An Introduction to Pediatric Bladder and Bowel Disorders, Part 2

Recorded August 24, 2020

Presenter: Tiffany Lee, MA, OTR, BCB-PMD, PRPC

OccupationalTherapy.com Course #4872

- [Fawn] Today's topic is An Introduction to Pediatric Bladder and Bowel Disorders. This is the part two of that series. Today's presenter is Tiffany Ellsworth Lee. Tiffany holds a Bachelor of Science degree in Occupational THerapy from the University of Texas, Medical Branch and a Masters of Arts and Health Sciences Management from Webster University. She has worked as an occupational therapist and a manager in a variety of rehabilitation settings for the past 25 years. In 1996, she began specializing in the treatment of neurological disorders, utilizing surface EMG biofeedback. She received her training at the University of Miami under the direction of Dr. Bernard Brucker a world renowned rehabilitation psychologist. In 1997, she became the Director of Florida Hospital's Biofeedback Clinic in Orlando, Florida. Her biofeedback clinic specialized in treating neurological conditions and facial paralysis. In 2004, she received her first certification in pelvic muscle dysfunction from the Biofeedback Certification International Alliance. In 2018, she received her PRPC, which is Pelvic Rehabilitation Practitioner Certification through Herman and Wallace Institute. She's the owner of a continuing education company, Biofeedback Training and Incontinence Solutions and has a private practice in San Marcos, Texas, exclusively dedicated to the treatment of urinary and fecal incontinence and pelvic floor disorders. She is also on the faculty at Herman & Wallace Pelvic Rehabilitation Institute and offers clinical consultation, training workshops, and mentors, healthcare professionals working toward their BCIA certification. Welcome back, Tiffany. So glad to have you.

- [Tiffany] Thank you for having me again. I hope some of you were able to go to part one, which was on the bladder disorders. And if you did not have a chance, I would highly recommend going back because it's so important to understand both the bladder and bowel systems when you're working with children. And so I wanted to start off by saying that the colon is probably more sensitive to psychological and emotional states than any other part of the body. So it is important to understand. And so I hope that this lecture helps you understand some of those things. We have our learning outcomes here. And then the next slide, what we're gonna be talking about is

starting with the bowel disorders. Also behavioral therapy, some treatment options, case studies, and resources and practical tips. And I wanted to read-- I have a nice little book that I got from the British Medical Association. It's just called "Understanding your Bowels". But I like how they started it. So I'm just gonna read this paragraph. It's not in the slides. In Western culture, the act of passing stools is an unfortunate necessity and an entirely private matter. As for the organs that produce stools, we prefer not to think about them. And if we do, we see them as mysterious, unpredictable, and rather disgraceful. Why is this?

There are grounds for some of these beliefs and attitudes. Stools are usually smelly, sometimes appallingly so. Diseases can be spread from people's stools to other people. The act of opening the bowels is an undignified affair, best done in private, and sometimes it is uncomfortable. The colon and rectum, which make the stools, are mysterious organs, perhaps the least understood organs in the body. And who has not been embarrassed by passing wind in company? So I love they say wind all throughout that book. That's more of a British term, but anyway, I just wanted to start off with that because who likes to talk about pee and poop? I mean, I know I do, but most people don't. So that is something that I'm passionate about for some strange reason. But for bowel control, it's definitely something that if you're working with children, if you're not going to go into this line of work, just know that there are many pediatric OTs and PTs that are working with children, especially with the bowel and bladder control. So wanna start off with a study in 1997, I took 234 children who had chronic constipation. 29% of those had daytime incontinence, 34% nighttime incontinence, 11% had urinary tract infections, 16% vesicoureteral reflux which is really when the urine backs up and goes the wrong way back to the kidneys. They did Bowel Treatment program with disimpaction and maintenance, and the results were great as far as the constipation being relieved. But look at when you relieve that constipation, then daytime dryness usually follows as well as nighttime dryness. And then those UTIs are taken care of as well. In another study, a recent study of 73 children who received treatment for

defecatory dysfunction, 95% had resolution of symptoms. 68% of these children also had urinary incontinence. So the bowel has a big impact on the bladder. 50% of these children with urinary incontinence had a reduction in the urinary incontinence just from treatment for the defecatory dysfunction.

So that's really important to keep in mind. So for constipation, all children with bladder complaints have constipation until proven otherwise. And really, I would say 95% of the time, if you see a child with leakage or issues urinary wise, it is because they're constipated. So just keep that in the back of your mind, when you're working with these children. Studies have shown that patients with voiding dysfunction have decreased sensation and increased tolerance to large volumes of stool in the colon. So they get used to holding that stool, which stretches the nerves and the rectum. So they don't get that sensation like they once did to go to the bathroom. Parents are not aware of how infrequently their children are having bowel movements and they are definitely not aware of the stool consistency. Really the best way to know if someone is constipated is to look at the stool in the toilet. And so I usually have kids and parents come in the office and I'll ask the parent, "Is your child going? Having a bowel movement regularly?" "Yes." And the child will pipe up and say, "No, mom, I only have one once a week." And they're usually surprised.

So getting curious about the child's bowel and bladder habits is important. So with constipation contraction of the external urinary sphincter causes contraction of the external anal sphincter. So if you're holding in urine, that's also going to have an impact on stool holding as well. Constipation is defined as unsatisfactory defecation with infrequent difficult passage of hard, dry stool, or both according to the American College of Gastroenterology. So really it's less than three bowel movements in a week for at least two consecutive weeks. So again, looking at what does the stool look like? And we'll look at a chart here coming up, or another part of constipation is painful defecation. Dyschezia is the medical term for that. Also the etiology can be

multifactorial, but in a normal child, it can be from painful defecation. The child may not be getting enough water. They may not be getting enough fiber or activity or playtime because the more active a child is the more their stools will be regular. Also mild dehydration is a risk for constipation. Persistent stool in the rectum can increase the bacteria in the rectum. And this can increase the risk of urinary tract infections in girls. So constipation can become chronic. And a lot of these kids will hold, they'll create fecal retention. When they do that stool-withholding, it's also called encopresis. So they're just holding in. It starts hurting. They don't wanna go. They don't feel like they can go on a public place. So it just becomes a pattern that they have.

So keep in mind the transit time from the time we eat food, the time it goes down the track, and it goes through the colon. Normal transit time in children is 48 hours. Normal transit time in adults is anywhere between 24 hours and 100 hours. Encopresis is caused by constipation. It's a reflexive withholding of stool by various psychological, physiological, or neurological disorders. And it is more common in boys than girls by a factor of six to one. So what these children do is they're holding sometimes if you see a child sitting, they may have the heel that's sitting into the perineum to try to hold that stool in. That can be something that it could be either a control issue that they can control when they have urine or bowel accidents or not. And so they can also start using that as a control mechanism, or they're just scared to go because it's painful. It still remains in the colon too long, then the feces becomes hard as the water is removed from the colon. So the longer you have still sitting in the colon, the body is pulling water from that stool. And the longer it sits, the harder it gets. So then it becomes more painful for that child to expel. The child is avoiding moving the bowels for fear of anticipated pain. And there's the rectal anal inhibitory response, which can result in problems as well. So these hardened stool, it's gonna build and stretch the colon, and that sensation associated with moving the bowels is lost. So it's called megacolon or megarectum. And so some of these kids upon x-ray, they'll find that their rectum is completely stretched. And so the nerves in the rectum that sense, is there

something that's in the rectum? Those nerve sensations are compromised, and so this child has no idea they have stool sitting in the rectum. The softer stool leaks around that hard stool, and so it looks like they have diarrhea because it's leaking around the hard, impacted stool. So parents might see staining in the underwear and they might think, "My child has diarrhea." So we need to bulk up the stool when really they're constipated in the stool is leaking around. And so it's creating a different problem. And so they also have reduced rectal compliance. So not really knowing that the rectum is full. So we're also gonna talk about fecal incontinence.

So you may be seeing adults that have fecal incontinence. I know in my practice I do as well, but with kids, it's usually for a different reason. It's not that they're having weakness or if they've had any tiering with delivering children, anything like that, it's more that they're impacted and the stools leaking around it. So over the age of four with leaking, it's considered fecal incontinence. It's usually caused by encopresis, which is holding that stool in. And they can have overflow incontinence. So they might have the shyness at school, a sluggish colon, sometimes decongestants can cause this. A painful fissures is when it's kind of like, if you have a cut in your lip and you have a dry lip and you'd have to put ChapStick on. So within the anus, what can happen is if the stool is really hard, it can create little cuts and they're called fissures. So it really hurts when the child is having a bowel movement. So they're more likely to hold in because they don't want to have that pain. And so it creates that pain, vicious cycle. They can also have paradoxical diarrhea, which is a relaxed internal anal sphincter and external anal sphincter. We'll go over those. A picture is coming up so you can see the difference. And they have that impaired sensation. So they'll either have the term megacolon or megarectum, which is kind of like a stretched out balloon that doesn't have form anymore. And it can take up to a year of a child having to be on MiraLAX, or getting enemas to get that rectum to go back down to its original size. So it's a very time-consuming and long process for these kids and parents. Highly recommend after we're done with this lecture to go to YouTube and watch "The Poo in You". It's a great

little video that actually show the child that's in my office, along with the parents to help them understand why they see those little stains that are coming through to the underwear. So here's a picture of basically what's happening in the pelvic floor. So you have three muscles that are important to look at here. So the puborectalis muscle, that's the one in green. That is a loopy muscle that actually helps us keep our stool and gas in.

So sitting in an upright posture, it is partially contracted at rest, but it is also a striated muscles. So we do have control over it. The internal anal sphincter is a smooth muscle, kind of like the bladder. So it's not something that we necessarily can control, but it is partially contracted at rest. And then you have the external anal sphincter, which is in purple. That's also striated. So if you had to pass gas, you would contract the external anal sphincter to hold in gas or stool if you can't get to the restroom. So everything at rests, the puborectalis, the internal sphincter and the external, are always partially contracted on their own. So that's what's happening at rest. So we're going to look at, if you feel the need it's called defecation reflex, or you say, "I feel like I need to have a bowel movement." What's happening is the rectum is contracting. And that's pushing on that stool, which is brown. I don't know why it's poking out, but it is, but it's brown. And what's happening is it's kind of pushing out that stool. So the internal anal sphincter, that's gonna relax, and that's the inside white muscle. The external anal sphincter says, "Something's coming down the shoot, so I'm going to relax also." And then the stool enters the anal canal. So that's that reflex you feel when you feel like you need to go.

Let's say you're in a meeting and you can't go. And you say, "Wait a minute, I've got to hold this back. It's not time to go." So then you're going to actively contract your puborectalis muscle. And just think of that muscle, it's easy to think of if you think attached to the pubic bone, wraps around the rectum and comes back to the pubic bone. That's why it's called that, puborectalis. So you contract that muscle. You can

also contract the purple muscle, which is the anus, and you are basically shooting that still back up into the colon. And so then the rectum will accommodate and it will just sit and relax again, so you don't have that feeling. This can become a problem if a child does this too much, or even if an adult does this too much, that's super busy, these stool can sit. And sometimes it kind of backs up and goes a little bit further up into the colon. And the longer it sits, the more likely the body's pulling water from it. So it gets even harder. So we call it the call to stool. When you feel like you need to go, try to go so that it's not backing that stool back up. So with kids, it's a little more difficult because they're busy. They wanna play, or they can't recognize the signal anymore because they have the megarectum.

So when you actually do have a bowel movement, the rectum is contracting and pushing that stool out, the internal anal sphincter relaxes, puborectalis muscle relaxes. And so does the external anus sphincter. So you've got all those muscles that are relaxing, but that rectum does have to contract, push that stool out. So we don't think about it when we go to the bathroom. Sometimes it's pretty easy, we're not struggling too much. It's just something that's happening normally. But when you start having issues with bladder or bowel, it becomes more complicated and you really realize how much work it is when you start having issues. This is called the Bristol Stool Scale. They also have one for pediatrics that you can look up online. But it's really important. And I do pull this out for kids and parents to see, because I do want them looking. I want them looking into the toilet and letting me know, "Okay, this is what it looks like." Most people find it's easy to go with type one, because they're like a little small pebbles and they're easy to get out. The problem is that's the most constipated you can be. If the stool is separate and it's lumpy, and it's hard, that means there's not enough water or fiber in the system. And so you don't want type one or type two, and type three either. Your goal is type four. And it says like a sausage or a snake, it's smooth and soft. Sometimes I describe it as a banana for kids. But you want them to try to shoot for a type four and that's gonna be water, and fiber, exercise, and many

other things that we'll talk about coming up. If it's getting too loose, like a type seven, especially with my adults, that's when they have a lot of the stool leakage, because there's just no content to it. And so it's leaking out when they have weakness in that muscle. So the goal is to have a type four stool. So I do give calendars to the kids. I do give them a colorful, bright, pediatric stool scale. I have them put it up next to a calendar that they pick out with stickers. And when they go, I do want them turning around and looking in the toilet. I do want them marking the number. And we're hoping for fours in the beginning. Sometimes I want the parent to come in as well and to look and they both, I mean, they can make it a game if they want to and say, "Okay, what number do you give that?" But that will show that the parent is finally really realizing what their child is doing, how often they're going, and what does the stool look like? Because that's very important to have both the child and the parent involved in this treatment.

So biofeedback and behavior modification is the best treatment for bowel and bladder issues. So behavioral therapy, when it comes to bowel and bladder, you're looking at a prompt or scheduled toileting. So sometimes you have to put people on a schedule and there are things such as wobble watches you can get on Amazon that are giving the child a reminder, especially to avoid every two to three hours, if it's urine. Or they're getting reminded when they're in school at a certain time, you want them to have a habit training and going about the same time every day, if possible. Definitely looking at diet and fluid. That's extremely important. Pelvic floor muscle reeducation is also important. We're going to retrain the bowel and the bladder. And this is all going to encompass the behavioral therapy. So who is an appropriate candidate for treatment? Definitely a child who is willing to participate in treatment. Someone who wants to get better and cares about it because it will take some work. The child does need to be able to follow simple instructions. And the family has to be willing to participate in treatments, and make sure the child is adhering at least somewhat to the toileting and medication schedule, because this is gonna be done mostly at home. So they have to

all buy into the process. So for behavioral therapy, we're gonna talk about diet, fluid, and lifestyle modifications, pelvic floor muscle exercises, biofeedback, bowel and bladder retraining, home programs and patient and family education, bowel and bladder diaries, toileting posture, and talk about timers, pagers, and watches that have timing intervals.

So an elimination diary, there are many, many questions that you want to be asking the child and the parents. So I've listed several questions just to keep in mind when you're talking with parents. You wanna know how many times does the child urinate every day? Are they using the bathroom at school? Because a lot of times the parents think they are, but when you really sit down and talk with them, they don't wanna use the school bathroom. They're embarrassed. Maybe it's inside the classroom and the kids can hear them go. So these are all questions you wanna talk about. How wet are you during the day? Are they having some urine or stool leaks? Do you do the potty dance? So this might be something that the parent can see if they are holding themselves with their hand against the perineum. If they're dancing around, then that can be considered the potty dance. How often do they have a bowel movement? And most of the time parents don't really know that answer, but the child can tell you. When do you have a bowel movement? Is it in the morning? Is it right when you get home from school or the evenings? Describe the bowel movements. That's when I pull that Bristol Stool Scale out to show them that chart. And is there soiling in the underwear? So a lot of times the kids are actually hiding their underwear.

So sometimes a parent will find the underwear. The child is embarrassed or not sure why they're leaking stool. And most of the time they don't know that they even have leaks and other kids or parents can start smelling the stool. And so they might get teased at school or maybe a sibling is going to tease them. So that's when they start finding that out. You do wanna know the dietary history. What does the child eat in a typical day? And when. Breakfast is extremely important, we'll talk more about that.

Are they having a mid-morning snack, lunch, afternoon, or bedtime snack? What is their dietary history? And very important is the fluid intake. So what does the child drink? And when in a typical day? Are they drinking with each meal or between meals? Are they allowed to drink at school? What are they having after school? Are they having milk? Are they having maybe Kool-Aid, Gatorade, things like that. What are they drinking during sports, after dinner and before bed? So you want to look at the schedule.

So I usually just pull out a schedule and it has times from 7:00 a.m., all the way up until bed. And we talk about, "What time do you get up in the morning? And then what time do you go to sleep?" And then maybe talk about, "Do you go to the bathroom before you go into the kitchen?" And really get to know their schedule and also their bowel movements. And you're gonna use this with dietary and fluid diaries to get the complete picture of the day. So you may not get it that first time that you're sitting down with them, but then you'll give them some diaries that they can start keeping track of. And the weekends will also look different than the school week, of course. And if they are from a split home, then the schedule is gonna be a little bit varied as well. So the toilet schedule is important. You wanna use a toilet schedule to prevent incontinence. So if a child is holding for six, seven hours, because they're nervous about going to the bathroom, they might have some of that leakage. You want them to really start understanding when they need to go and to listen to the signals in their body. They might need to be on a timed voiding schedule. They might have to have timers. The coach and the teacher might need to be involved. So a parent would be talking with them. The parents need to be involved. Look at the class schedule. When do they have, of course, when they go back to school, when are they going to be able to have that break time? That might be a good time to have the watch, give them a vibration to remind them to try to go. Are they going to afterschool programs? So is that even delaying them going to the bathroom more if they're going to an afterschool program? So they're not going until six o'clock at night. And what does that home

schedule look like as well? So you want to make their goals attainable. Don't give them too much information on that first visit. You might just wanna have them start with getting a calendar. Their homework could be, go to the store and pick out your favorite calendar and some stickers, and just get them thinking about how often they're going and have them try to follow a schedule for that first week. And maybe write down what they're eating and drinking. The other item that you can have them do is maybe pick out their favorite water bottle with their, maybe they like Spiderman or something like that.

So it encourages them to drink water if they like the bottle. And then you wanna always celebrate the accomplishments. I usually have like a little toy chest. And so if a child brings in their voiding diary or any diary that they're keeping track of, then they get to pick from that toy chest and they get really excited about it. But it's just something else. Even if they don't fill it out perfectly, but they bring it in and they're trying, then we're gonna celebrate that. So it does take a lot of commitment. And so you wanna establish a relationship with the child and the family and establish boundaries with the child and family. So trying to make sure there's not arguing going on about the toileting, that is just something they have to work on and learn. And you wanna establish goals with the patient. So what is important to the child, maybe they wanna get to the point where they can have a sleepover with their friends. And so there are things that are going to be important to the child, ask the patient and family to commit. And sometimes that even involves, "Let's sign a contract and we're gonna be responsible for doing this. And then I would be responsible as a therapist for doing my part." So sometimes I'll give an analogy to a child, the Traffic Light Analogy. So I'll say, "You and mom are driving home today. So mom's driving.

What happens when you're sitting at a red light? And you're supposed to stop obviously. But what happens if your mom decides to ignore that red light, what can happen? We'll usually there's an accident. So it's very important to obey that signal.

Just like it's important to obey the signal in your body. That's telling you, 'Hey, it's time to have a bowel movement.' or, 'Hey, it's time to pee.'" Ask the child what happens if they ignore that signal? So for them, it might be that they do have a leak or they have an accident. And so that causes them to be embarrassed or they're gonna be hiding some of those things that they're doing from their parents or friends. They never wanna go to a friend's house because they're embarrassed about maybe needing to change their underwear. So there's many things to be thinking about. What is important to that child? So I love biofeedback. If you will be doing bladder and bowel training, I highly recommend that you learn biofeedback. And I'll talk about resources at the end, but really making sure the child understands their body and even adults. I love biofeedback because we're getting that signal and learning how to manage our bodies. So EMG, think of it like EKG for the heart. EMG is for the muscle. So we're looking at muscle function and really it's information about an unconscious process that's being presented visually.

So kids love computers. They're able to, in a sense, play a game by making lines go up and down. And it's really by making their muscles work. They're getting immediate knowledge of muscles and that becomes available to teach the patient how to alter their physiologic process. This is an example of, I don't typically use these. They're used more in pediatric urology offices, or a lot of nurses will use them. This is called an MEP probe, and it's very small. With adults, we can have them use internal vaginal or rectal sensors to read the pelvic floor muscles. With kids, I prefer to do external stickers right around the anus to be able to pick up the signal of the pelvic floor, but there are therapists out there primarily nurses that will use these really small devices, and that would go into the rectum. But I prefer with pediatrics for many reasons, to do the external leads. So this is an example of the one on the top left-hand corner is a vaginal internal sensor, which of course is not used in pediatrics. That'd be used for adults. There is a small vaginal or rectal internal sensor on the top right. And then below it, that is something you would click stickers on or electrodes. So that would be

on the outside of the body. And you can use it really for any muscle in the body, any muscle group, it's not just for bladder and bowel control. But those are the different options. And so my option would be the bottom option. And they do have disposable electrodes that look like the bottom option with the stickers already attached. And so it's just a onetime use that you would put on the child around the anus. And usually what I'm doing bowel retraining, you're sitting on a toilet, I have my laptop as well as a rolling stool that has a laptop there. And they have good support under their feet, which we'll talk about. So they're learning how to actually void urine or stool while they're sitting on the toilet. So it's very functional.

The parent is in the bathroom with us. And so we have them present so that we're learning about breathing and how to have that bowel movement correctly. This is an adult obviously, but you can hook up either the rectus abdominis, which is right under the belly button or the obliques, which this is where they took it up there. So that's picking up the abdominals, which is an important muscle to learn how to use when you have a bowel movement, because that is the muscle that's contracting and helping push the stool out while the pelvic floor muscles need to relax, to release the stool. This is an example of what it would look like with someone that has constipation. So you see green and blue. The green line is the pelvic floor. So these are the stickers that are around the anus, picking up the tension in that muscle. That's why there's a lot of activity on the screen. And the blue is very minimal, which is the abdominal. And so if you go forward to the next one, I'm teaching the child rather than just having this constant contraction of the muscle, which is that solid green. They are able to contract and release the pelvic floor muscles. And for an adult, you would think of a kegel exercise. They're contracting the pelvic floor, which is contracting the anus, vagina, and urethra. So you would see that green line go up. And when you relax that muscle, it should go down. But a lot of children are just having this constant tension in the muscle. So if you don't have range of motion in that muscle, and you're just holding all the time, then of course that stool's not gonna come out because you can't release it.

So the biofeedback teaches them how to understand. We call it the potty muscles, that if they squeeze like they're trying to hold in gas, that line will go up. If they release, like trying to let gas go, that line will go down. And there are many biofeedback machines that, you have a dolphin that's jumping, or you have a puppet that's going up and down. So you can use other graphics, but it also just works having a line. It doesn't have to be a very fancy machine, but you do want them having the ability to see it on a computer screen. So this child definitely got the hang of the potty muscle and how to contract and release.

So with behavioral therapy and biofeedback treatment, we're trying to educate them regarding the voiding in the bowel function. So elimination education does include talking about increasing fluids. Of course you want more water, timed voiding, making sure they have strategies, a bowel program, which we'll talk about. Hygiene, making sure that they're not leaving that stool sitting in the underpants or in the pool up because that can cause a UTI. The E.coli bacteria can go up into the urethra. And we're looking at biofeedback, which is helping a child identify and relax the appropriate muscles for elimination. And you definitely wanna monitor two channels. So a lot of people are just using a handheld device. It's just a one channel EMG, but it takes coordination. The whole point of teaching a child how to have a bowel movement is they have to learn how to coordinate the abdominals and the pelvic floor. So you need two channels and you definitely need software. It does cost a little bit more. But a child just holding a box seeing a line going up and down is not gonna give as much information as a two-channel system with software.

Also, you wanna downplay the incidents. If they're having a lot of incidents, you wanna really provide a lot of positive incentives for the child. Sometimes we talked about when we were doing the bladder section, if someone has bedwetting, you're doing a chart and stickers and you're trying to get them to two nights dry and then they get an incentive. And then it goes to three nights dry. So same with the bowel program.

You're providing incentives with the parent as well. And the child needs to learn responsibility for self-care. And it should be a primary treatment in children with voiding dysfunction and that's biofeedback. And parents tend to downplay the constipation, or they're really not aware of their child's bowel patterns. So that's something that needs to change for the treatment to be successful. So we are going to strengthen the appropriate muscles. And generally, the muscles, it's not that they're weak unless a child is straining and straining and straining. They can start getting weakness in those muscles. But really what we're trying to do is teach them where's the muscle? How does it work? And it functions as a gatekeeper and helping them understand that process. We wanna inhibit uninhibited contractions. So this is an, if you think about the bladder, sometimes people will have bladder urges or sensations, and it's really an uninhibited bladder sensation. So the person will go frequently to the bathroom. So we wanna inhibit any of those. And it's really important to learn how to relax the pelvic floor and release that tension. And when you're doing the biofeedback, you're really creating neuroplasticity, you're really teaching physiologically what the brain and the muscles need to do for proper elimination. And you wanna reset that coordinated function. And there's a lot of education when you're doing the treatments.

So treatment strategies, you want to monitor the muscles and teach during active voiding. So if you have the ability to, I've worked in places where I didn't have access to a restroom, and now I do, which is great because it really teaches the child in realtime how to eliminate properly. And you're teaching isolation and relaxation without voiding. So if you're sitting in the office, you also want them to understand, "Okay, I need to squeeze that muscle, the potty muscle, I need to let it go." So you can do the biofeedback without sitting on the toilet and they can get the same information. And we're teaching muscle coordination for proper elimination. And we want them to be in a proper position. And their posture is very important. You wanna make treatment fun for the child. So if I'm teaching breathing, I might have them blow up a balloon. I might have them with a little wind fan and they're trying to blow on it. We might have bubbles

in the bathroom. So if they're trying to learn proper breathing, they might be blowing out the bubbles and you're teaching to the level of the child, not to the parents. So you want it to be fun and engaging. I'm just like a lot of you are, if you're working in the pediatric population. So indications for biofeedback. If the child has an abnormal flow pattern, that's something that the physician would send them over. Say, may have a flow pattern issue. And we talked a little bit about that with the bladder section. If they're having EMG activity during voiding, that means when they're having a urodynamic test or other testing with their physician, that they have increased activity in the muscles of the pelvis when they're supposed to be voiding. So they've got closure at the base.

We talked about a balloon is the bladder and the knot is the muscles. And so their muscles are knotting when they're supposed to be relaxing. If they have significant post-void residuals. So what is left in the bladder after they go, there's too much urine still in there. Maybe they have an inability to initiate the flow. They're not able to pee when they need to pee. They're not getting good bladder emptying and getting a lot of urinary tract infections. And sometimes they need retraining after surgery or trauma. So a pediatric biofeedback, there was a case study done that reported improved continence following intervention with biofeedback for pelvic floor muscle dysfunction of five-year-old child. So yes, five seems young for a lot of people, but there are many five-year-olds that can follow simple instructions. They can look at a screen and they know, "If I squeeze this green line goes up. If I relax, it goes down." And so you can start training at the age of five. Surface EMG biofeedback perineal electrodes, which means they're on the outside, used during treatment sessions provides visualization of the muscle, which is very important for the child.

So let's talk about lifestyle interventions. That's very important with these kids. So there's fluid and diet modifications that may need to be made. And prevention and weight loss. So you might have a child that has some reflux. We talked about that in

the last section. And sometimes with that weight loss, it takes the pressure off of the pelvic floor. So they have better emptying. Exercise is really important. And it helps with peristalsis and with getting the colon to move. A lot of kids need some relaxation if they have ADHD or they're very hyper, or they can't really tend to focus on what they need to do, or they don't get the signals. They need to learn to get more in tune with their body. Nocturia management means that they're getting up a lot to go to the bathroom. So we wanna look at their nighttime behaviors and we wanna facilitate voiding and bladder emptying, of course, good time schedules. And the most important thing is treat that constipation. Do not forget that.

So if anyone comes in with a urine issue, I can guarantee you they have a bowel issue or they're constipated. So you wanna have bowel habit regulations and making sure they're going at a good regular schedule. It needs to be regular and predictable. So for kids, sometimes you may have to-- they need to get up maybe 20 minutes earlier and eat immediately so that their body has time to have a bowel movement. Because if they're rushed and mom is rushing out the door, siblings are rushing out the door, then they don't have the proper time to sit and have a bowel movement. Definitely adequate fiber. And really with fiber, it's recommended for really young children, ages two and three to be at about 14 grams. If you look at adults, it's 25 to 35 grams. When you look at a child between four and eight, they might be around 20 grams. Anywhere from ages nine to 18. So really nine to teenage years, they are getting into the same as adults, so at about 25 grams of fiber. And sometimes kids will need more. Even adults will need more, but that's typically what we're looking at. Really young 14 and age eight to 18, really could go anywhere between 20 and 25. So that's your adequate fiber. And really try to get the kids not to strain. I have seen kids in the past that strain so much that they actually have a prolapse. So the rectal wall will fall down because they're straining so much. They wanna have adequate fluid and exercise going on. And trying to have a regular time for bowel movements is important. Trying to get them to listen to their body. So if they're going into the restroom. I have teenage boys, so if they're heading

into the restroom, I'll say, give me your phone. Because if they have the phone in there with them, they might be 30 minutes. But if I take the phone away, they're in and out in about three to five minutes.

So a lot of kids get so distracted when they're playing a game. And a lot of parents will have them sit and play games, but they're really not getting in tune with their body and listening to those signals. And we really wanna avoid constipation because that is gonna cause the most problem with the bladder and the bowel. So talking about toilet posture, this is extremely important, not just for kids, but for adults. So the muscles that are in the pelvic floor, there's that puborectalis muscle. That is the loopy muscle. So if you're sitting upright with your knees down in a 90 degree angle, that muscle is kinked. And so the other problem with kids is they're dangling their legs because their feet are not supported. So if you go home today and you try to have a bowel movement and your legs are dangling, and you feel like you're falling in the toilet because you're putting your arms down and you're trying to balance, you are gonna be contracting all of those pelvic floor muscles. Your knees are coming together. So your adductors are contracting. So that's going to not allow proper elimination.

So the most important thing and really on day one, my homework for them is to get a Squatty potty. You can get on Amazon or go to Target, Bed Bath & Beyond, there's many places you can get a Squatty potty. It's not a regular stool because knees cannot be touching. You want the knees to be separate. So that's why I do like that brand because your knees stay separate. And make sure the child also pulls their shorts or their pants all the way down to their ankles. Sometimes if they have it sitting around their knees, then they are internally rotated or their adductors are going to be activated. So posture is huge. You want them to be supported and feel like that they can relax and be comfortable. So fluid and diet modification, you wanna eliminate bowel and bladder irritants if that's causing a problem, we'll go over those in a minute. Modified timing and amount of fluid intake and modify the bowel habits. So there are many

common bladder and bowel irritants. A lot of them overlap. Caffeine is your number one problem. So caffeine is the biggest bladder irritant. It's a stimulant. I'm hoping young kids aren't having caffeine, but they might be. And so that will sometimes get the ladder and the bowel irritated. And that's gonna cause more problems with the child. Chocolate does have caffeine in them. And any sugary item is going to also become an irritant. Anything citrusy can cause problems, artificial sweeteners and colors. So things like Kool-Aid, spicy foods can cause problems, tomato products, vitamins. I still want children to take vitamins, but they don't to take them before bed because that will get them up in the middle of the night. Soda's not great for the bladder and the bowel, milk or dairy products and sugar.

So I want to talk a little bit about abdominal massage. It's fantastic especially if a child has constipation. We have to get the peristalsis going because they have a slow gut. And it's real important to do that. So let's talk a little bit about on the left-hand side, that's your ascending colon. And so what happens is food travels from the stomach and it goes through the small intestine to the large intestine. So it's gonna go up the ascending colon, and that's where it is fermented. And then it goes across the body, and that's the transferase colon. And that's where the water and the salt is removed. And then it's actually stored in the descending colon, which is along the left side of the body going down. And then there's the sigmoid colon. And also it's interesting. It's called the sigmoid colon that little, it actually makes a little loop down towards the base and the rectum, but the sigmoid colon is named after the squiggly Greek letter Sigma. And so that's where they get the sigmoid name. And then it joins the rectum. And the rectum actually is a Latin word that means straight. So it does straighten out when you do have bowel movement. So that's the ascending, transverse, and descending. So there is an abdominal massage called, I love you. And that's because it creates an I. And then I'll show you that on the next slide. You do wanna do certain circular movements and you want them to go clockwise because you want the stool to go up, over, and down. So you're trying to create that peristalsis to get things moving. So if a

child is really backed up and uncomfortable, or they have gas, this massage is great. So you can teach the parent how to do it. You can also have the child do it. And then if you look at this next slide, this is why it's called, I love you. Because you're having them start at the descending side.

So they're actually going to massage straight down and they can do those circles. And they're gonna go to the transverse colon and go across the body from their right to the left rib. And then down that creates an upside down L. Then what they're gonna do is they're gonna go create that U. So they're going up the right side of the body, over to the left rib and down the descending. And they can do that anywhere from 10 to 20 minutes, just doing that massage. And sometimes the kids, they think it's fun because let's say they have some gas bubbles in there, so it feels like they're almost popping little gas bubbles, and they can feel sometimes the stool that's sitting in there. So we're trying to get it to move out. So abdominal massage is a great thing to teach the kids and the adults to help with some of that discomfort. And I also teach that to adults as well. So fluid and diet modification, you wanna eliminate or reduce the bowel and bladder irritants as much as you can. And you wanna modify the timing and amount of fluid intake and the bowel habits. So hydration is important. So for a child, one ounce of fluid per two pounds of body weight. So if you have a child that weighs 60 pounds, they should be drinking 30 ounces. And really that's the same for adults. If you have an adult that weighs 120 pounds, they're drinking 60 ounces, but that means water. A lot of people think, "That's coffee, that's tea." Tea dehydrates the body and can cause constipation.

So we're talking water and we're not adding Crystal Light or Kool-Aid. We want plain water. So that can be an incentive for the child. If you're doing a calendar and you're trying to encourage them to get in water, then maybe you fill up a bottle that is 30 ounces, if they're a 60-pound child. And their goal is to finish that bottle throughout the day and not just slamming it down in maybe five minutes, you really want them to be

sipping on it slowly so they're getting the benefit and they're not just straight going to the bathroom and peeing it out. So what are the benefits of drinking water? Urinary diuresisis greatly reduces the infection that can happen in urine. Optimal functioning of our body requires a good hydration level, and water fills the bladder efficiently. And then that child actually can feel that they need to void. So that's important for them to be drinking. So for success, you want them to urinate often. And usually that's between two and three hours. You want them drinking lots of water. You want them moving their bowels daily and be aware of when your body tells you it's time to empty and don't argue with your parents if they tell you it's time to use the toilet. That's easy to say, but not so easy to do so. Some more diet and lifestyle modifications, bowel habit regulation. The goal is regular and predictable. Fiber. And again, the older children will be at 20 to 25 grams. You want them to avoid straining, have good fluid, and exercise, go at a regular time. Heed the urge, if they feel the urge go. Avoid constipation. And some of them need to take fiber supplements. The laxatives I don't recommend if that is something they're doing with their physician, then that is something that they can talk with them about. I usually will tell them they need to talk to their physician because some physicians wanna use MiraLAX. Some physicians would rather do suppositories. So there's many different things that physicians are doing.

So let's look at a couple of case studies. First one is Dylan. She's a nine-year-old girl. She lives with her mother. Her parents are divorced. She's having a lot of urinary frequency and incontinence, which is the leakage. She moves her bowels two to three times a week, and they are the type I to IV, but usually more like I and II, which were those pebbles, which is really constipated. Mother is getting counseling for herself, for anger management and the incontinence of her daughter is really making her angry. And it's interfering with the relationship. They're fighting a lot about it. Dylan is wetting her pants several times a day, and the teachers aren't letting her use the toilet at every request because they really think she's being disruptive and really just using toileting

as an excuse. And there might be some kids that do that, but for the most part, they really need to go. So getting a detailed history with the bowel and bladder diary was requested. We talked about the anatomy, good fiber, the use of fluids. The poop drives the pee, if you can get the poop moving, then usually that takes care of the pee issues. We watch some of those videos together. She loved biofeedback just to learn what do those muscles do. Why and how are they the gatekeeper to elimination. Of course, I want them to get a Squatty potty and have good position, good support at the feet and really sitting. Usually about 20 minutes after a meal is the best time for a child to sit at least for five minutes, not all day to see if they can go. Now, a lot of people ask if you can do electrical stimulation.

So for some children that they have no ability to feel the muscles, or they're not sure what to do, you can do a little bit of external EST. It's just a little bit where they would feel some tingling just to know where that muscle is. You don't have to do that with many children, but it is an option. So with the results with her treatment, after going through all the therapy, we had 10 visits, there was no symptoms. She wasn't having problems with toileting at school. They both began counseling. So that is something that was recommended. So some of those issues, of course we can address, but they were going to counseling and getting along better. And so they were really happy with the process. This was some of the EMG, so remember the green is the pelvic floor, the blue is the abdominal. So she had a lot of fighting of the two muscles. They weren't very coordinated. She couldn't figure out how to use the pelvic floor. And usually I'll say, hold in gas, let go of gas. So that's what the child really understands. So she couldn't get that coordination down. If you look at the post-treatment, she really was able to relax her belly when I was asking her to contract her pelvic floor. So you see that good range of motion, which will teach a child how to release when they need to release and when to hold. And this was a really cute picture that she drew for me and just said, "You helped me with butt problem or promble." I get very cute little letters and pictures, and I'm sure you do as well.

So let's talk about Nick, 15-year-old boy, living with his father and new wife. And he doesn't get along with his stepmom. Has a history of ADHD and he was on Adderall, but did not like the way he felt on it. Didn't wanna use it. He was doing well in school, but had some motivational issues, according to the father. He was referred by a pediatric gastroenterologist because of the encopresis in the holding of stool. He was also on MiraLAX, the doctor put him on MiraLAX, but was still having some incontinence. Unaware of muscles or when he gets the call to stool. So really unaware of when he was having his accidents. So usually if they're constipated, they have a little bit of accidents. They don't feel the way they used to feel. He was faithful with his bowel diary and really was very interested at his age about the anatomy and just learning about his body. He had nine visits. And so nine visits later, he knew he would need to move his bowels right after school. And again, after 8:00 p.m. So he really figured out what his system was doing. He started taking gummy fiber and eating healthy meals, and his father and stepmother had trouble with his learning style. They were always coming up with chore ideas when it was time for him is the toilet. So when a kid is distracted, sometimes they'll have an accident.

So sometimes we have to teach the parent more than the child, "This is what we need to do after meals, just the timing." And also not punishing if a child's having issues. So this is just an example of pre-treatment, just trying to figure out his muscles, the green and the blue. Again, you can do different types of screens where there's even a guy jumping over a HighJump, there's many different types of computer things you can use, but I really just like using the line. So this is what his pre-treatment looked like. And then this is post-treatment. So really getting the feel of what is this muscle doing? So the beginning of the screen, about 75% of it, those are long holds and this is over 350 seconds. So it's kind of condensed. So normally wouldn't be this condensed. At the end, he's doing more quick squeezes. That's more of a coordination exercise as well. So we'll talk a little bit about resources. So definitely biofeedback is something

that you would need to get trained. Doesn't mean you can't see bowel and bladder issues. You can do so many things behaviorally, but if a child really has a lot of problems with coordination issues and they cannot figure out how to release, then try to get in touch with a therapist that does the biofeedback. And there's a lot of Facebook groups, the ones that I gave you last time. But there's a pediatric OT Facebook groups that are great resources. You can say, "Hey, I'm in Texas. I have a child that needs this training, who is the closest?" You can also look at BCIA, which is listed here. And the BCIA is a great place. You can put in your zip code and look for a trained biofeedback pelvic floor therapist. Sometimes they're also PTs. Sometimes they're nurse practitioners.

And then my company, Biofeedback Training & Incontinence Solutions. I do host twice a year, a three-day course, and you can get board certified in pelvic floor muscle dysfunction. I highly recommend that. And to get board certified, you have to be a nurse, PA, MD, OT, PT, or nurse practitioner. COTAs and PTs can also get board-certified. And it is 28 hours of education. That's at three-day course, you'd go through mentoring. So you're not alone. You do have to take a written certification exam and you do get recertified every three years. And I use the same types of certification or hours that I would use for my regular OT license. So they're overlapping because I'm doing so much bowel and bladder with children and adults. There's plenty of CEs out there that I can take that will help with both certifications. And these are some of my favorite resources. I went over these on the bladder section as well. If you are going to be working with kids with bladder and bowel issues, which is millions of children across the country. So I highly recommend you at least get some information on it and know where to send them. But "The M.O.P Book", it's a great one. I usually have a bunch of books sitting on my counter. And "Jane and the Giant Poop" is a great one. I love "It's No Accident". That's the first version of "The M.O.P Book", but it's just more in reader form. And it just gives you light bulb moments when you read it about what's going on with the children that you're working with. Again, "Don't Cry, Stay Dry"

is a grateful great one for bedwetting. Be sure to watch, this just a five-minute little video. "The Poo in You", which is a YouTube video. If you're having any children with bedwetting issues, they can go to the bedwettingstore.com. And it was interesting after we did the bladder lecture, several people joined the pediatric Facebook group for pelvic health, and someone was asking about bedwetting alarms. And you will find that some people love the bedwetting alarms, some people don't.

One thing that I found with parents sometimes are waking kids all night long, every hour, but that's not physiologically when the child needs to go. So it's going to make the parent tired and the child tired. So if they're just trying to figure out when the child is actually wetting, the alarm is a great idea to let them know when the child has an accident. So if it's just for that reason, that can be helpful, but it's not for everybody. So we have great discussions in the Facebook group. So I recommend that you look at those. There's a pediatric occupational therapy one, there's over 40,000 members. And then we just started a new one for the pelvic health. And so those are my resources and there's other professional organizations that you can see listed here that you can look into. And then this is my contact information. Feel free to email me. You can also text or call. I check my email about three times a day. So I'd be happy to answer any questions or connect you with someone that's in your area. If you're looking for someone that's doing this type of treatments, and I hope that you learned a little bit today about bowel function, and I would love to answer any questions.

- [Fawn] Hi, Tiffany. Thank you for a great talk today. We do have someone asking if you could just rehash the Facebook groups one more time, the names of those, 'cause they're trying to jot those down.

- [Tiffany] Yes. I'm actually pulling up Facebook right now because I forgot to write that down. So I am looking at that Facebook group now. So the first one is Pediatric Pelvic Health Occupational Therapists. So it's long. So it's all in a space Pediatric Pelvic

Health Occupational Therapists. So there's 27 members that we're talking about bedwetting alarms, bladder and bowel. So that's basically just a brand new one. So that just started a couple of weeks ago. There's many like for adults, OTs for Pelvic Health, there's Women's Health for OT. If someone's interested in bladder and bowel control for adults. I'm trying to find. And then the other one that people are involved in is called Pediatric Occupational Therapists. That's the large group. So those are the ones and there's many, many groups out there. So usually you'll find once you join a group, people are joining other groups. I do have one and my personal group is called Pelvic Floor Biofeedback. And there's just about 250 members, but all we do is talk about the biofeedback aspect. And so that's another one that you're welcome to join. But make sure that you fill out the questions otherwise you won't get accepted in the group. Just say I'm an OT and that will get you in the group.

- [Fawn] Great. Another question I see is, "Do you recommend a child taking a daily fiber gummy on a regular basis?"

- [Tiffany] If they can't get in their fiber regularly, but I try to always first have them talk with the physician because I don't want to say, "Hey, take a fiber gummy." And they go back to the referring position. And the referring position is not happy that I recommended that. So sometimes I'll check with that physician. If they're sending me several referrals and say, "Hey, what is your--" They call it a clean-out schedule. So if a child is constipated, they might do MiraLAX, they might do Ex-Lax, they might have their own version. So I don't want to go against what the doctor is ordering, but I do get fiber charts. I do talk about how it's important to have different types of fiber, the soluble, the insoluble, and how they can have in like brand cereal. They can throw a banana on top. And I'll write down what their diet is and how do we get more fiber into that. So things that they like, things that they will eat. So hopefully we can get through just the fruits and vegetables and not having to do the supplement, but sometimes that's the only way a child will take fibers. So the real goal is to make sure they are not

constipated. So working with a doctor and then maybe having a list of what they like and writing down or giving them handouts on good fiber.

- [Fawn] This kind of segues into the next question. And you probably answered some of it. "Is there an easy way to approximate the fiber intake of a child based on their intake diary, like servings of fruit, vegetables et cetera?"

- [Tiffany] Yes. So I just have-- even if you go online and you search fiber, you'll come up with all these lists. And so I have a two-page list that I give parents, we just sit down and we highlight, "Do you like avocados? Avocados have 12 grams in a whole avocado? Do you like spinach or is there broccoli that we can have?" So we highlight their favorite ones. And then we add up, "This is how much you would need to have for 25 grams." So we do-- I'm not a nutritionist, but you can look at a chart and you can add, so you can get up to, this is how much it would take to get to 20. So it may be that they can get all of it in a day, just in their first meal. It might be a brand cereal and they can add fruit to it. So you can definitely just sit down and talk that through, but that's really important. And making sure they don't just have fiber, that they have the water as well. The most important thing is that they have breakfast because that stimulates the colon to start moving first thing in the morning. And so I really encourage them to get up a little bit earlier and to have breakfast first so that they have time to sit 20 minutes later, for a good five minutes on the toilet to see if they can go.

- [Fawn] Okay. Someone said, "I really liked the biofeedback tech you use. Is there an app you can download for a laptop or iPad?"

- [Tiffany] I wish there was an app. It's a little bit more complicated than that. But the biofeedback machine that I use is a Prometheus company, but I use a website called CMT medical. So it stands for Current Medical Technologies. So C as in cat, M as in Mary, T as in Tom medical.com. They have really good biofeedback units that are

affordable. And it is costly if you're going to do the biofeedback correctly, if you get the encoder or the actual EMG box, along with the software. It's usually gonna run you about $2,500. You don't wanna get the high tech biofeedback machines, which can run you up to $20,000. If you're really looking at getting equipment, you can email me and I can connect you with CMT. They're just a great mom and pop organization, they've been around forever. And all they do is pelvic floor work. And so they're great at keeping the costs down low. But there isn't really an app for biofeedback. You have to buy an EMG machine because you're reading the electrical activity of muscles.

- [Fawn] All right. Great. Thanks. That's all the questions I see coming in. So thank you so much, Tiffany, for a great talk today.

- [Tiffany] You're welcome.

- [Fawn] I hope everyone has a great rest of the day. You join us again on Continued and occupationaltherapy.com. Thanks everyone.