

Childhood Nutrition

KAITLIN HENNESSY: Hello everyone, and welcome to Childhood Nutrition. My name is Kaitlin Hennessy. I'm the Program Coordinator for WSU Global Connections. Olivia, who you will see in the chat box this evening, and myself, will be your event moderators.

Tonight, presenting, is Dr. Michelle McGuire. She has a PhD in Human Nutrition from Cornell University, and has been with WSU since 1997 as a faculty member. She's currently a professor in the School of Biological Sciences at the WSU Pullman campus. Dr. McGuire's research focuses on understanding how maternal dietary intake and nutritional status influences human milk composition, and maternal and infant health during the period of breastfeeding.

Throughout the evening, you may ask Dr. McGuire questions using the chat box. Also, let us know if you have any technical difficulties and we'll do our best to resolve them. Thank you so much for coming this evening. I'm going to hand it over to Dr. McGuire.

DR. MICHELLE MCGUIRE: Thanks for joining us tonight. This is the first one of these I've done, and I'm pretty excited to be able to share some knowledge I have with everybody about childhood nutrition. What to worry about, and maybe more importantly, what not to worry about when feeding babies and kids.

I'm going to briefly go over some touchstones that we have in the field of infant and child nutrition. I'm going to talk first a little bit about recommendations for feeding during the first year of life. A little bit about breastfeeding. When, how, where, whatever. A little bit about that. When to start solid foods, and what solid foods to start, and why. A little bit about sleep and physical activity, as they relate to nutrition, which might surprise you. And then we'll move on and talk about, basically, the same things in toddlers and children. Except there, we're going to talk more about introducing other foods, and how to just establish very good eating habits in kids. And then I'll end with talking just a little bit about teenagers.

And before I get started I just want to tell you that I am very happy to take questions throughout. And if you have a question, go ahead and post it. Kaitlin will then read them to me, and Kaitlin, I don't see them right now on the side of my screen, so feel free to interrupt me and introduce those questions as they come in, as appropriate.

So I'll go ahead and get started with just talking about why is early nutrition important. I think

we all have a sense that nutrition is important, but what do we know about that? And how important is it? And I will tell you, that the focus in nutrition right now, in terms of setting a human being up for a healthy lifespan, is talking about what happens in the first 1,000 days of life. This includes nine months of pregnancy and about two years of life. And we know from many, many studies that healthy growth and good nutrition during that first 1,000 days, sets a person up to have the best social, emotional, and cognitive development, aside from just having healthy growth. And one thing that I want to mention is that we now know that if a baby grows too little or too much in that first 1,000 days, that his or her risk for later diseases and obesity is quite a bit higher. So we're very interested in what's going on during that first 1,000 days.

We also know that in that first 1,000 days, especially during the second year of life, children are developing food habits that are going to stay with them for the rest of their lives. And so it's super important during this period. It is what you feed kids, and how you feed kids. It's not just the foods that you feed them, but it's also the environment in which children are fed, and that helps them to learn how to eat well for the rest of their lives. So that's what we're going to be talking about for the rest of the time.

So I'll start off talking about infancy and just some basics about infant nutrition. What are some of the recommendations during infancy? And first I'll just mention, what are some of the nutritional concerns and nutritional needs of infants? And I'll remind you that this is a period of rapid growth and development. So not only is the baby getting bigger, but organ systems are coming on board, the brain is becoming more developed et cetera.

And this is really, really important that nutrition is right at that point. And this is tricky in early life because babies are tiny. And they have really tiny stomachs and small intestines, and they have to get a lot of calories, and a lot of vitamins and minerals, in very small doses. So providing enough nutrition to that baby over that 24 hours, every single day, is actually somewhat tricky. They also need really high quality and digestible protein. The proteins in human milk are quite unique. They're different from cow's milk, they're different from soy protein, and in human milk, when we know what should be there. And so a lot of formulas are altered to look like human milk, in terms of protein, because we know that's super important.

All of the essential vitamins and minerals have to be supplied in the right amount during this period. We need a proper mix of fats, important for neural development. When I say neural development, I'm really meaning the brain. The brain is developing during that time. And I

should point out that babies during early life can't make some of the fats that we, as adults, can make. They have to get it from their diets. So super important that they're consumed in the first year life.

It's also important, we're learning, that infants are exposed to their environment during this first year of life. This sets babies up for fewer allergies and fewer other problems later on. And these babies who are exposed to the normal environment during early life, via either the mother's milk, or for formula, they do better. And we're learning-- and this is part of my research, which we're not going to talk about tonight-- but the microbes, exposure to microbes during this period, is really, really important. And it turns out that breast milk has microbes in it. So all of these things are the most important things we think about for nutrition during the first year of life.

We do know that human milk is ideal for babies. It's recommended by all reputable health organizations, such as American Academy of Pediatrics, the Surgeon General, the WHO. They all recommend breastfeeding. Now, that's not to say that you have to breastfeed your baby, that's just the recommendation. And I'll talk a little bit more in a few slides about formula feeding. Because, quite frankly, in this country we have fabulous options if you choose to formula feed. But I'm first going to talk about human milk because it is recommended that all babies that are able should be breastfed.

Why is that? Well, there are a lot of benefits that we know from a lot of years of studies. Infants that are breastfed, we know, are receiving the perfect mix of all those nutrients. And they're also receiving live cells from the mother, immune factors. And, like I said before, even microbes, that are probably helping the baby learn to tolerate what is in his or her environment. There's also a lot of immunological protection in breast milk. Breastfed babies have lower rates, for example, of upper respiratory infections. And breastfeeding is associated with lower risk of long-term chronic illness and obesity. For example, Type 2 Diabetes risk is lower in breastfed babies.

Breastfeeding also has some protective effects for the mother. We know that women who breastfeed actually have a lower risk for breast cancer, particularly premenopausal breast cancer. Breastfeeding may also help some moms lose weight. And you hear that all the time, but I would like to put a little caveat in here that that's not always true. Breastfeeding takes a lot of time and energy, and a lot of breastfeeding moms have a really hard time getting away and exercising. So this idea that breastfeeding actually helps women lose weight actually isn't

true a lot of the time. So that, in itself, is not a good reason to breastfeed.

But most women who do breastfeed find it convenient, and relatively easy, and it is cheap. A woman can produce milk for very little financial input. But I should mention that breastfeeding doesn't always work beautifully. In fact, in a lot of situations there are problems. And I would like to highly recommend that if you do breastfeed a baby at some point, or have a partner who does, and there are any problems, get straight to a lactation consultant and get some help. Look up the La Leche League in your area.

Breastfeeding is tricky. And a lot of women don't have support. Their mothers aren't around, their aunts aren't around. People aren't there to help them. So as wonderful as it is, there are problems. There are real problems with it, and if you have problems, you need to get some help solving those problems.

So with that, let's talk a little bit about what's recommended. If you do breastfeed a baby, which is the recommended form of feeding, how often do you feed the baby? And the answer is very, very often. A lot of times you'll hear people say, put the baby on a schedule, don't let that baby run your life. And, actually, the baby does run your life. And the baby should run your life.

And when you look at data from studies, we see, typically, that healthy breastfeeding women breastfeed their babies anywhere from eight to 12 times per day. That's a lot. That's every couple hours, sometimes more frequently, even. And surprisingly, this number stays constant for most of the first year. So I know a lot of breastfeeding women feel like they're breastfeeding their babies all the time and there must be a problem, but, actually, this is normal. And in other countries where women have their babies with them all the time, they breastfeed at least 24 times a day.

Breastfeeding on demand is best. It's not recommended anymore that we schedule feed, unless, of course, it has something to do with going back to work, et cetera. And then, of course, you might need to do that. But it's not necessary. It's not something that the baby needs. And we call this breastfeeding on demand "responsive feeding." And I'm going to talk more about the importance of responsive feeding when we talk about feeding toddlers and children.

And so I wanted to point out here, what really needs to happen in infancy. Starting in infancy,

and going through childhood, is that we do this responsive feeding. What does that mean? It means that we feed kids, we feed babies, when they're hungry. And we stop feeding them, or let them stop eating, when they're full. And so that means we have to look for signs for hunger and signs for satiety. And I'm not going to go through all of these because you're going to have access to this slide set when I'm done.

But there are very clear signs of hunger in babies. For example, they start sucking on their fist. They get fussy, et cetera, and we need to pay attention to those. That's when babies are hungry, and that's when they should be fed. And we should stop feeding them when they're done eating, when they turn their head away, et cetera.

This is a best time in the universe to teach kids when to eat and when to stop eating. Because, as a lot of us know, we stop paying attention to those cues later in life. And that can lead to obesity. And so we really, really need to make sure that kids are learning to sensor on hunger and satiety as early as infancy. So I will leave this slide for you to come back to if you'd like to look at some of these signs of hunger and satiety. You need to start working on that early on in infancy.

Some more rules of the road for breastfeeding? How long do you breastfeed? If you're going to breastfeed, what's the recommendation? Well, the current recommendation-- and this recommendation is put forth by the American Academy of Pediatrics, and the World Health Organization-- is that women exclusively breastfeed-- and that means that you don't feed anything else for the first four months, up to six months. So four to six months. And then continue as long is desirable. But the recommendation is try to breastfeed a little bit up to a year, and breastfeed then, as long as you and your baby want to continue with that.

And a lot of women are able to do this, even going back to work, because you can buy pumps now. And in fact, the Affordable Health Care now requires that pumps are available to women. And women commonly pump. And there really isn't any difference between pumped milk and breastfed milk, in terms of nutrition. Pumping can be super inconvenient and stressful for some women, but it's a good alternative if you can't be with the baby all the time and you want to pump and freeze milk.

So some more breastfeeding rules, and rules of the road recommendations. A lot of women are curious-- You don't know how much milk your baby's getting because they're breastfeeding. And what we usually tell people is, if you're breastfeeding at the breast and that

baby is growing adequately-- in other words, they're doing as expected on those growth curves. And they're producing enough wet diapers and soiled diapers, you're doing fine.

So it's a sort of a secondary way of looking at how much milk you're producing. And here's just some guidelines that we tend to use about how many wet diapers a day you should expect in the first couple of days, when you're not producing a lot of milk. If the baby produces one wet diaper, or a couple diapers, that should be fine. And at this point, they're producing this first feces called meconium.

After that, the milk turns from colostrum into more mature milk. Milk comes in. The woman starts producing a lot more milk. And the way that you can tell if that's happening, is looking at the number of diapers. Typically, and there's range-- you can be below and above this-- five to six disposables, or six to eight cloth, wet diapers per day, suggest that everything is fine. And, actually, those numbers continue all the way through six weeks, up to a few months. So these are sort of benchmarks. Of course, a healthy baby can be below and above that. But these are just some sort of typical numbers that we normally see.

KAITLIN Dr. McGuire?

HENNESSY:

DR. MICHELLE Yes. Yes.

MCGUIRE:

KAITLIN We had [INAUDIBLE] from the chat box asking, "I thought the WHO-- capital W, capital H
HENNESSY: capital O-- recommend two years for breastfeeding."

DR. MICHELLE The World Health Organization, yes. That's a good question. I was focusing more on the
MCGUIRE: American Academy of Pediatrics recommendations. And what they're recommending, at least one year, but possibly up to two. World Health Organization does recommend two. So you're right on that. Somebody out there knows their World Health Organization recommendations. I was just kind of morphing the two of them. So thanks for bringing that up. Thanks for that clarification.

OK. A couple other things that I want to mention about breastfeeding. There is a concern-- women want to know, is my milk composition adequate? Some women feel more comfortable feeding formula because they feel like it's been manufactured in such a way that we know that it is perfect for babies. And in fact, formula is manufactured to look just like human milk. So

that argument doesn't really hold, but there are some concerns some women have that maybe their milk is inadequate.

And, absolutely, milk composition is adequate for babies until about four to five months. And this is when we know that some babies might become a little iron deficient, or a little protein deficient, if they're not given supplementary foods. OK? So this four to five, or four to six months, is probably a little bit of a better range in there. And this is exactly why the recommendation to start introducing supplementary foods is also in that period of time.

So these are the two nutrients that we are worried about babies becoming deficient in in that period of time. And you'll see that we actually recommend, therefore, that the first foods are good sources of protein and are good sources of iron. Because that's what we're worried about between four and six months, and especially after six months. Having said that, it is fine to exclusively breastfeed until six months. Babies are not going to get too iron deficient, or too protein deficient. They will be fine if you exclusively breastfeed for six months.

There's also a concern about vitamin D. There is a current recommendation now by the American Academy of Pediatrics that all breastfed babies receive vitamin D drops. Without going into all the research behind this, this is because there are some populations of breastfeeding women, and breastfed babies, that do become vitamin D deficient when they're exclusively breastfed. However, these mothers and babies tend to be dark-skinned, or they wear a lot of sunscreen. Or they wear a lot of clothes that decreases sun exposure.

We make vitamin D from the sun. This is the recommendation. You certainly can't do any harm giving your baby vitamin D drops. It doesn't mean that milk, in general, is low in vitamin D. And in fact, I like to suggest that, better yet, make sure you and your baby get moderate amounts of sun exposure, protective sun exposure. Not too much sunscreen.

OK. So as I mentioned before, there are women who choose not to breastfeed, and that's fine. And luckily, in this country, we have fabulous formula choices, and we have clean water. So we're fine with that. If you do choose to formula feed, I would recommend that you look for a formula that is iron-fortified, that's critical. That has two important fats in it, they're abbreviated DHA and AA. These are important fats that babies can't make. They're high in human milk, so we need to add them to formulas.

And also, I wanted to mention that there are cow's milk-based, and soy-based formulas out there. They're both fine. One isn't better than the other. They're both just fine. So these are all

things that are good. And I just did want to mention, sometimes you'll see expensive formulas that say, for example, non-GMO. This is, Genetically Modified Organisms. You'll see that on this. Or they'll be organic. Or they'll say that you've added more vitamins and minerals, et cetera.

And what I would like to say about these things is, if you live a lifestyle where you avoid GMOs, and you consume organic foods, and you're going to want to choose these formulas. However, these formulas are no more nutritious than other formulas. And you're going to pay a premium for these sorts of labels. And from my perspective, I know absolutely no nutritional benefit from spending extra money on these sorts of products. And also the ones that have added this, and added that. There are actually regulations about what needs to be in formula, and they all have to be up to those standards. So any formula that you buy will be up to those standards.

So just a summary. Make sure it's iron-fortified. Make sure it has these fatty acids in it, doesn't matter if it's cow's or soy-based, unless your child has some sort of allergy. I wouldn't worry about GMOs and organic, but that's my personal preference. If that's the sort of food that you like to purchase, and then that's fine. And don't worry about buying something with added vitamins,

OK. A couple other things that I wanted to mention before we move on to toddler hood. Some concerns we have, if you happen to be a vegan woman. And that means you consume absolutely no animal products, whatsoever-- no milk, no fish, no chicken, et cetera. We do know that breastfeeding vegan women produce milk with very low vitamin B-12. And this is an essential nutrient that absolutely is needed for neural development. B-12 is found primarily in the animal foods. It's also found in some fermented foods because bacteria make vitamin B-12.

So if you are a vegan breastfeeding woman, I would recommend that you either take a B-12 supplement, or better yet, just make sure you're getting enough B-12 from fermented foods, or for foods that contain bacteria. That's really important for the baby.

A couple other things I wanted to mention-- It's perfectly fine to breastfeed and formula feed together. There's no problem with that. A lot of women, when they go back to work, they introduce formula and continue to breastfeed.

I also want to mention that whole milk is OK to add as a supplemental beverage to

breastfeeding after about six months. But before six months of age, it's recommended that babies are not fed whole milk at all. And it's never OK to substitute whole milk for formula during the first year. And this is because-- we're not exactly sure why-- but when you feed a young child, an infant, whole cow's milk, it causes them to lose iron in their feces. And so a little bit of whole cow's milk is OK, but substituting it, for example, for formula, is not OK. The child will become iron deficient. So you have to be careful about that.

And then finally, I wanted to mention, no child, no baby, should ever be put to bed with a bottle, unless the bottle only contains water. And that's because the carbohydrates, the sugars in almost everything, including formula, can cause this [INAUDIBLE] called tooth decay-- baby bottle tooth decay. And this is a picture of a child with baby bottle tooth decay. And what happens is that those fluids build up in the mouth, they feed the bacteria in the mouth, and the teeth. Even before they've come through, start decaying. So we recommend that babies are never put to bed with any sort of bottle.

KAITLIN Dr. McGuire, we have another question.

HENNESSY:

DR. MICHELLE Yes.

MCGUIRE:

KAITLIN Our question is, if a baby is regularly gassy and on formula, would this be a sign of something wrong with that type of formula?

HENNESSY:

DR. MICHELLE That's a really, really good question. As long as the child is growing appropriately, OK, we don't consider that a significant problem. If the child is crying and in distress, it might be worth having the child tested for an allergy or a sensitivity. But aside from that, babies are gassy. And you expect that. So unless there's growth faltering, or there's distress and crying, we typically don't worry about things like that.

MCGUIRE:

How old is the baby? We probably don't have that. Yeah. The person who asked the question, if you want to give me more information I can talk more about that, if you give me a little more information. Or you can shoot-- oh three months. OK, I see it. Three months-- if it were earlier, I'd be more concerned about it. Those gases that are being produced are being made by the bacteria in the GI tract.

So what's happening is you're feeding the baby formula that is feeding the microbes in the gut.

They're producing the gas. And we all produce gas. It's actually microbes that produce gas we consider to be good for us. Most things that produce gas are good for you, like beans and broccoli, and things like that. So really unless there's a growth problem, I wouldn't worry about it at all. Especially at three months. Not at all. And I hope that answers your question.

OK. Thank you. So now let's switch gears a little bit. Now we're in this period from four to six months. We're considering introducing other foods, and as I mentioned before, the real concern here is iron and protein. So good first foods tend to be things like iron-fortified cereal. This is one of the reasons why a lot of people start with iron-fortified rice cereal.

But interestingly, many, many cultures start their babies on pureed fish and meat. And actually a few recommendations, including the American Academy of Pediatrics, have now come out and said that's actually a very good first food. Of course it has to be extremely well pureed. And has to be smooth so that the baby will accept it. But, nutritionally, something like that's a fabulous first food. Also pulses like dahl. This is an Indian dahl. Lentils, kidney beans, garbanzo beans-- also, extremely pureed-- are really good first foods because they're good sources of protein.

And then the question is, when is this appropriate? When do you start feeding other foods? And the answer to that is, it's individualized. It depends on the baby. It depends on the situation. There's no one right answer to that. However, when we talk about this, we do talk about some key developmental milestones that we look for, that you probably don't want to start supplementary foods before these happen.

So for example, sits without support and has good head and neck control. That just has to do with swallowing and not choking. And I'll let you read through these on your own, but you want to make sure that the baby is actually anatomically and physiologically ready for that food. And when they are, and they're interested, then it's time to start. And that is a very personalized question, and has very personalized answers for every baby.

But just know that this whole range of time is perfectly fine. If you have a child that shows absolutely no interest, then just continue to breastfeed for six months. If you have a child that's grabbing food off your plate at four months, they're probably ready. And as long as the food is safe, it's probably a good time to start. There is that window of opportunity where we want to introduce good foods to kids, and when they're ready, it's time, both nutritionally, and cognitively, as well.

So with that, I want to mention a little bit about food allergies. This is a big issue in this period of time. For years, we have recommended that people put off introducing highly allergenic foods like peanuts-- especially peanuts-- cow's milk, et cetera. Because we were afraid of an allergic response early on. And so it used to be recommended that these foods not even be introduced, maybe, in the whole first year of life.

I will tell you that our thinking on this has completely switched over the last few years. We now know that delaying these sort of allergens might actually increase the risk for allergies. The idea here, is that the baby has to develop a tolerance for these common foods. And if you miss the window of opportunity for developing tolerance, you might actually increase the risk for allergies. So the recommendations are rapidly switching.

We're now actually saying, go ahead and introduce these foods in small quantities, just along with other foods that you're introducing, and just be careful about it. But don't avoid them. It's also recommended that foods-- any new food, especially the potential allergens-- are introduced at home, rather than in a daycare or restaurant. That way you're just paying attention. And if there's some sort of reaction you can respond.

But also, if your child has a known allergy, or your whole family is allergic to peanuts, or something like that, you might want to consult your doctor before you move on introducing these foods. But this is sort of an older recommendation, and I can guarantee you that the new recommendations you're going to see deal more with introducing these foods, earlier rather than later.

Some other things I want to mention is that we also used recommend that you would introduce one food at a time, and separate each one by a week. And, actually, if you did that, you'd hardly be feeding a whole meal by the time they were three. And so now we recommend that there's really no need to do that. You can introduce foods individually, wait a day or so, and make sure that there is no reaction. But that old recommendation is really behind us now.

Also, I just want to mention there is absolutely no reason to purchase baby foods. If you have a food processor-- which many people do now-- you can puree anything up, put it in ice cube trays, stick it in a Ziploc bag, and have ready-to-go baby foods. And in fact, when the baby gets old enough to eat mixed foods, et cetera, you can take leftovers from your meal, puree it together, and you have fabulous baby foods ready to go. No reason to spend money on that.

Couple other things I want to mention. Don't give up on your baby. If he or she doesn't like something, try, try, try again. The statistics on this is something like, babies often need to be introduced to a food six to ten times in order to accept it. So just because they didn't like broccoli the first time, try it again, try again, try it again. And also introduce finger foods when your child is ready. Make sure they can sit up. Make sure that the food, itself, is right size. That it's not a choking hazard. And most parents are very familiar with that. It's one of our biggest fears.

By the way, I have three children. I have fed three children. They're all out of the house now.

OK. I want to mention-- looking at the time here. I want to mention a little bit about sleep. This at first seems a little bit out of place, and a little bit out of context. But emerging data, both in children and in adults, is consistently showing that there is a relationship between not getting enough sleep, or lack of sleep, or a little sleep, and risk for obesity. We don't understand it. But it appears to have some very physiologic mechanisms behind it. And we're now also seeing this in children. So we're very interested now in what is this relationship. What's going on, and what kind of recommendations should we make about sleep so that we decrease risk for obesity?

OK? And as I'll mention in a few minutes, obesity is one of our biggest public health challenges right now. So we're trying to decrease the risk early, early on. And one of the things that we think we can do, is make sure our kids get enough sleep. And I have presented here a very recent recommendation by the Academy of Sleep Medicine. I've put some references in here. This one came from 2016.

And it's now recommended by the Academy of Sleep Medicine, that infants between four and 12 months should sleep 12 to 16 hours per day, including naps on a regular basis. This has been also acknowledged by some nutrition groups, with the idea that this might help decrease obesity, although I think we don't have very good data on that. And I just want to note that there are no data on younger infants. We don't really have sleep recommendations below four months of age. And I should also say, that I want to remind you that these are ranges. Your baby may be below that, or above that, and be perfectly healthy. This is just sort of the standard median, range.

And what about physical activity? If we're talking about obesity, it's not just about energy consumed, it's also about energy expended. And I don't think many of us think about physical

activity in infants, but actually, it's never too early to be active. And some of the changes that have happened in our society over the last year have actually decreased activity, even in our youngest.

So I do want to mention some physical activity recommendations currently out there. And again, these are to really help babies regulate their, what we call, energy balance. Their energy expenditure should be similar to their energy consumption, balanced for growth. And so what do we recommend? And this recommendation comes from Shape America, which is a nationally recognized organization.

And what they recommend for physical activity of our youngest babies is their caregivers-- moms, dads, babysitters, et cetera-- should place infants in settings that encourage and stimulate movement experiences and active play for short periods of time, several times a day. And in layman's terms, ditch the car seat, ditch those carriers. I see so many well-meaning, busy parents-- we all do it-- but their kids are in car seats and carriers all the time. And they're strapped in, and they're not very active. Get the kids out of those. Get them on the floor. Give them tummy time. Babies are actually quite active. Put them on their back. Put them on their stomach. Even before they're crawling, they're very active, and it's very important.

Also, the infants should interact with caregivers in daily physical activities that are dedicated to exploring movement in the environment. What this means is, get kids engaged. They will move when they're engaged. Take them on walks. Encourage them to look and explore as early as possible. They will be more physically active. So, in summary, it's really never too early to be active. Start this with your infant.

OK. So let's move on now and talk a little bit about toddlers and young children. They're so cute. And this is the age-- we're in the terrible two's here, if that's what you want to call it. Toddlers we consider from one to three years of age, and then young children we usually consider from four to eight. Of course, this includes the preschool years.

This is a super critical, and super fun, and super challenging time to feed kids. Anybody with kids knows this. You just look at this little gal. You don't know if she's going to eat that, or throw it at you, or smear it on the table, or feed it to the dog. And it's fun, and it's crazy, and for some people this is the worst few years of their lives. But we all get through it. But it's really important for kids, and really challenging for parents.

And so I want to talk a little bit about how we think is the best way to do this. And I want to talk

about the role of parent and role of child. And we'll come back to this a few times. The role of the parent in this challenging, crazy time is simple. Provide frequent access to healthy food choices. That's your job.

Your job isn't to make your kids eat it. Your job isn't to make your kids eat Brussels sprouts. Your job is to just make sure they have access to healthy food, all the time. Some parents go wacko about this, right? They have all this crazy stuff that they're trying to feed their kids, and there's no need for that. There's a lot of healthy food choices. Provide a variety, provide it frequently, and then let your child choose what to eat and how much to eat.

And, honestly, if you take that pressure off of yourself as a parent, making sure your kid eats, eats, eats eats, life gets a little bit simpler. Even though this whole period-- there's nothing simple about it. But there's loads going on in this period of time. Loads of stuff going on, developmentally, in this decade of childhood. And it's really a moving target.

So I would encourage people with toddlers and young children to just go with it. Have fun with it. Know that your role is simple. Provide frequent access to healthy food. Let your child choose when, and how much, to eat.

So-- I can't move that-- but I wanted to show you-- this is the set of behavioral milestones for children. And this is put out by the United States Department of Agriculture in coordination with the MyPlate in dietary guidelines. And it's so funny if you read through this. These are all developmental milestones for children age two through five years. And it goes through simple things that they can do. And these are the sort of things that are normal. Annoying, but normal.

And what I had highlighted on here is, may suddenly refuse certain foods. It's in every category until you get to five. So just know that this is normal. Your kid may have eaten something yesterday and today they won't touch it. Maybe they won't touch anything today. And that's completely normal. That's completely normal.

Let's see. I keep moving the wrong thing here. So how do we feed these kids? How do we deal with this crazy period? And the answer I want to give you is something that we call responsive feeding. And there's a reference down here at the bottom, you'll have access to it. And I actually have it right here in front of me. I'm going to highlight a publication that was actually just published last week. And these are new guidelines for feeding toddlers and children.

And so look this up. You can find it free on the internet. And again, if you just Google that, it'll come up. And so this is a really nice synopsis of how we think kids should be fed. And the bottom line is they should be fed via this idea of responsive feeding, and I talked about this with breastfeeding. That we just feed on demand.

So the idea of responsive feeding, is this responsive parenting involving reciprocity between the child and the caregiver during the feeding process. So what that doesn't mean, is you don't sit your child down with some Cheerios and cheese and walk in the other room, and come back, and just clean it up. The idea is you pay attention to what's going on. If the child isn't interested, they're done. If they need more, whatever, but you're actually engaged in this.

And we're busy parents now, and I think a lot of times we forget about this responsive feeding thing. This is a great example, a great illustration, of responsive feeding. And it is fun.

So responsive feeding is grounded in three steps. The child signals hunger and satiety through what they do, how they look, how they sound. The caregiver recognizes the cues and responds promptly. And the child experiences some sort of predictable response to their signals. They're not ignored.

This really isn't rocket science. I think it's just once in a while we need to be reminded of this. This is how we're supposed to feed kids. So what is responsive feeding? As I mentioned, it's really the parent, the adult, paying attention to hunger and satiety signals, and helping the child. If they're hungry, get the food. If they're full, they're done.

And this is a list of hunger and satiety signals that are pretty common-- again, not rocket science-- from five months to two years. And again, this is out of this publication that they've referenced, another public publication. So those of you who have kids, you recognize these things. If a child is hungry they might reach for food, right? And this is in this age where they might be breastfeeding, right? And you might be thinking, oh my gosh, my kid's hungry. He's reaching for food. Well, maybe they're hungry. Go ahead and feed them.

Points to food. And, obviously, as they get older they can ask for food. But just as important, you make sure you're paying attention to the satiety signals. Are they slowing down? Are they pushing the food away? Those are satiety signals. We want to encourage the child to recognize those satiety signals and know that that's time to stop eating. Because, unfortunately, many of us don't do that as adults.

So that gets me to this next question of, how much control should you exert over your child's choices? Obviously, we want to be good parents, right? We want our kids to eat a variety of foods. We want them to be introduced to a whole bunch of new foods. We want them to like a variety of foods. And sometimes that takes the parent being the parent, and having a little bit of control. But how much control is too much? That's the question. Obviously, we don't want our kids foraging through the refrigerator on their own. We're going to help them with that.

But some things that we know from research-- We do know that parents who restrict foods-- So we're talking about control here. Parents who restrict foods are more likely to have obese or overweight children. So what I'm talking about here is, I'm never going to take my kid to McDonald's. That's restricting a commonly consumed food. Or, they're not going to get any chocolate until they're five. That's a common restriction.

Parents who have that sort of attitude, and that sort of response, are more likely to have obese or overweight children. That doesn't mean they all will, they're just more likely. Parents who pressure kids to eat everything on their plates have children of normal weight, but these kids do not learn to self-regulate, and often become obese adults. So that's an interesting, long-term look at this. So this is a sort of family situation where you sit down and you say, you're going to finish everything on your plate. Maybe you put the stuff on their plate, maybe they did. Regardless, we do know that there is a relationship here. That sort of parenting style often leads to adults who are obese.

And, interestingly, men are more likely than women to use pressure-to-eat behaviors. Which is surprising to many, but the data play this out. And boys are more likely than girls to be pressured to eat, which is very interesting. So we need to be careful about these things.

We don't really recommend heavily restricting foods. Of course you can restrict some foods. Some foods are just ridiculous, like soda. There's no redeeming quality in soda. However, having soda once in a while is not going to hurt anybody, right? Save it for that party, sort of situation. We don't want to pressure kids to eat everything on their plates. What we want to do is encourage them to only put on their plates what they think they can eat, right? That's a better approach. We don't want to waste food, but there is a balance there. So nothing's simple, right?

So best practices with children. I'm just going to go through a few things, as I just mentioned. We highly recommend that we avoid using food to control behavior. We don't use it as reward

or punishment. That usually turns out badly, and it sets kids up for having food issues later on. It's super important to model good eating habits. Loads of research show that children's eating patterns mirror their parents' eating patterns, and that shouldn't be a big surprise.

Another thing, is be patient with your kids, right? Kids are commonly food-phobic. They don't want to try new things. Just be patient with them. Introduce new foods. Reintroduce foods. Over reintroduce foods. As I mentioned before, studies show that children often need repeated exposures to foods-- up to 26 times-- to actually accept a new food. So be patient.

Encourage nutritious snacking. Remember they have tiny little tummies. Even this little toddler, not a big tummy. So snacks are still important to get all those nutrients in. And promote self-regulation, which means kids should eat only as much as they need to eat.

So I want to mention a little bit about obesity. I've already touched upon it a little bit. But aside from the fact that we need to get all the essential nutrients into our kids, and we want them to develop good eating habits, we also want to prevent them from becoming obese. This really is the most pressing health concern we have in the United States right now. I'll show you some statistics.

This is obesity in infants and toddlers. So this is birth to two years old. These are percent of children that have high weight per length. Which basically means they're overweight, or obese. So they're heavier than their length would suggest they should be.

So this is the total population-- US population. That's about 7.1% of our infants and toddlers are already overweight. That's bad. By the time they're two, that's going to go up as they get older, OK? Girls are more likely than boys.

And what's really, also, very interesting, is that this is different across different ethnic groups. So we have Asian kids with the highest-- now this is interesting, because this one actually does reverse later in life-- but we have Hispanic and Black infants and toddlers with higher obesity early on. And these actually increase as time goes on. And we're seeing these statistics-- they're starting to level out-- but they've been going up. And so we're very concerned about this.

So obesity in preschoolers and school-aged children. Here are some statistics for the Centers for Disease Control and Prevention, otherwise called the CDC. 17% of US children and teens are obese. So these are older kids. That's a lot of kids. And here are the total numbers. If you

get up to the teenage years, we're already at 20, 21% of our population is overweight or obese. I think this is actually obese. So we're very concerned about that.

Again, we see these differences amongst the different ethnic groups. And it's interesting. By this age, the non-Hispanic, Asian youth actually have a lower risk for obesity. But this is what we're trying to prevent now. Because if you're an obese child, you're likely to be an obese teen, and you're very likely to be an obese adult. And it's a lot harder to treat than prevent.

So the best way to avoid obesity, we believe, is via reasonable responsive feeding and being a good role model. Now that means that a lot of us, as parents, have to change what we're doing. And that's probably even harder than feeding your kid right. So it is a time for the whole family to try to adjust what they're eating to become more healthy.

So bottom line with kids, as long as the available choices are healthy, we really recommend backing off forcing kids to eat, or not eat. Your job is really to provide the choices and be a good role model. And remember that kids won't go hungry. They just won't. They generally won't. They will eat when they're ready to eat.

I want to mention a few things about picky eaters. We all know some picky eaters. I, luckily, didn't have any, but this is one of the frustrations for parents. Where your kid will only eat peanut butter and jelly sandwiches and bananas, and that's it. And, of course, you're very worried then about vitamin deficiencies, et cetera, et cetera, et cetera.

But the research really says that kids go through these phases and in the long run, there's almost no evidence of poor nutritional status amongst picky eaters. They figure it out. They do fine. They don't grow poorly, et cetera. And in fact, I just read a recent study where picky eaters were actually at lower risk for obesity later on than non-picky eaters. So that's kind of an interesting twist on that.

And again, remember kids need to be introduced to foods lots and lots of times. So you might feel like your kid is a picky eater, but maybe they just haven't been introduced to that food 20 times yet. And they will, maybe, eat it in the long run. And do remember, kids are very sensitive to certain flavors. They have to learn how to like bitter foods, for example. Which are a lot of vegetables.

And again kids won't go hungry. Just make sure you always have some sort of foolproof backup that you're happy to have them eat if they won't eat what you serve them. I always

think that that's a good idea. In our house, it was a peanut butter and jelly sandwich and a glass of milk. They don't like what we're having for supper, they could always go get that.

Again, I just want to mention a little bit about sleep. These same sort of recommendations-- As I mentioned before, babies are supposed to sleep a lot. And you can see the numbers go down, as the years go up. But still recommended for a three to six-year-old. So this is the preschool, kindergarten, first grade years. 10 to 12 hours a day, that's quite a bit. So we do need to make sure our kids get enough sleep, because we do think that that is somehow related to risk for obesity.

And physical activity for kids, what are the recommendations here? I pulled these recommendations from both, SHAPE America and the US Department of Health and Human Services. And these are the recommendations right now, that toddlers and preschoolers should engage in a total of at least 30 minutes of structured physical activity each day. And at least 60 minutes-- and up to several hours per day-- of unstructured physical activity. So structured physical activity is like recess, PE, soccer game-- well, these are toddlers and preschoolers but-- tumbling, whatever. Some sort of structured activity. And then there's just play. It's super important. Another recommendation is that the young ones should not be sedentary for more than 60 minutes at a time, except when they're sleeping. So pay attention to that.

School-aged children should be physically active for at least 60 minutes on most, if not all, days. And, yes, that is seven days a week, and that's a lot of time. So unless your child has a [AUDIO OUT] PE component at school, or they're in some [AUDIO OUT] like basketball after school, or they're doing something like that-- 60 minutes a day, actually, is somewhat difficult to get to, unless your kid is active. So pay attention to that.

And finally, I just want to mention a little bit about the teens. You think two-year-olds are hard, teens might be even harder, because you have almost no control over them. And they're wonderful, as well. But what we're worried about in the teenage years-- This is a graph of growth velocity in humans. Males are the blue line, females are the red line. So this is velocity.

This doesn't mean that the kids are losing growth, but they're growing less, less, less, less, less. And then all of a sudden they hit puberty, and boom. The growth spurt happens. This is the most rapid growth spurt, relative, throughout the whole lifespan.

So not only do we have to provide enough energy, and all the nutrients needed for this growth

spurt, but also, there's a lot of maturation going on at this time-- reproductive system, et cetera. And so we need a lot of energy and nutrients for that, as well. And I think sometimes we forget about the really high nutrient requirements during the teenage years. Those kids are out of the house, we don't see them whole lot. But, actually, we really need to pay attention to what's going on in these teen years.

Considerations when feeding your teen. Some things that we are concerned about here-- very concerned about iron. As girls hit their first menstruation, they start losing iron every month. It's very difficult to get enough iron if you're not eating meat. Difficult for vegetarians. And so if that is a category of your child, your daughter-- they're not eating meat. And even if they are, it's hard to get enough iron. So we pay attention to that.

And I should point out that a relatively high percentage of girls do experiment with vegetarianism during their teen years, which is fine. It's a perfectly healthy lifestyle. But it is hard to get iron. So pay attention, and if that's going on, maybe your daughter needs to take an iron supplement.

Calcium, also, super important during this time period. Both boys and girls are putting on a lot of bone, and you need a lot of calcium. You also need a lot of protein to go with that, because your bone is actually made, mostly of protein, with calcium embedded in it. So calcium and protein, super important. And again, calcium is hard to get if you're not consuming dairy. It really is. And so if your child is not consuming dairy-- if they're lactose intolerant, or something like that-- you really need to pay attention that they're getting enough calcium from other food sources.

A lot of very unhealthy eating practices do develop during the teen years, particularly around body image. This is not just girls at all. Boys, as well. This is actually increasing in prevalence. That boys, basically, want to bulk up and they want to look good. Girls tend to want to get thin. So it's kind of an opposite effect going on. But these can lead to very unhealthy eating habits and we need to really pay attention to that.

One thing that I would highly recommend, is pay attention to how much soda and sports drinks your teens are consuming. These are, absolutely, empty calories. They're fine once in a while. But relying on sodas and sports drinks as a beverage on a daily basis is a really bad idea. Lots of sugar, lots of salt. No vitamins and minerals at all. I highly recommend you avoid them, except for party situations, or sport situations.

So adolescence is complex. All this stuff is going on, right? Feeding that kid. All they really care about is getting enough calories, but you really need to make sure that they're getting all of the nutrients that they need, as well. Which is basically eating a variety of foods, and that will work. And it's still fundamentally important for parents to provide healthy food choices in the adolescent years.

I think a lot of times we just sort of back off. But we really need to pay attention to what our kids are, and aren't, eating. Are they eating lunch? Where are they eating? It's hard to keep track sometimes, but it's worth asking. Are they cutting out certain foods? Are they becoming vegetarians? Are they getting sensitive to milk, et cetera?

And I would like to just remind you that family meals are always important, but they're super important at this stage of time because your child actually sits with you for more than five minutes and you can talk to them. And you can also see what they're eating, and see how much they're eating. And rule of thumb, that we always say, is make sure you eat together at least once a day.

And don't underestimate the importance of family breakfasts. I know a lot of families have found that breakfast might become the most important meal of the day with their teen, because by the end of the day they're off to football practice, or off doing stuff-- And anyway, the parents are so tired that you're beat at that point. So you might want to get up a little bit early and put breakfast on the table in these last few years that you have your child at home.

So with that-- good timing-- Just a summary. Infancy. Breastfeeding is recommended. We recommend that you feed on demand, which is responsive feeding, and exclusive from four to six months. If you do feed infant formula, feed an iron-fortified formula. Never put your baby to bed with a bottle. And I should recommend up here-- It is recommended that we breastfeed for a year, or two years, it depends on the recommendation.

Introducing solids. Start with high iron, high protein foods. Be careful that it's pureed extremely well. Introduce new foods and keep mixing it up with your kids. You don't need to purchase them, you can make them yourself. Adequate sleep and physical activity is important.

And, basically, the same thing goes through childhood and adolescence. Responsive feeding is important. The parent's job is making sure the right food is there. And the child's job is to decide what, and how much, to eat. Be patient and positive with your child. And again,

adequate sleep and physical activity are important for decreasing risk for obesity. And again, this doesn't stop in adolescence. A parent's job never stops.

So with that, I'd like to say thank you. And I am very open for questions. I'm in no hurry to stop. I have nothing to do tonight, so if you have questions, I'd be happy to answer them.

KAITLIN Dr. McGuire, we do have a couple questions. The first is, my three-year-old hates chicken.
HENNESSY: What would you recommend for a replacement?

DR. MICHELLE Does he like any meat? So if he doesn't like chicken-- he doesn't like any meat. Then your
MCGUIRE: issue is going to be getting enough protein in your child. And I would go to other high protein foods. Corn is a good source of protein-- beans, lentils chick peas. I would just go to the high protein legumes. I like eating chickpeas, yeah. So those are good sources. But keep trying, OK? That's what I'm going to say. Keep trying.

Cut it into different-- how old is your child? Can you respond real fast? Three years? Three years old. Try dips. Yeah. OK. So just keep trying. Try it different ways. Put different sauces on it. You've probably tried all this. Just keep trying. They'll grow out of it, and they'll like it, eventually. But in the meantime, your concern is protein. So stick to the high protein legumes, corn-- look up protein complementation and how that works.

So you can mix proteins like corn and beans, rice and beans. And make sure you have plenty of protein. There's actually no problem with that. A lot of the world is vegetarian like that. And as long as you mix those proteins, you're fine. But keep trying on the chicken.

Yup, absolutely. Yup. There's a lot of options when it comes to protein. But if you want them to eventually consume it, just keep trying. Maybe they were born a vegetarian, though.

KAITLIN All right. Our next question is, my concern with responsive feeding is getting your infant to
HENNESSY: sleep through the night. As it's become common to do a, quote, "dream feed," unquote, at the parents' bed time, to avoid middle-of-the-night feedings. Also, that responsive feeding wouldn't be the best choice for a daycare preschool child, since they are on a schedule in those environments. What are your thoughts on this?

DR. MICHELLE Right. That's a really, really good question. And, obviously, the person that asked the question
MCGUIRE: has experience with kids. So you know how complicated this is. So the issue-- I'm not sure I completely understand the issue of feeding kids right before bed, or to get him to sleep through the night. Obviously, we all want to sleep through the night, but quite frankly, some

babies cannot consume that amount of food to get them through the night.

Oh, these are large children. OK. These are three, four, and five-year-olds. We do not-- that's a bedtime snack, and that's not a good idea.

Different questions-- Oh, different questions-- I'm reading these responses as we go. OK, infants. OK.

Some infants absolutely cannot get through the night without waking up and eating. Breastfed babies are expected to wake up in the middle of the night and feed, and so are formula-fed babies.

And I know we all want to sleep, but really, overfeeding a child so that they'll sleep through the night is not an ideal feeding practice. Now I understand the need for sleep, and I also understand that some babies sleep through the night, early on. But these are child-to-child differences. And so I think we need to respect those. I hope that answers the question.

KAITLIN

HENNESSY:

The next question we have is regarding-- I have a lot of friends that give their children Ensure because their child refuses to eat "quote unquote" healthy foods. What do you think about this?

DR. MICHELLE

MCGUIRE:

I'm not a fan of this. Quite frankly, these are really, really well-meaning parents, and they're absolutely on track, they want to make sure that their child is getting all the nutrients that he or she needs. I completely respect that. But I think it's an overreaction to the situation. I think that solution is not a long-term solution. And what does that teach the child? The child really needs to just be introduced to a variety of foods over and over and over. As annoying, and difficult, and challenging, as that is for the parent, that's a better solution.

And I will liken that to-- there are parents that also give their children one-a-day vitamins and then they don't worry about what kind of food that they eat. And that's not a good idea. We really need to be teaching good eating habits. So giving a liquid food replacement, not ideal. It's a good backup. It's a good emergency sort of thing, but it's not a good fix to the situation.

KAITLIN

HENNESSY:

Excellent. Our next question is, do you recommend a nutrition-feeding book for young mom's?

DR. MICHELLE

MCGUIRE:

Oh, golly. I wish I could answer that. Let me look into that. I was more into those books when I was a young mom. And so I don't even know what's on the market. So let me look into that

and see if I can shoot Kaitlin a good answer to that, and she can send it out to everybody. I think, Kaitlin, you have everybody's email addresses?

KAITLIN That is correct.

HENNESSY:

DR. MICHELLE OK. So I'll look that up and try to get an answer to that.

MCGUIRE:

KAITLIN Thank you. Our next question is regarding, do boy babies, and young boys, need more food than girls? Going along with that thought of boys eat more than girls, in general.

HENNESSY:

DR. MICHELLE Yes, so that's a good question. So food requirements are completely based on nutrient and energy requirements. Boys do tend to be bigger than girls, so, therefore, they do tend to require more energy and more nutrients. So the general answer to that is, yes. Boys do require more. However, if you have a small boy they're not going to require more. Of course, nutrient requirements are also based on activity level. So you have to factor that in. But if you looked at the recommended dietary allowances for boys, they are higher than girls.

MCGUIRE: