Progressive Topics of Torticollis for the Occupational Therapist

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- [Fawn] Our course today is Progressive Topics of Torticollis for the Occupational Therapist. Our presenter today is Lisa Roehl. She's a physical therapist with 10 years of experience in pediatrics. She received her Doctor of Physical Therapy degree from the University of South Carolina in 2009. Lisa has worked within outpatient pediatric clinics, serving a variety of patient populations and ages. She is trained in the TheraSuit and TheraSuit Method, with the provision of an intensive therapy model for children with neurological disorders from 2011 to 2013 in Columbia, South Carolina. She specializes in the neurological population and early motor reflex integration. She became a board-certified specialist in pediatric physical therapy in 2019 and currently works in Greenville, South Carolina at Advanced Therapy Solutions, Kids. Welcome back, Lisa, so happy to have you.

- [Lisa] Thank you so much for having me here today to continue the topic of torticollis. Today, our topic, we're gonna look a little bit deeper into torticollis for the occupational therapist. You can see this little boy here. His name is Logan. And he's featured throughout. And what we're gonna see here is we're gonna go in and talk about all the topics. Again, like Fawn introduced me, I have 10 years of experience. Most of my training is within the reflex integration model, and so you'll hear me talk about that as well for how I treat children specifically as well within torticollis. So the learning outcomes for today's course, after this course, participants will be able to identify signs of asymmetrical preference within early motor development for a child in supine, prone, and sitting. After this course, participants will be able to identify signs of torticollis and the effect on early vision development and upper extremity control and preference. After this course, participants will be able to identify advanced treatment strategies for the progression of symmetry in early fine motor development, specifically for vision and upper extremity control. After this course, participants will be able to recognize the influence of torticollis and resulting asymmetrical preferences in cerebral palsy and other developmental coordination disorders.
So as we look here, we’re gonna just kind of briefly touch on what is torticollis and its postural presentation. I did a course last week for OccupationalTherapy.com in which you may have access to have heard the live webinar or access to the recording. But just to kind of catch us all up to speed, the key factors of torticollis, we can see here in little Logan. We’re gonna be looking at a posture of the head and neck caused from a unilateral shortening of the SCM muscle, causing the head to tilt in one direction and rotate in the opposing direction. And so what you can see here with little Logan, you see how there's an obvious tightening on the right side, causing his head to tilt down. And what you can see here is that is the actual SCM muscle and where it attaches at the base of the skull down into the chest. And you can see here, he does have a mass. Sometimes that mass will be present. And what you can see here is this is gonna cause a restriction in the neck. So that’s gonna play into all other development. And so what we will look at here today is how is this development gonna affect in kind of a deeper purpose.

So we’re gonna take it a little bit step further than just the forefront. What I want you to kind of realize is that there's involvement in the shoulders, trunk, pelvis, and hips. And all of this is gonna play into it. It is not limited only to the neck. I just want you to kind of remember, if you took the course prior, just to kind of catch you up to speed, again, the side of the tilt, I want you to think of a C. If your body is tilted to the right, so if you take your body in your seat right now and tilt it all the way to the right and exaggerate that, and then rotate your head in the opposing direction. So tilt all the way to the right and look to the left. And you'll see how that's gonna affect your movement if we’re kind of staying within that position. The body should be able to move fluidly and easily in those directions. So in torticollis, what we see here is that side is tighter, and we’re unable to advance to the other side as easily. So we’re gonna look here, again, in depth here, the torticollis presentation that affects that early infant motor development. All right, again, the biggest thing is asymmetrical, so just keeping in mind that torticollis, straight by the book, says you’re tilting in one direction and rotating in the
right. But we know, in the real world, nobody follows the book. And so I just want you to think of just that basic kind of idea of asymmetrical positioning. We're gonna experience this loss of chaos. What does that mean?

Well, any of you have ever worked with children or experienced children or been exposed to children out in the public, you’re gonna know that children are chaotic. But that's how they should be, okay. A child should not be predictable. An infant should not be predictable. What we mean by that is, if we are presenting with an asymmetrical preference, that means we're always showing one side. So when we always show one pattern, we've lost that chaos. We've lost that ability to move. And so our body is not going to develop fluidly. And in that first year of life, there's so much development occurring. So we don't want to lose that chaos. We don't want predictability. So what we’re gonna see here is that persistence of asymmetrical positioning is going to affect the whole body in emerging early motor development.

So let’s take that and look a little bit deeper into what that means. So we're gonna look at each, kind of all the different aspects here within supine, within prone and sitting. I'm gonna kind of go into depth and kind of really relay that down to you. Then we’re gonna kind of take a step back and say, okay, now let's look at vision. Let's take a step back, and now let's look at hand dominance and how that plays into it. So in the first course, what I asked you guys to think of, and I’m gonna ask you to think of it again, is, what do we see now? How does affect development now, in this moment? And how will this affect development later? Okay. So keep those three questions in mind. What do I see now? How will this affect development now? And how will this affect development later? Okay, so when we look here at supine, we're gonna look at when you're laying on your back, as all infants are gonna be laying on their back. They don't really have the ability to move for quite some period of time. So what we wanna look at here, again, you may see that persistent head rotation and tilt. So little Logan here, he tilts to the right and looks to the left. That would be named for the side of the tilt. So
we’re gonna call that right torticollis. And so what we’re gonna see here is that persistent tilt and rotation. You can have that associated plagiocephaly in which there’s the flattening of the head on the side that is receiving restriction, okay. So for little Logan, we can see here that he's putting more weight and more boundaries on that left side of his head. So let’s keep that in mind when we’re laying on our back.

Typically, you’re gonna see that unilateral chin tuck, scapular protraction and elevation. So what we’re gonna look here with Logan is you can see here how this shoulder is advanced off the ground, and this shoulder is staying on the ground, yet our body is in supine, okay. It’s laying flat or what we deem to be flat. But now we’re gonna look in depth. And we’re gonna see how this shoulder has come up. You can't see it as well here, but this shoulder is elevated. It’s actually pulling closer to the ear. The head is meeting the ear, and the shoulder is meeting the ear. So it's coming together. And what we’re gonna see here is that he's gonna be restricted. Not only is he restricted to move, because that shoulder’s in the way, but he also may have some of that flattening of the head that we had spoken about before, again, those restrictive boundaries causing the head to develop a flattened spot. So when he goes to rotate, he may have to beat the own bulk of his head. So if that head has created almost like a flattening, a spot to rest, he's going to go back to that spot. And he’s not going to wanna rotate out again. What do we see now? How is this gonna affect development now? Well, right now we’re gonna see that it's gonna leave him in that position. What we wanna see here, he's predominantly gonna have a strong and persistent ATNR.

What you’re gonna note here is that the one shoulder is gonna stay flexed, the one arm is gonna stay flexed, and the other arm's gonna extend, again, this is gonna play into our vision development and our hand development if this is not corrected or not influenced. So where do we come in, as therapists? So that’s kind of supine. So let’s look a little bit more in depth to what that looks like. So when we look here, there's key motor milestones. Okay, so let's kind of take a moment and break it down. We're
gonna do this for each part. So at one to two months, we're gonna see that asymmetry of upper extremity movement patterns. So as their body is just developing and moving, the child is experiencing what it's like to have hands, and how does our body move. So we're gonna see that movement patterns are gonna be a little bit off. We may start to see some of that predictability.

Again, we should not see that. We should see chaos. I put in there poor physiological flexion. I know that's more in prone. But think about, your child spends more time on their back than they do prone. So if they're laying on their back, they're not gonna start to do what we saw with Logan here, if I skip back real quick. You can see how Logan's hands come up. And they come kind of here. Well, this is also gonna present us when we go into prone. So if we aren't happy here, our body's not going to adjust to prone. So again, we're gonna see that connection. At three to five months, in general, we're gonna see that poor midline orientation. The hands aren't gonna develop to come to midline because of that strong ATNR. The hands don't wanna come to midline because we're looking in one way and tilting in another. So we're not going to necessarily come back to it.

Okay, so at that three to five months, when we should be developing midline control, beginning to manipulate objects with one hand and bringing them together, we're not gonna see that. All right, at four to six months, in general, we're gonna see that poor upper extremity crossing midline, or even coming to midline, for rolling. Rolling is important for OTs and PTs. It doesn't matter. Because why do you need to roll? Well, you need to roll to get to what you want. You need to roll to experience what it's like to manipulate toys to have the desire to play. So if a child is stuck in this position or stuck in one side, you may start to see that loss of play, the loss of ability to see things. And that's what we're gonna talk about a little bit later when we come into the disorders that have associated torticollis. Torticollis does not always stand alone. Sometimes it's in conjunction with other things. Oh, also, you see here the unilateral hand reach for
feet. So if they’re laying on their back and they’re gonna reach up those feet, they should be able to kind of play with both. They should be able to be interacting with both. This is them getting that body awareness, that sensory management. And if they only bring up one side, because either they’re looking there or that side’s tighter, again, we’re gonna see that delay in typical cognitive development and typical movement, because they’re not getting that even body movement.

So again, four to six months, upper extremity crossing midline, reaching for those hands, okay, or reaching for the feet with the hands. At six-plus months, we’re gonna see poor core flexion forward with asymmetrical ascent. That’s a fancy way of saying that they’re gonna lay down, and when they go to pull up to sit or crunch forward after changing their diaper, they’re gonna come up to one side. And when they crunch up to one side, they’re just gonna continue in that, and now they’re limited for how to get out of the position. Again, they’re becoming stuck in a position that’s gonna cause them to interact only within the one side that they see or the one side that they’re interacting with. So the key things here for supine development, you wanna see, this is where we’re gonna start to see some of that early vision and early hand preferences that may occur. As we look here at prone, prone is a big one. This is the most, maybe, obvious to families that they don’t like it.

But let’s talk here why. You know, a family may say, "Oh, my kid doesn’t like tummy time." Why should we state that it’s important? Again, what do we see now? How will this affect development now? How will this affect development later? So for prone, you’re gonna see that persistent head rotation and tilt. But that same presentation of torticollis is gonna look different when you’re in prone. Okay, so you can see that even with little Logan there, you can see his body’s shifted to one side. And we’re gonna get into what this looks like, ’cause prone can be very confusing to the family. ’Cause they’re like, "Well, they like to look to the left, "but now they don't want to." So when you’re in prone, you have to beat gravity. And the child says, "Well, I can only beat it in
one way." And so that's where what happens is they begin to develop an even further preference. And now we’re gonna start to see that their vision is going to be affected. So prone really affects the vision. It's gonna affect what they perceive to be natural. What do they perceive to be their horizontal?

So as you’re sitting here right now, more than likely you are looking straight forward. Your eyes are parallel to the horizon. So what we see here for these kiddos in prone is they are going to drop their head off of that horizon. They're gonna tilt below it, and then they're gonna start to say, "Well, this is what’s comfortable. "Now I'm gonna adapt to this." So just kind of keep that in mind. We'll way more into depth to that in a little bit. But I want you to see that what’s happening for them in these early stages. They’re gonna have poor tolerance to prone. It’s very energy-demanding. Their body has to work against gravity, and now they have an asymmetrical preference. This is really where you see that loss of chaos, 'cause they’re always gonna present in the same pattern. Okay? And so again, we can take prone a little bit deeper and look at quadruped. What we’re gonna see is that sustained STNR, that sustained body where they're kind of like, whoa, my head crashes forward when my feet bend underneath me, or my arms extend and I crash backwards. I can’t figure out how to maintain. So quadruped becomes the most complex positioning that’s affected by torticollis, because there’s head, neck, arms, legs, core. So just think of that. It's the most complex point, okay. We’re gonna see that retained reflexes, those retained abilities. We’re gonna see an asymmetrical lower extremity push-off and an upper extremity reach. And so again, we’re gonna look at this a little bit more in depth. But I just want you to kind of appreciate that, that there’s gonna be that asymmetry in both the upper body and lower body. We may see an early transition to pull-to-stand. Why? This position becomes to hard for us. So the kiddo wants to get out.

Okay. We're gonna see, when we limit this, we're gonna limit a very important milestone that affects our upper extremity, core, and lower extremity.
start a video here now. And I'm gonna let you watch it the first time through, and then I'll talk through it. Okay, so we're gonna play it back from the beginning, and I'm gonna talk over it. So we can see Logan. You can see how he's not very fluid. We're getting a little stuck. We can see that right side is crunching up. He's not quite sure. We're goin' into that STNR. Comin' in and out. We're startin' to see predictability in our movement. He's gettin' a little stuck there. And let's watch here at the very end as we collapse down to that side, because the right side crunches more.

Okay. We'll show this video again later. But right now we'll go back to our slides. Okay, so remember the biggest key thing for prone and quadruped. It's gonna be your most complex, because we're having to go against gravity and involve the whole body together. When we lack this quadruped or lack this prone ability, you may see that the child tends to stay in sitting. And when they stay in sitting, you may see one leg flex up. And they kind of do this seated scoot. They sit on their bottom and one leg pops up. And they kind of grab the floor with their foot and pull themselves forward. Unfortunately, I don't have a great video of this. But you can kind of picture that here as we go into our seated section. When we get here, we'll kind of talk about that. But the biggest thing to kind of see here is that sometimes when we lack that quadruped, we lack that prone, we're gonna adjust and do something else. Okay, so let's look in depth here at prone. What are we seeing here? One to two months, an asymmetrical preference or poor tolerance for that flexion, which we talked about before. We don't wanna stay in that. So we're not gonna develop that sensory system, because we don't calm. Our body's too overwhelmed. At three to five months, we're gonna see a poor neutral weight shift.

Again, when we're on our bellies, we're gonna kind of shift to one side. We're gonna see an immature chest center of mass. What that means is that they're gonna keep that weight towards their chest and not develop the weight and shift of that center of mass down to the pelvis, okay. So we're gonna see that preference for almost that
Landau reflex, where the arms come up into that high guard. Okay. At five to seven months, we're gonna see a unilateral weight shift again and upper extremity preference in reaching. So again, if we're on our bellies, and we're shifted to one side, and maybe we're looking to that side, or our head is adjusting to that side, then we're not going to reach the same. And we'll get into that in depth of what that looks like. But just, again, keep that in mind here. We're developing that quadruped. Preference for upper extremity extension to push off to roll from prone to supine, so if you're laying on your belly, how do we get out of that? We're gonna roll over one side that's easier, and our upper extremity is now gonna start to push off the ground on one side, because that arm is free, and that arm is stronger. Because that arm is the one that we pay attention to. Okay, at six to eight months, asymmetrical pivoting, we're gonna lay on our bellies. And again, our attention is to one side. One side might be stronger than the other. And so we're gonna kind of move in that direction, okay.

Seven to nine months, you may see an avoidance of quadruped as a whole. And so it's just too much, so they skip it. Asymmetrical army crawl, same idea. So you kind of saw that with Logan in the previous video, that he kind of would walk in quadruped. You see him kind of movin'. But we also kind of dropped to army crawl, because our body is restricted on one side. We're gonna see the early onset of modified four-point quadruped. So that's that seated scoot, or we're gonna try and put one leg up into a bear stance. You saw Logan did that at one point, where one leg came up and extended. So he’s trying to figure out, how do I get out of this? It’s too much for me to have my hands and knees and reciprocally go back and forth. Okay, at eight to 10 months, we're gonna see that preference of upper extremity reaching in prone. So we saw it a little bit before, but now what we're really gonna see is, if we do advance to quadruped, and we are doing it, one hand is actually gonna be unweighted enough to lift. The other hand's gonna have to stay down, because it's too much for them to shift their weight to the other side. So you're gonna start to see some of that anti, moving against gravity lack. And so we're not gonna develop some of the same musculature
on the opposing side. So as we look here at sitting, what we're gonna see here, and this was definitely looked into in the intro class, so we'll just kind of look at this to catch everyone up, but what we're gonna see here is we're gonna laterally flex towards the side of tilt. So let's take a moment here and look at Logan. So what we can see, he has his right side, we can see the arms are drawn. This side's a little tighter. Our hips are over here. So he's gonna kind of laterally flex and move in this direction, okay. And so we're gonna see that residual postural effects in the trunk and upper extremity. This movement pattern is gonna cause us to fall in that direction. And we may move purposely in the opposite.

So let's think here. So we might lose our control here, 'cause more of our weight is here. But if he wants to move out of this position, he's gonna shift this direction, why? If he shifts this direction, this side stays flexed, and he stays in control. If he tries to go this direction, this side of the body says, "Ugh, that's too much for me to flex." This hands says, "I don't want to extend "to give that protective reaction." And so again, we'll see that preference, that predictability, he's gonna go this way. Okay, so we're gonna start to see some of those poor transitions into and out of sitting. And we're also gonna see here, this is where we're gonna see an influential point for early hand dominance and strength. Because here, again, what arm is free? Where can we reach? So again, with Logan, this arm is more readily able to be used. This arm is busy. Okay. So we're gonna look at the motor milestones here, again, breaking it down per age group. At one to two months, we're gonna have that asymmetrical preference and upright posture. So one to two months, we're ooey gooey. But we may be restricted. So now mom and dad say, "It's easier for me to hold you in this direction. "I'm going to continue to hold you in this direction." And now I'm continuing the same asymmetrical pattern. At three to five months, we have this weird thing that starts to happen where the head drops.

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So as you’re sitting there, we’re gonna experience right torticollis. I want you to tilt your head to the right. And then rotate to the left. Now, keeping that position, I want you to just rotate your head to the right. And you’ll notice that as you come over your right shoulder, your vision is actually extended past your shoulder. So again, drop your head to the right. Look to the left. Now, keeping that tilt to the right, I want you to rotate your head all the way to the right. And you’re gonna feel how you’ve dropped your head over your back. And if we go continuing to the left, like how we want to, we’re gonna see that we never actually come over the left shoulder. We kind of, our chin meets it first. So again, as you look there, we’re gonna look for that head drop over the shoulder with a rotation to one direction, so that rotation to the right. And we’re gonna see that head drop towards the chest with a rotation in the other direction. Okay, so it’s gonna change our sitting. Now it changes our ability to interact with objects around us. That asymmetrical upper extremity arm traction and pull to sit, what does that mean? Well, we saw Logan before. That right arm was flexed in. Now mom goes to help me up, change my diaper. And I’m going to reach, and I’m gonna keep one arm back and one arm extended. And now I’m not even going to pull or assist. The same, one arm is already there. The other arm is not. I’m gonna start to engage differently. At four to six months, we’re gonna see asymmetrical scapular and shoulder position.

Again, we saw that with Logan, as he was sitting, the arm was withdrawn up. That asymmetrical upper extremity protective reactions, which we talked about. Asymmetrical reaching, again, what arm is free? And then we’re gonna see that at six-plus, again, that poor core flexion forward with asymmetrical posture. We’re just going to interact differently. We’re not going to lean forward the same. We’re not going to flex up the same. This is gonna affect all sitting. How do we manipulate objects and return to sitting? That object just out of my reach, what do I do? It’s too hard. Okay. So again, we’re gonna see that at six-plus months, this is the onset of a vast majority of fine motor development. And now I can’t access my environment the same. So let’s go into each topic now. Let’s go into vision. Let’s go into hand dominance. Again, what do
we see now? Well, we're seeing these asymmetrical differences. This is what it looks like at one to two months. This is what it looks like later, et cetera. But let's take it a little deeper now. Let's just hone in on vision.

Let's hone in on how this affects the child as they're developing that early ability to recognize their environment, that early sensory input, that early muscle development. How are we going to engage? So when we look here at torticollis and vision, we're gonna see a lack of or delay in eye-head dissociation. So again, if I am persistently laying there, and I can only engage with my left side, my eyes may begin to stay tracking only to the left. Regardless of if my head moves, if my head is in one spot, my eyes are not going to dissociate from my head and vice versa. So you're gonna see that the eyes almost remain on one side despite what the head is rotating, okay. And so that's what you're gonna start to see. And again, that's gonna affect our vision. It's gonna affect our ability to converge on an object. It's gonna affect our ability to begin to develop that vision. That vision's startin' to develop. And they're gonna have a hard time doing that, because eyes are retained on one side, and they can't track. So we're gonna see less frequent tracking across that whole arc. It's too hard for me to manipulate my eyes to look. I need to look past you. I can't, I'm so overwhelmed. My system's too tight. I can't look at you. So you may see some eye avoidance, some eye contact avoidance. And actually, little Logan here, who we see in this picture, for a while, when he first was born, he could not maintain eye contact, even to mother, because it was too overwhelming for his system. So again, we're seeing some of that early sensory management from a lack of vision development. So we talked about it briefly. It says eyes off of neutral, off the horizontal.

So we're gonna talk about that within each position. So I'll get into that when we get into prone. So here, as we look at supine, we saw this picture before of Logan. But it's kind of the tightest version that you can see of supine for him. But what we're gonna see is that vision is drawn to one side. And as we look here at Logan, it's hard to tell in
this, 'cause he's got such squinty eyes, but his eyes are persistently over here, okay. So as we look at this, he's maybe about one month old in this picture. If we don't help those eyes dissociate from the head, this left vision is where we're gonna maintain dominance, because it's too hard for us to even dissociate the eyes. Again, that less frequent track. We're gonna see this here as a return to tilt with more visual distraction. So what does that mean? They're laying on their back. They're not going to look up at a toy that's presented to them. If they do look up, they're gonna start to move and wiggle. The more they move and wiggle, the more that you see they return to the tilt. Again, that loss of chaos. What you see is you may start them straight, they wiggle around, and they go right back into this tilt. So again, we're losing that ability to fluidly move, and now our vision is staying in one side. So we're gonna look at prone. Again, this is kind of the most influential point of vision. This is also the one that I explain the most to my families, 'cause it gets the most confusing.

So let's look here. Okay, so again, the same rotation and tilt that affects us in supine is gonna look different for a movement in prone. Okay, so the head is gonna drop to the side of tilt. So the best way, I'm gonna show you here on Logan, and then you guys can try it as well. So Logan was right torticollis. You can see the tightening here. And so what happens is is Logan likes to look to the left. But what we see here in prone is that this tightening, when we go to look to the left, we're looking to the left, but that head has actually dropped. What do we see here? The eyes are off the horizontal point, okay. We're off the horizon. You can see in years, as he's older, that tilt is still there. But what we see here is the eyes are still not addressed straight. So our vision is beginning to adapt to the tilt. What is normal for us now is to slightly drop our eyes off horizontal. So what we see here is that even for us, if we lean to the side, tilt our head to the side, after a couple seconds even, you're gonna feel off. You're gonna feel like it's not your base. And so you're gonna wanna right your head. You're gonna wanna correct it. And what we see here for these kiddos is that they don't. Again, in prone, you're gonna drop to the side of the tilt. And you like to look here. But when he goes to
turn the other way, when he goes to turn to the right, we're gonna see that that ear stays up. That head stays up. Well, why is that?

So even as you sit there, okay, I'm just gonna keep using right torticollis, and we can all rotate and kind of associate with that. So tilt your head to the right. Look to the left. Now kind of lean forward as if you're in prone. And now I want you to kind of look up. And when you look up, you'll notice that your head does wanna drop to the right. And when you rotate your head now to the right, you'll feel that your eyes actually adjust and come back to the horizontal. They come back to straight. Because that tilt is what's helping you. And so again, we're gonna see that adjustment here. So we're gonna watch this video of Logan crawling in quadruped again. And what we want to watch for is his vision. So I'm gonna play this video here. What I want you guys to look for is, you can just note, as he crawls forward, that you will see that his head continues to drop off that horizontal. And you'll see that he's adjusting. But his adjustment is to what is deemed his completed position. Okay. So we can look at that. And let's go back to our slides.

So let's talk about sitting now. How's our vision affected in sitting? We talked over this before, that vision drops off the horizontal with rotation over the shoulder. And we're gonna observe that that rotation to both directions at end range is off. So we're gonna see, again, we talked about that before. At that end, what we deemed to be correct now is not midline, it's not keeping your head in neutral. So again, that's gonna affect our vision. With feels normal is now a tilt. And so we wanna address that. So we wanna make sure our parents understand that vision is affected in all these positions. We're not just going for the tilt's gone. Let's actually look at the eyes. And why is it so important to make sure the tilt is gone? It's not just 'cause, oh, we're tilted. We'll grow out of it. What we wanna look for is that developmental point. Okay, so again, that's how it'll affect development now. How does it affect the development in the older child? Again, we're gonna limit that midline focus, because our head is not perceiving...
what other people see as midline. So we’re gonna have that limited eye-head
dissociation, poor eye convergence. So now you’ve placed a piece of paper in front of
me, but that’s not my midline. That’s not my perceives position. So now I need to tilt
and rotate, but you’re tellin’ me to draw attention to my paper. But I feel like I am,
because my vision is really towards this side of my eye. That is actually where it’s
honned in the best. And now I’m getting teachers telling me, “Put your head straight.
”Tilt it the other way. "Look at what you’re doing." And that’s where you’re gonna see
that delay. So the leading eye may become dominant. We’re actually gonna talk about
this in a case study. So again, which eye is forward? That’s the eye I’m gonna lead
with. That’s the eye that’s gonna develop stronger. And my other eye, actually, in
extreme cases, may shut down, because the one eye’s taking over.

So let’s go into hand dominance here, torticollis and hand dominance. We’re gonna
see a persistent and strong ATNR, and again, a poorly integrated STNR. What this
means for us is we’re gonna have poor reciprocal progression, because our body’s not
gonna wanna go back and forth. We’re going to see that our body either moves as a
whole, or only one side moves. We can’t develop side to side. And so that’s gonna
affect some of our movement. We’re gonna see that scapular influence. You can see it
here in Logan. You can see how his scapulas come out. Right there, see how one’s
restricted? You can even see how it’s against the back tighter than this side. So let’s
look at supine. Again, that limited hand to mouth. If I have right torticollis, and I am
flexed, and I’ve got my ATNR, one hand is free. One hand is not. We’re gonna see this
is that point of hand dominance, that first point of influence. That poor midline
progression for hands to mouth for self-soothing, now my sensory system still is
overwhelmed. I’m tight. My body’s restricted. I can’t develop normally, and so again,
I’m gonna kind of favor that. I’m gonna have that poor self-soothing in that position.

So what we’re gonna look at here is prone. Again, we’re gonna see that shortening on
the side of the tilt, the scapular retraction and shoulder elevation. We’re gonna see an
immature patterning of the elbow behind the shoulder. And you can see that here in Logan, that the elbow stays persistently back. And so he's not going to extend it. We're gonna see poor shoulder and hand strength due to that asymmetrical weightbearing. So we're gonna further look deeper now. In the sitting, we talked about this before, that delayed upper extremity protective reactions. The side of tilt, the upper extremity tends to be withdrawn. The poor transitions into and out of sitting, that limited scapular movement, we're gonna limit overhead now. So the shoulder's going to stay in one spot. We don't want to lift it above, we don't wanna lift our hand above shoulder. So if you reach out, now we're just going to reach within the plane that's in front of us. We don't want to reach overhead. But our other hand has more access.

So now we're gonna start to see that opposing hand becomes our dominant. And what do we see now? Again, that predictability happens. The parent says, "Oh, my three-month-old "is gonna be left-handed. "They only reach with their left hand." But we all know that we shouldn't see that. And so we want to encourage that for our families to understand. This is an influential point of development. We should not see hand dominance. If we're seeing that now, we're seeing a preference, we should see them be chaotic. We should see them change. So how does this affect the older child? We saw with vision, now my vision is off, that I don't want to come forward. So what do we see for the older child for hand dominance? Persistent, immature reflexes. We never integrated in that startle reflex. We never integrated in, truly, that ATNR. We're gonna see the early onset of hand dominance. You're gonna hear that parent say, "They've but left-handed since they were on years old." And we're gonna realize that baby isn't okay. And we wanna help the parents understand, why are we going back to have them doing midline activities if they can already write? Why are we trying to help this? If our vision is to one side, and our hands are to one side, why am I going back if I'm looking at a seven-year-old? Help the parents understand why.
Again, that poor bilateral/reciprocal coordination, we’re gonna look for whole-body movements to help integrate that. We’re have poorer hand grasp and shoulder strength, why? We never crawled, and we didn’t have that prolonged upper extremity weightbearing to build the muscles in our hand. So treatment strategies, we’ve got all edge great things. And we know that something’s off, so what do we do? The first choice of intervention is always passive stretches. So if you’re still seeing that active torticollis, that active tightening, that’s where you’re gonna stretch it. So you can see that in older. You’ll tend to see that it’s been integrated in for an older child. They can move their head. You’re not gonna see that actual tightness. But we need to come back and focus on the loss of control that we had, again, focusing on midline. We’re gonna also look for that whole-body strength and integration. So when we see for an infant that they are tight on the right side, we’re gonna strengthen the left. And we see for an older kid, we may not see that distinct, overt tightening. We just may see they have a preference.

So now we’re gonna say, "I want you to crawl." Well, you’re 10 years old, but you can still crawl through a tunnel. It can become part of an obstacle course. Maybe now we’re climbing. I have all my kids always climb the slide, climb the rock wall. What am I doing? I’m getting their left and right side of the body to communicate now. I’m gonna have them ride the bicycle. They can be 10 years old and already know how to do it, but I’m gonna have them do that before I do something with them. I’m gonna warm up their whole body, because I want them to start doing left and right orientation, because now I’m gonna ask them to challenge and maybe converge forward for vision or write with the other hand, because I’m looking for them to cross midline. Why am I doing that? From a gross motor standpoint, I’m looking for them to have that association. My OTs do this as well. Because they’re looking for them to have that ability to have that chaos. The body still needs to develop. Even if I am left-handed, I still need to know that my right hand is there. When we look at vision, we are gonna have a kiddo track across the whole arc. We may say, "Keep your head still. "And now I want you to just
track with your eyes only. "Now I'm gonna have you track with your whole head." You know, there's activities out there to scan. Do a visual scanning activity. Because again, it's making the eyes move and work together, and not one-sided.

Okay, so again, you're thinking of that whole body, the vision and the upper extremity strengthening. You might ask the kiddo to cross midline, to do reciprocal upper extremity movements, to work simply against gravity. So you're doing an activity for handwriting, because they're having a hard time kind of acknowledging where their hand is that they need to develop. But maybe we are gonna start with them crawling. We are gonna start with them doing some vision. So again, that body starts to integrate. So now, when I do that task, I am prepped, and active, and ready. Okay, so again, we're looking at all these points together. So the key thing to think of for your treatment strategies is, where do we see the asymmetry? Let's strengthen, simply, the opposing side or opposing direction. But now let's strengthen it together. Let's do left and right. Let's go back and forth. Let's do a whole body. Let's address that vision. Because we want our attention to where we're looking. And let's address that upper extremity strength. So, again, when we get to that point, everything's gonna come together. And we might prep and prep and prep for multiple sessions and build, but what we're gonna see is that body's start to retain it. It's gonna start to keep it.

Okay, so again, what are activities as an infant? How are they gonna affect me later? If it's later, let's look at that. What do we need to do? So how does torticollis present with other disorders? Torticollis can be perceived as a straight orthopedic thing. But we also see that it has a presence in other disorders. And so what we wanna look here is that the more significant your torticollis is, the longer treatment duration, why? What we're gonna see is the longer treatment duration happens when you're low birth weight. Because you're body's taking a little bit to catch up. It's utilizing more energy. We may see that breach presentation, creating a longer treatment duration. Again, the body did not develop fluidly. It was stuck. It was not able to move and develop. That
movement that happens in utero is going to affect you later. So we wanna be aware of that. And so we're also gonna see that presence of motor asymmetry. And that could be from a genetic disorder that affected their presentation in utero. They may have something else that elicits a torticollis presentation. But what we need to remember is that cerebral palsy, developmental coordination disorders don't happen in isolation. We may see signs of torticollis.

And so here are some ideas of, we're looking at torticollis, but we're also looking at another disorder. The clinical guidelines state that follow-up screenings should always be done three to 12 months post discharge. What we're looking at there is that you may get a kiddo doing great. At one year old, they're doin' awesome. And you come back, and they're three years old or two years old, and they're displaying that asymmetry again. Because we're seeing that development come out later, why? Their vision was off. They developed early hand dominance. And maybe we helped, in general, the skills when they were that age, but now we wanna see what they're looking like now. Research shows that it shows, oh, torticollis happens when we're little. And it almost seems like there's a gap in care, a gap in acknowledgement of what's going on. And then we see it again in your early preschool, but why? It's because those kiddos are just livin' life. They're not having someone look at them in depth. You know, I'm at preschool. I'm just hangin' out. I'm doin' my thing. But now I'm starting to enter kindergarten, and the teacher keeps telling me to look straight ahead, but I don't want to. So again, it may seem like there's a gap in torticollis, that torticollis is gone. But what you may see is that it just doesn't need to come out until now I need to focus.

Okay, so again, that's why they always recommend the screening post discharge. Check in with that family. See how they're doing with skills later. When we look at cerebral palsy, again, the body, especially with hemiplegia, they're gonna develop one side. So we may see that torticollis come up. What do we need to do? So now we
know that that kiddo with cerebral palsy who is displaying a torticollis, who only wants
to look one way, well, now we have a better plan to how to address that. We’re not just
looking at the cerebral palsy. We are now looking in depth at, where’s their vision?
Where is their rotation? Where is their range of motion that's affecting their attention?
So if I'm only looking to one side, it's not actually in my best interest to only have the
objects placed to one side. Maybe I need to address vision first, get the kiddo warmed
up to what I need them to do so they recognize their other side. So again, you're gonna
see torticollis conjunction. Developmental coordination disorders are commonly
associated with a history of torticollis, why? They didn't develop that reciprocal
coordination. We can go all the way back to your crawling and that development, that
vision, and now you're telling me to go left and right, and do it fast. So that's what
we're looking at, okay.

So I want you to always screen for torticollis in your older kids. You know, look for it in
your other diagnoses. Don't just say, "Torticollis only happens in my infants." Torticollis
signs may still be present later on. So as you look here, we're just gonna sum up with a
case study. I changed the kiddo's name. We'll call him Daniel for this. He was a
17-month-old male. He was seen by speech for feeding concerns. He had a history of
severe plagiocephaly and cranial helmet use. He had PT intervention. About four
months old is when he started. He was referred to me at this 17 months old for
displaying signs of scoliosis. Again, 17 months old, we're seeing signs of scoliosis.
We're gonna have parental concerns here for clumsy behavior. And what we're seeing,
the parent reported increased bruising and injury to the left orbit after falls. And mom's
reporting early, good motor milestone development with crawling around nine months
and walking around 10 to 11 months. So let's kind of think of that for a second. So I
want us to kind of look here at this history again and say, what raised the red flag?
What raised the red flag? The first thing we wanna note is severe plagiocephaly. Signs
of torticollis, okay. It's usually linked with severe torticollis if you're gonna have severe
flattening, if it's so significant that the kiddo needed a cranial helmet.
And so we say that early onset of PT intervention. And what we see here is referred back. So the child was ultimately discharged. I don't know if the child was ever followed up from the treating therapist for torticollis. But we can see here, again, that they're referred back to us. And they're referred for scoliosis. Scoliosis in a 17-month-old is distinctly going to raise a flag that the speech therapist actually saw it, okay. So that speech therapist said, "They're not sitting up straight for me with eating. "They're tilting." So we're gonna see that trunk involvement. And we're also gonna see that it was so large that other team members are seeing it. The biggest flag is that clumsy behavior, again, we're starting to see. It's something that flagged to the parent.

So the parent said, "They are clumsy." Well, we've 17-month-old is clumsy. Why is the parent drawing so much attention to it? Well, the parent is aware that they're falling more than their peers. That's something we can say here. 'Cause if the parent noticed it, that means it's more than peers. We're gonna see that the parent reported increased bruising and injury to the left orbit after falls. And she even had shown me pictures at the time that every time the child fell, they would hit the left side of their face. That distinctly is a flag. Why is it always going to that side? So what we can kind of think to ourselves here is that they're falling and hitting their face. There's no upper extremity protective reactions on that left side, why? That arm may be withdrawn. So we're going to hit to that left orbit after our falls, because again, lack of protective reactions. But what side is my vision leading with? That makes me realize that this kiddo is leading with that side.

So that's where they're looking, and that's where they're falling, okay. We're gonna also screen that early motor milestone development. They crawled around nine months but only began walking around 10 to 11 months. So what we're gonna see here is crawling is a little delayed. Makes me think that maybe they have some troubles achieving it. And they walked pretty quickly thereafter. So we're seeing that early onset
of walking. But what we wanna note here, that early walking is not always best. We don’t want to lose that crawling phase. So again, what was my development like with an infant? Well, if I lost that crawling, I'm losing my reciprocal abilities. I'm losing that early hand coordination, that early hand strength, that early vision development. And now I'm losing my protective reactions. I'm falling, and I'm leading with one eye. And so my development is towards that one side.

So let's look at kind of what a treatment session looked like for this. What we can see here, well, here's the evaluation. But what you can see here is I blacked out some information. This was through the Peabody. And you can see that we're average, so nothing overt. But again, they were referred because that speech therapist saw that scoliosis. The parent doesn't quite see what we're doing, why they were referred to OT, or to PT or OT. They seem to be doing just fine. So we need to help them understand what it is. We need to help even insurance understand, what are we seeing? Because if I look at this test, the kid is average. And so what do I see out of that? So you can see here, you'll see he's easily distractible. You'll see he's having a hard time focusing for me. I know he's 17 months, but we're having a hard time focusing. We're gonna see that we're just, we need increased manual and verbal cues to follow commands. So I'm having come in and help him. All activities are done with this persistent rotation. And so we're seeing that the left side of the body is leading. And again, mom already reported that the left eye is what seems to get hit when we fall, because the head is hitting the ground first without the hands. So we're gonna see this persistent left-sided body lead. He's gonna be having trouble climbing, gonna have trouble moving. We can see here that it's hard for him to regulate in ambulation. He's kind of always turning. He's having a hard time doing this.

So we're gonna see that, okay. We're gonna see that he's just gonna have these persistent abdominal distension. What does that flag for you? Well, poor core stability. Because he's leading with one side of the body, and so our core doesn't cinch in,
because we’re not finding midline. We’re not finding where we need to go. So what we want to do is see this. When you’re writing this report, when you’re doing this evaluation, what do I see now? And now this kid is 17 months old, but I wanna think, what did his development look like as an infant? And now I might need to go back to some of those skills. I might need to have him crawl. And so what we wanna do is look at this. We’re gonna see that trunk involvement, that poor core strength. Ultimately, he was referred to scoliosis, but I did have an OT screen him. Because if we’re only moving with that left side of the body, I need to have that involvement. I need to work on the vision. I can correct his rotation. He can look great in a treatment session. But the moment that he leaves, he rotates again, ’cause that’s where his vision is. So I might need to incorporate that. So that’s what we really wanna see is that torticollis is beyond that tightening. It’s gonna affect our development.

So we gonna look here at Daniel, that he attended, per parent request, only every other week. I had to do a lot of parent education as to why did I recommend therapy, why did we need to be here. Okay, he did eight sessions. We did a ton of vision. I had him rotate. I did things only to the one side. I had him keep his head forward. I had kind of blocked his body, like against a wall, and had him rotate just his eyes towards me. I had him do a lot of down the slide. Why am I gonna have him do a lot of sliding? One, I need that vestibular input. But two, as he comes down that slide, he now has to crunch up to sit up. And if I use a deep slide, he now has to put his hands out to help himself pull up. Well, how do we move him? If he starts to, every time he comes down the slide, roll, well, I’m gonna help him come up to the middle now. So now we’re playing, and I’m adjusting him. I’m influencing his environment. You know, we looked at some gait, ’cause he kept always kind of leading his body in one direction. So we’re gonna help him find neutral. So I always did uneven surfaces. I made him change. I made him go up and down and move, because I need the body to coordinate back and forth, that reciprocal movement, okay. So again, when we talked about the treatment strategies, we need to look at maybe some whole-body stuff. So I had him crawl through a tunnel,
climb a slide, slide down the slide, and run across a crash pad. Because I looked at whole body. I prepped him in crawling, 'cause he had a short crawling phase. We climbed up the slide left and right, hands and legs. Our vision, we have to look where we're going. Get to the top of the slide, we find mom. We look at mom. And we slide down. I'd challenge him to keep vision on mom as he goes down and offset in that movement. And then he gets to the bottom, he has to crunch up. Now he has to get up and run across an uneven surface. So that body has to adapt. So you can see how one simple activity can address all areas. So we just wanna be aware of that.

Again, when you're looking at something, it's not always just place it where they can see, place it where they're looking. We might have to address some stuff first, okay. So again, we're looking to create chaos. We're looking to create control. And what you can see here in this case study of Daniel, they attended eight sessions. After that eight sessions, mom elected to discharge. But we did significantly emphasize to mom the importance of vision therapy. You know, we spoke the mom and educated her that, right now, Daniel is able to adjust. He did very well in therapy. We were able to kind of help rotate. He was able to get his hands out when he fell. We weren't seeing those falls anymore. We weren't hearing mom report that injury to the front side of the face. He stopped having those. But we still wanted her to follow up, again, that follow-up after discharge. Because we wanna see, he's gonna get to school, and he might have a hard time. So again, that research shows torticollis influences when we're young, a perceived gap in that middle age, and then later, we're gonna see it again. Really, what we're seeing is that the body is in demand later. And you might see some of those effects. So Daniel may have come back to therapy, because he was referred to, that he was having a hard time focusing on his school work. So that's where we wanna screen what was our history before. So that's some of the cases, you can see here for Daniel.

Let's think of those important things to keep in mind. A persistence of asymmetrical positioning affects the whole body and early motor development. Prone is the point of...
influential vision distortion. Again, that movement against gravity’s gonna look different. Sitting is an influential point for early hand dominance and strength. And how do we work with that in all positions? But that's where we're gonna see it happen most. We're always gonna screen for history of torticollis, for any asymmetry and coordination deficits that may present later. So what we wanna do is kind of keep this all in mind. Again, the take-home message is that torticollis is more than just a tight muscle in the neck. Help our families understand, and help us us address it at every stage of development to realize the importance. So that's the thing I want you to take home from these courses, just torticollis is more than a tight muscle. You can see my list of references. If you have any questions on those, you can certainly email me and ask me about that. Again, just kind of just want you to take home some education, some different ways to treat. Maybe even challenge yourself with your older kiddos to kind of look for that, look for ways that you can help them with their asymmetry. And I do thank you for attending this course today. And again, you can contact me at any time with questions or concerns.

- [Fawn] Thank you so much. I don't see any coming, so let's give a few moments here. I did wanna let everyone know that your video from your first course should be in the library very shortly. And I don't see any questions at this point in time. So let's go ahead and just make sure everyone checks out her email there. So if you think of somethin' later, you can reach out to her. She'd be more than happy. And I hope everyone has a great rest of the day and you join us again on continued and OccupationalTherapy.com. Thanks, Lisa.

- [Lisa] Thank you.

- [Fawn] Have a great day, everyone.