ago. We know we're seeing all kinds of hormonal problems in children, including precocious puberty happening younger and younger. What are some of the other ways that this is impacting hormones? Because, like you explained, these are endocrine-disrupting chemicals that mimic certain things within the body. So they're sending confusing signals within the body. Like, what are some of the ways hormonally that we're seeing this societally?

Dr. Manasa: Yeah, so I think the biggest one I think for society is fertility, right? So, when we think about one of the major endocrine system, like, organs is the testes and ovaries, right? So when we think about that, you had mentioned precocious puberty and, kind of, pubertal interruption. So, that's one of it but remember, the kind of later effects of the ovaries and testes is reproduction. And so it is affecting reproduction in females and reproduction in males. So you are seeing a pretty significant decrease in sperm count and increase in infertility in females. And so that's why it's incredibly important to take this seriously because it's affecting all of us, right? It's affecting human health as a whole. You know, and I don't like to say this in scary terms because I don't mean it to be scary. It is just the science, right, because that is where our sex steroids are produced in the ovaries and the testes, and that is what is responsible for puberty and reproduction. So that's one main thing.

When we think about the adrenal system, for example, they're the little glands that sit on top of your kidneys, those are really important for stress and immune responses, right? So, when you are sick and your body needs to fight off that stress and immune response, your adrenal system is really important. And so that is also an endocrine organ. We think about, you know, obesity and growth. The pancreas is another system, another organ. We often think about insulin and glucagon. And those are really things that manage your blood sugar level. And so we do know that it interferes with that as well. So I think a lot of...And this is not to say that, you know, diet and exercise don't matter, right? Those are definitely the hallmarks. But we have to understand that there is, kind of, environmental exposure that's also interfering with those very important functions.

And then for kids, one of the things that I really, really care about for children is your thyroid hormone. So your thyroid is a hormone, sorry, a gland that sits in your neck. And that's why we screen for it in all congenital newborn screening because it's so important for brain development, so for neurodevelopment. And so that's why we screen for it. So again, when you think about a hormone that's essential for neurodevelopment or brain development for children, you know, it's a big deal. It's not just women or children or infertility, it really spans so many important functions for us to grow and thrive and, you know, survive as a species.

Katie: Absolutely. And unfortunately, these compounds, they are growing and they're existing in our environment in a cumulative way. So it's not like we're just getting base-level exposure and it's not growing. Because like I mentioned, this is a relatively new thing that we're interacting with plastic at this level. And it's grown so quickly that from what I've read, there's a trillion plastic bags used worldwide every year, which is about a million plastic bags per minute. And so, we have all these tons and tons of plastic waste going into the ocean and into the water supply.

And I think only a very small percentage of plastic is actually recycled because like you said, it's easier and cheaper to just make more plastic. And it takes a really long time for plastic to break down. And then when it does, it's still breaking down into problematic components. I think I've been read the statistic that every square mile of the ocean has about 46,000 pieces of plastic floating in it. I think another thing that's important to realize is when we've reached this level of saturation is that basic water filters can't actually remove the endocrine-disrupting chemicals from plastics and from other, like, hormones drugs and different things we encounter in the water supply. But it's not a simple solution. It's just, "Oh, we should just avoid plastic and filter our water." This has become extremely widespread.

Dr. Manasa: Absolutely. And I think you're spot on when you think about...So, we often try to separate the planet and the human beings, right, but they're really interconnected, right? So what we do affects the planet, and then, in turn, the synthetic chemicals...So like you mentioned, these aren't chemicals that are normally found in our body and normally found in the environment. These are synthetic man-made chemicals. And so, it's really important to think about how those interact with each other. So one of the things you said is, you know, you see all this plastic floating around, there's more microplastic in the ocean than stars in the Milky Way. And so that's a really scary fact to me, right?

Because what we have also seen in, you know, like, multiple published reports is that...So I'm vegetarian, I don't eat fish, but many of the fish that we see and, again, secondarily absorb and eat, like, when we eat, they're filled with microplastics. So you are actually indeed consuming those microplastics. And in fact, you know, when a mother is pregnant, they have actually seen circulating levels of these microplastics and these chemicals in fetal circulation. So, it is making its way into our human system and it's not supposed to be there. It's not supposed to be in the planet and it's not supposed to be in our body. So I think it's really important to realize that they're not separate. They're very, very connected. And I think it's important for people to realize that.

Katie: Yeah, absolutely. I think people also don't realize that even if you're avoiding plastic in your food, which is difficult to do in itself, many of us are encountering plastic through our clothing. And this I don't think is talked about nearly as much. But are there a lot of things used in clothing now that are actually plastic-based?

Dr. Manasa: Yeah, you know, I'm not as familiar, to be honest with specific clothing products, but I can tell you, it's everywhere, right? I mean, it's so all-pervasive. You know, the bisphenols are used in linings of cans, in thermal paper receipts, you know, in what you just mentioned, you know, even clothing. It's everywhere. Even when you want to go buy fresh, organic fruit and produce, guess what it's wrapped in? Plastic. So, it does feel like an uphill battle, right, because it's everywhere. So I think many people start to think, "Well, what am I gonna do about it?" Right? Like, it's just everywhere, like you mentioned, if it's in everything, I touch, everything I see, everything I feel, how am I gonna even make a difference?

And I think that's the big take-home message is that it is scary but you can be empowered with this knowledge that we're sharing today and talking about to make really simple small steps over the course of time, you know. And what maybe makes sense for you may not make sense for somebody else, right? But just choosing

those small, little changes in our daily behavior can make a big, you know, really significant decrease in your exposure. In fact, you know, we used to...You know, again, you shouldn't have these levels in your body. And previously, we didn't think we had these levels in our body, but our testing has gotten better now, and we can actually test urinary bisphenol levels. So, again, we shouldn't have it in the first place.

But now that we've got testing that is better at picking this up, we see that when...You know, so you have a baseline urinary bisphenol level. You test your urine, you see how much bisphenol's in there. Again, should really, in theory, be zero. And then you make some changes. And those levels can drop in as little as three days. So I think that should be the message here, is not the all doom and gloom and the scariness, but rather, your choices, your actions can make a big difference in your own body, in the body of, you know, your parents, or your siblings, or your children but it's important to know about it so you can be empowered to make those decisions.

Katie: Absolutely. And I think a good corollary that I use here often in explaining this is I think that plastic exposure is essentially like the cigarette smoking of our generation, in that cigarettes were once considered safe and they were extremely widely used, and as new information became available, over time that definitely has changed both the number of people smoking and a lot of individuals quitting. And I think knowing things like what you just said with testing, that's really encouraging because we are able to get these things out of...at least our levels down more quickly than we used to think that we could, which is great news and means that, like you said, the small changes we make can make a big difference. And that if we can keep our home environments relatively safe, then we're at least reducing our children's exposure by quite a bit.

And I, kind of, use the same analogy of people...like, with my kids and the food that we make in our house, for instance, I always make an effort to cook clean, whole, real foods in our house. But if they're out in someone else's house, I'm not gonna freak out or stress or tell them they shouldn't eat certain things because I know that the majority of their exposure is good and I know they're gonna learn from how they feel when they eat those things that they might not want to in the future. And the same with plastic, like, we can't...It would truly be impossible in today's world to avoid any and all sources of plastic exposure.

But we can, to your point, do so many things that help reduce that level and mitigate the damage. And I think that is...Because we've certainly made a case for this, how bad plastic is, and I stand behind all of that. But I think it's also really important to talk about the things we can do individually and collectively that help reduce our exposure and that do make that big difference. I know this has been really important in your own life and you even built a company around this because it was something you wanted to change, but walk us through some of these small steps we can start taking that really do reduce our levels.

Dr. Manasa: Yeah. So that's a great...And, you know, you had mentioned, kind of, the cigarette smoking. This is actually, in my world, for pediatrics, it's very similar to lead, right? Like, we used to have lead in, kind of, everything, like in the paint, in the gasoline, and then science came along and understood some trends, and then researched it, and then made, you know, some assumptions, and then validated those assumptions with further research. And then eventually, people said, "Huh, these two seem to be linked, you know, lead



exposure and cognitive development in children, and let's do something about it." And so, consumer behavior changed, the regulations changed. And now we do...you know, we're at least much better about lead testing than we were, and mandating that industries, you know, take it out.

And then I think the other big piece is that pediatricians, if you go to your pediatrician, when you fill out some of those questionnaires, often they say, like, "How old is your home?" You know, and if it's, you know, built before 1970s, oftentimes they have some follow-up questions, and it's all related to lead. And so, I think this is a really important example of how as we learn through science, that, kind of, society changes. So, you know, clinical medicine will change, your pediatrician may be screening you shortly because we've got new protocols in place for plastic exposure, and maybe give you some better guidance on what to do for your kids or maybe your OB-GYN is doing that.

So, I think that's one thing I wanted to point out is that we will get better, hopefully, as a medical community, hopefully, the industries are getting better because they feel compelled to do the right thing. And hopefully, the legislation gets better because they also feel compelled to do the right thing. But those things take time. Those three things I talked about just take time. So, what can you do as a, you know, listener? What can you do? So at least for children, when it comes to plastic, you can try to...So, again, try to avoid it if possible. But in the meantime, try to use glass or stainless steel, if you're going to use plastic, keep those food containers out of the dishwasher, out of the microwave.

And again, other food...We're talking about plastics today, but just, in general, I think it's important to think about other sources. So, bisphenols are using, you know, the canned foods. So trying to avoid canned food because it's pretty much detectable in the can linings no matter what. So you can, you know, decrease your exposure that way by avoiding the use of canned food. And then thermal paper receipts, which is an interesting one. And I know a lot of bigger companies have now really transitioned away from it. So, you know, next time you're at the grocery store, somebody says, "Do you want your receipt?" You can say, "No, thank you. Please don't print that out." And so that helps the environment. It helps your own exposure to bisphenols.

So, again, when we talk about personal care products, cosmetics, we've already talked about food packaging, but you can look for phthalates in those. And so, make sure to, you know, look at the products before you use them and understand, like, what is that company doing about phthalate exposure in their personal care products? And so, those are just like a few things...Oh, the other thing in the kitchen, I think a lot of people...I know we're talking about plastic but there's other things in the kitchen you can do. So those nonstick cooking...I think that nonstick, what we call PFAS, what we call, like, forever chemicals, try to switch out those nonstick cookware to stainless steel or cast iron.

So, you see none of these are crazy big switches, right? Eating fresh food. Trying to avoid using plastic but use practical solutions like glass or stainless steel. Try to eat fresh and healthy, fresh produce, instead of the cans. Say no to the thermal paper at the grocery store, and check your products for these chemicals. I think those

are all very simple, easy. It's not like a big overhaul, right? And it's just to what level you wanna do it and how you wanna implement that for your own family.

Katie: Yeah, and it seems overwhelming but also it's helpful, I feel like, to remember that our grandparents all did this, and our parents, depending on our age, also did this. They existed in a world with very little plastic and many more reusable things. And they had much less waste as well, which we know is also a really big, global problem. So it does seem overwhelming because plastic is so convenient. But now there are very much options that we can use, a lot of companies emerging, creating things like what you've done, where creating plates and cups that are just like the plastic ones, same size for kids, but that are not plastic. And I think we're gonna see more and more innovation in these areas, hopefully, and continue to have better options.

But talk about what was your impetus for actually creating these products, I love that you have them. They're so cute. And this is a tip I've given moms for years is get metal cups and keep them...Most people keep cups up high in a cabinet. And I realized I was getting water cups for my kids so many times a day and I was like, why don't I just put the cups where the kids can reach them? So I put them in the bottom cabinet. But talk about your products because I think they're gorgeous.

Dr. Manasa: Oh, thank you. Yes, honestly, it was just an aha moment from that same how we started this whole conversation. It came from the text message chain with my fellow pediatrician moms. And when this American Academy of Pediatrics policy statement came out to say, "Avoid using plastic, rather use glass or stainless steel," I quickly realized that my fellow, you know, pediatrician moms didn't have a great solution. They were all, kind of, saying like, "What do I do? What do I buy?" But I had grown up on stainless steel. So, if you talk to anyone who is from India or even, you know, the greater Asian continent, stainless steel is the standard of choice and material choice for dinnerware. And just like you said, it used to be in this country. And at some point, we made a very, very big transition to plastic.

And so, I remember when I went...My children, I had twins first, and I remember that food journey, right? You start, "Oh, it's so cool. They're gonna start solids." And you go to the store and every option there is plastic. So, I quickly realized that we had this really great recommendation based on evidence and science from large organizations but we didn't have a great solution for parents, right? So maybe the rest of the world had great solutions with stainless steel, but that's not what we were offering parents in this country. And so that's where the idea came from. I said, "How can I take essentially a tried and true product that I myself grew up on and my own children now use the same products that I used as a child when we go to visit my parents and my in-law, and so, how can I take something from my own roots and take the, kind of, real-world evidence and science of what's going on and merge them to create something new?"

And it was really important to me that by doing that, you still have to entice children to eat. So just like what you said, that independence, that want to be involved, that want to be excited about eating, you know, kids are very visual learners and, you know, they like that very different sensory exploration. And so, that's where the idea for the color came from because I didn't want any toxic paint or anything that would chip or peel and then, you know, come back into the children's food because that would negate the whole purpose of what I

was doing. And so, that's why I decided to change the color of metal itself. And so, we use titanium coating, which is what we use in the medical world when you have indwelling rods and implants in your body. So, it's very similar to stainless steel in terms of it being inert, so it doesn't really react with anything. And so, that's how the idea came up from. It was my mom, and my girlfriends, and an AAP policy statement.

Katie: That's another important point to highlight because I think when I first started talking about plastic use over a decade ago, people thought I was being alarmist and that it was, kind of, a fringe thing, and that we didn't need to worry about it. And like you said, now, this is a policy statement from the AAP. And it's backed by research studies. We're seeing the results of this in lab testing. This is not just some, kind of, crazy theory or being alarmist anymore. And the great thing about that is we are now seeing solutions that happen as well.

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I know when I talk about plastic use, I also get questions related to a few specific use cases and I'm curious if you have figured out how to solve any of these. The first thing, you mentioned a lot of produce is wrapped in plastic wrap and I know, like, I've ordered some produce bags that are reusable and, like, little drawstring bags. And I think they actually work better in the store. But any other tips for avoiding plastic exposure in produce?

Dr. Manasa: Yeah, that's a great question. So I think this is where we start to tease out what is within our control and what we can't control, right? Because there's all the information. And then it's like, what can you practically implement, right? You know, so the best way to just get that produce, like the gold standard would be to have your own farm, right? Like, just farm your own land and produce your carrots and the other vegetables and your fruits. But that's not practical for everyone. Right? So then the next step is, okay, what about, you know, a farmers' market, right? So you're buying fresh from the farmers. It's coming straight from their farm, and you're able to, you know, touch and feel the food and it doesn't have to be wrapped in plastic. Again, it depends on where you live. You may not have access to fresh farmers' markets like that. And then the last is obviously, you know, going to the store.

So, I think, you know, one of the things, you have to, kind of, weigh your options. You want your children or yourself to be eating fresh produce, that's a step up than the processed food, right? So, I think that's where we have to start balancing that whole, here's what I know about plastic, but then what can I really meaningfully do? So, I think the farmers' market is a really great choice if you are able to. And I know like you said, there are some delivery services that you can find local farmers that maybe even deliver to you.

Katie: Yeah, absolutely. And those are, like you said, great ideas for many reasons. And you're supporting your local economy after many have suffered so much this past year. There's so many good reasons to do that. Same thing with buying, like, meat products from local butchers and farmers as well. This one I think is a little bit more tricky because I know I haven't even fully figured out a good way to store meat in the freezer long-term that doesn't require some kind of plastic packaging. Do you have any tips or suggestions on that? Because that seems like a really tough one.

Dr. Manasa: That is probably a tough one. And I am probably not the one to shed too much light on it because I'm completely vegetarian. But I will tell you, you know, as far as just overall, I think to back up your point on decreasing your family's exposure to food additives, right, because again, we're talking about plastic, but there's a lot of things in foods, so not just the phthalates and bisphenols but, you know, the PFCs, the perchlorates, the artificial food coloring, the nitrates, the nitrites, those are all in there. So I think it's important when we think about meats, at least eating meat, at least if you can try to eat fewer processed meats, especially specifically like hotdogs, and ham, and meats that are in pre-packaged meals, especially during pregnancy, is at least a good start. As far as storing it in the freezer, Katie, I wish I could be more helpful.

Katie: I agree, especially because even like in the winter when produce is not in season, like frozen vegetables are at least, like, a more nutrient-dense option in some ways, but I am yet to find any options of those that are not in a plastic bag.

Dr. Manasa: And so I think here in lies, this is where...what's that, the rubber meets the road? I don't know how to say that correctly. But I'm the same way, right? So here I am, you know, I founded an entire company

that is trying to fight against plastic, especially in children's products, especially in children's feeding products, right? But I myself am, you know, a mom of three young kids and, like, I don't live in temperate climates that I can go out to a farmers' market in the middle of winter, and I do buy frozen food or I buy frozen produce. And to me at least they're getting...you know, frozen blueberries, yes, it's in plastic. That's how it's served. That's how it comes in the grocery store. But that's okay, right? Because at least I'm choosing a piece of fruit rather than a highly processed, you know, packaged, you know, something that tastes like blueberries but aren't really, you know, blueberries. So, I think that's where parents and, you know, anybody listening has to start, like, giving yourself a break, you know, not to be overwhelmed by all this. But what can I do that is practical for my stage in life and for what I'm able to do for my family?

Katie: That's a good point of keeping that in perspective and also realizing stress is bad for your immune system and your endocrine system as well. So if it's causing you more stress, find that 80/20 that you can do that still doesn't make your life that much more difficult. Another one I get questions about often is what about restaurants and takeout food because that's most often in styrofoam, which is in especially problematic form, and has a lot of these things we've been talking about that are so problematic. And, like, you with the meat, I feel like I'm not a great one to answer this because we just really almost never eat out. But any tips for takeout or things like that in avoiding some of that plastic, especially styrofoam?

Dr. Manasa: Yeah, exactly. So styrofoam is really bad. You know, I think it's...So empower yourself to make the decisions in your daily life, right? So, in this case, you know, can you...? So, for example, a simple thing would be, try not to over-order or...you know, I think that one of the things you had mentioned previously is portion sizes, right? So our restaurants have very big portion sizes. So instead of saying, "Oh, man, like, maybe I'll bring a glass container with me, right? Like, throw it in my bag and bring it with me and I can store my leftovers. Or maybe I'll split this meal with a friend and then order more if I'm still hungry." I think that's one of the other big pieces of this is the amount of wastage because so much of the plastic that we use is in all of the various forms that we talked about, but specifically, the one-use plastics or these disposable plastics, right? So, what you said, the styrofoam or the plastic used for takeout.

So maybe it's not solving for how you take it home, but even why do you need to take it home? Like, maybe we can also sit back and, kind of, talk about decreasing just overall food wastage. And actually, that's one of the thoughts behind the way I've designed the products too is it's not just let's have safe materials, but let's be cognizant of the amount of food that we're wasting or the amount of, like, you know, wrapping our brain back around, you know, normal portion sizes. You know, we've talked about how our grandparents were used to, you know, glass or stainless steel in the past. They were also used to much different portion sizes than we have now. So I think thinking about those things is all part of the bigger picture here and making those small changes can make a big difference.

And then, you know, empowering yourself on your daily basis, but then really saying like, "I have a voice in this, right, like, in the way I purchase products, in the way I maybe question brands, in the way I reach out to my legislative bodies and say, 'Hey, like, why is this happening? Or I just read...you know, I just heard on this awesome podcast that this is what's happening. Why are we allowing these, you know, chemicals in our products, specifically children's products?'" And so, I think that's another way you can arm yourself, right? So

you're arming yourself with knowledge and then you're arming yourself with action. So, whether it's how you're purchasing things or speaking out as far as legislation, those are really gonna help move the needles, you know.

And I think the BPA, if you really think back at the BPA, why it got banned, it wasn't millions of people complaining. It was a small group of moms saying, "We don't like this. We heard about this, we don't like it. And brands listened and legislation listened. And I think that's what's really important is let's empower ourselves, let's band together to make these small changes for ourselves. But then all these small changes when we're doing it together and speaking out together can make a big difference in how we move forward from this.

Katie: I agree. I think that's another important point when we think like, "Oh, there's nothing we can do to change," is that it takes actually a really small critical mass of people raising awareness about this and requesting action for things to start changing. And we've seen that already start to happen. And I'm hopeful that over time we'll see this...Like you mentioned, we're already seeing a little bit companies are starting to get more cognizant of this, which I think is another big key in this because certainly all of us should be doing our own parts individually to reduce exposure. But I read the statistic that every individual in the world could do all their recycling and everything perfectly, and it still would not make a huge dent because so much of that is commercial-industrial use of plastics and major companies. And so I think we need...it's not that we need either-or, it's that long-term, we need both. We need awareness at both levels. We need big companies understanding, and caring, and being willing to make these changes, which means we have to raise the awareness. We also have to vote with our dollars. I think the moms are the best ones to do that.

Dr. Manasa: Absolutely. And, you know, because now I've crossed over, like, I've seen...I have this really...I never thought I would be here. If you told me five years ago that this is what I would be doing is, you know, seeing patients and running a company of stainless steel products, like, I wouldn't have believed you. But what has been interesting to me is, as a business owner, now taking off, like, my pediatrician hat and my mom hat and putting on the business owner hat, there's gotta be better guidance and there's gotta be better guard rails with testing. So, when I started my own company, I really looked to, you know, governing bodies, whether it's the FDA or the CPSC to help guide to ensure that what I was producing was going to be safe because it was going to hit the dining table of families. You know, like, children are eating off of this.

And so, like, even if you are a bigger company and maybe, you know, don't necessarily see that value, or if you're a small company and you're really compelled to do something, there's not the greatest structure in place. So if you look at a lot of our food...So when we talk about the FDA, you know, they do a lot, like really, really good about oversight for drugs, right, so like, medicine, which I'm also very used to, but much less when it comes to food and food items. And so, you know, having some better guidance...Like, in the European Union, they test for many, many, many, many more things and have many more stringent testing requirements of their companies that are producing things that are food or food contact material.

And so, my company is doing the same thing because I have learned so much now in this journey of mine that we, you know, in our future testing process are, kind of, adding all of the different layers and going to testing standards in the European Union to understand, okay, you know, maybe this is what's required here, but we're gonna go above and beyond and go to the more stringent ones because that's helping to police ourselves, right, as a business. And so I think that's the other thing. It's gotta be better options for parents, but even better guardrails for businesses to do the right thing because it's not easy.

Katie: Yeah, I completely agree. And like you, I'm hopeful that we're gonna continue to see these changes and I'm really grateful there are people like you educating about this and providing practical solutions because I think the answer is very much twofold with awareness and actually making the changes, but also each of us individually making the changes that we have the power to make right now without waiting on companies to change. As we get toward the end of our time, a couple of unrelated questions I'd love to ask, the first selfish being, if there is a book or a number of books that have dramatically impacted your life, it doesn't have to be about plastic, but it could, and if so, what they are and why?

Dr. Manasa: Oh, that's a good one. Okay. So I've got two. One is, kind of, a guidebook to my life. It's called "The Alchemist." I don't know if you've ever heard of it. It's by Paulo...I think it's called Coelho, I think. And it is a fable actually about following your dreams. And it's about a little boy who follows his dreams and the universe, kind of, conspires to help him. And so, that's how it has felt, you know, all through my life. I think my parents were really great about, kind of, encouraging me and empowering me to dream big and chase the things that I really wanted to. But this book specifically has really helped guide my journey here because, you know, listen, I'm a pediatrician. I am trained to take care of children and advocate for children. And somehow this topic, this idea, kind of, landed in my lap. And I'm a firm believer because of this book is if you, kind of, set out to do good in the world, that the universe conspires to help you. And so, any degree of success or growth we've had, in our very short, like one-and-a-half years of being in business, I feel comes from that. You know, that the universe is really conspiring to help us achieve that mission of creating, kind of, this healthier, safer world for the kids.

And I think from a science perspective, Dr. Leonardo Trasande, who is a fellow pediatrician, and is a lead author of the American Academy of Pediatrics Policy statement on food additives that brought, you know, a lot of attention to this topic, has written an excellent book for anyone who really wants to get a better sense of this all. It's called "Sicker, Fatter, Poorer." And that one, for me was a game-changer. I think it's when my eyes really opened into how big of a problem it was and how it wasn't just the planet. It wasn't just our health, but it was, you know, the economic impact of this, you know. And so, it's an excellent read for anyone who's really looking to dive a little bit deeper into what this all means, all these toxic chemicals and what it means for our health, for our environment, for our economy.

Katie: Awesome. I've definitely read and loved "The Alchemist" but the other is a new recommendation for me. I'll make sure both of those are linked in the show notes at [wellnessmama.fm](http://wellnessmama.fm) along with links to your products and to you online so people can find you and keep learning. Is there any other parting advice that you wanna leave with our listeners, a lot of moms listening today? And you're I know a mom as well and a pediatrician, is there any other advice that you have find especially helpful that you wanna pass on?

Dr. Manasa: Yeah, you know, I think a lot of times when people hear this messaging, right, you hear it in the news and plastics bad, and there's these heavy metals and baby food, you get frozen in time. And you're like, "What did I do?" There's so many parents that they visit our website, they listen to this talk and they say, "Oh, my gosh, I've screwed up here. Like, how did I hurt my child?" And I think the biggest piece of advice for me that I've always practiced with my patients and the parents or my patients is, let's start to transition from, "Oh, my gosh, what did I do wrong?" or, "What could I have done different?" to, "Now I know. Like, now I know. What can I do moving forward?" So, instead of being, I like, you know, that paralysis of the fear and all this information being thrown out you, just feel empowered and just start looking forward. Because, you know, like what you just said, in three days, you can really decrease your exposure. So, instead of constantly looking back and thinking with that mom guilt of what you did just know that, "Hey, I'm a more knowledgeable mom today than I was yesterday and here are the small little changes that I can do to help my children."

Katie: I love it. I think that's a perfect place to wrap up. And I've been taking lots of notes and have some bullet points. Those will all be in the show notes at [wellnessmama.fm](http://wellnessmama.fm) along with some links to further reading about plastic exposure and things we can do about it. But thank you so much for your time. I love that you're educating about this. I love that you're bringing the voice of science and research, but also giving very practical answers. And I'm just so grateful that we got to have this conversation.

Dr. Manasa: Oh, thank you for having me and thank you for discussing this really important topic.

Katie: And thank you guys, as always, for listening, for sharing your most valuable resources, your time, and your energy with us today. We're so grateful that you did, and I hope that you will join me again on the next episode of the "Wellness Mama" podcast.

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