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Progressive Topics of Torticollis for the Occupational Therapist

Presented by:
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About Me

- Physical Therapist with 10 years of experiences within pediatrics, focus on neurological patient populations and infants.
- Trained in TheraSuit® and TheraSuit Method®, with provision of an intensive therapy model.
- Board-Certified Specialist in Pediatric Physical Therapy in 2019.
- Advanced Therapy Solutions, Kids, Greenville, SC

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Learning Outcomes

- 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 developmental coordination disorders.

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Key factors of Torticollis and postural presentation

- Posture of the head and neck from unilateral shortening of the sternocleidomastoid (SCM) causing the head to tilt in one direction and rotate in the opposing direction
- Involvement into the shoulders, trunk, pelvis and hips



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Torticollis presentation affecting early infant motor development

- Asymmetrical positioning
- Loss of “chaos”
- Predictability
- Persistence of asymmetrical positioning affects the whole body and emerging early development



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Supine

- Persistent head rotation and tilt
- Typically seen a unilateral chin tuck, scapular protraction and elevation
- Persistent/strong ATNR



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Supine Key Motor Milestones

- 1-2 months:
 - Asymmetrical UE movement patterns
 - Poor physiological flexion
- 3-5 months:
 - Poor midline orientation
 - Strong ATNR
- 4-6 months:
 - Poor UE cross midline for rolling onset
 - Unilateral hand reach for feet
- 6+ months
 - Poor core flexion forward with asymmetrical ascent

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Prone

- Persistent head rotation and tilt
- Same rotation and tilt, affects movement differently
- Against gravity movement pattern
- Influential point of vision distortion



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Quadruped

- Retained STNR
- Asymmetrical LE push-off and UE reach
- Early transition to pull to stand
- Limiting very important milestone for UE/core/LE strengthening



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Prone Key Milestones

- 1-2 months:
 - Asymmetrical preference or poor tolerance of physiological flexion
- 3-5 months:
 - Whole poor neutral weightshift
 - Immature chest COM
 - Preference for Landau posturing
- 5-7 months:
 - Unilateral weightshift and UE preference in reaching
 - Preference of UE extension for push off for roll from prone to supine
- 6-8 months:
 - Asymmetrical pivoting
- 7-9 months:
 - May see avoidance of quadruped as a whole
 - Asymmetrical army crawl
 - Early onset of modified four-point quadruped
- 8-10 months:
 - Preference in UE reaching

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Sitting

- Will laterally flex towards side of tilt
- Residual postural effects into the trunk and UE
- Delayed UE protective reactions
- Poor transitions into and out of sitting
- Influential point for early hand dominance and strength



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Sitting Key Motor Milestones

- 1-2 months:
 - Asymmetrical preference with upright posture
- 3-5 months:
 - Head drop over shoulder with rotation in one direction
 - Head drop towards chest with rotation in other direction
 - Asymmetrical UE arm traction in pull to sit
- 4-6 months:
 - Asymmetrical scapular/shoulder position
 - Asymmetrical UE protective reactions
 - Asymmetrical reaching
- 6+ months
 - Poor core flexion forward with asymmetrical posture

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Torticollis and Vision

- Lack of or delay in eye head dissociation
- Less frequent tracking across whole arc
- Eyes off neutral, horizontal



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Supine

- Vision drawn to one side
- Less frequent to track across whole arc
- Return to tilt with more visual distraction



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Prone

- Head drops to side of tilt
- With rotation, watch ear to shoulder
- Same side as tilt, eyes stay in line to horizontal
- Opposite side as tilt, eyes drop below horizontal



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Quadruped

- Watch again
- Focus on his vision alignment



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Sitting

- Vision drops off horizontal with rotation over shoulder
- Observe rotation to both directions at end range

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Residual effects in the older child:

- Limited midline focus
- Limited eye head dissociation
 - Poor eye convergence
- Leading eye may become dominant

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Torticollis and Hand Dominance

- Persistent/strong ATNR
- Poorly integrated STNR
 - Poor reciprocal progression
- Scapular influence



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Supine

- Limited hand to mouth
- First point of hand dominance
- Poor midline progression for hands to mouth, self soothing

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Prone

- Shortened reach on side of tilt
 - Scapular retraction
 - Shoulder elevation
- Immature patterning of elbow behind shoulder
- Poor shoulder/hand strength due to asymmetrical weightbearing



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Sitting

- Delayed UE protective reactions
- Side of tilt, UE tends to be withdrawn in high guard
- Poor transitions into and out of sitting
- Limited scapular movement, limiting overhead reaching
- Ease of use of opposing hand
 - Influential development point for fine motor development

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Residual effects in the older child:

- Persistent immature reflexes (more frequent startle, immature reflexes due to delayed or no integration)
- Early onset of hand dominance
- Poor midline coordination
 - Poor hand-eye coordination
- Poor bilateral/reciprocal coordination
- Poor hand grasp/shoulder strength (no crawling, UE weightbearing)

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Treatment strategies for infant and beyond

- Passive stretches
 - First choice of intervention
- Focus on midline
- Whole body strengthening and integration
- Visual tracking
 - Across whole arc
 - Eye head dissociation
- UE strengthening
 - Crossing midline
 - Reciprocal UE movements
 - Against gravity reaching



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Torticollis outcomes and presence in other disorders

- Longer treatment duration
 - Low birth weight
 - Breech presentation
 - Presence of motor asymmetry
- Follow-up screening
 - 3-12 months post discharge
- Cerebral palsy
- Developmental Coordination disorders



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Case Study: Daniel* (name changed)

- 17 month old male
- Seen by Speech for feeding concerns
- History of severe plagiocephaly and cranial helmet
 - PT intervention about 4 months old
- Referred for scoliosis by referral from the SLP
- Parental concerns for "clumsy" behavior
 - Increased bruising and injury to left orbit after falls
- Mom reports early good milestone achievement, with crawling around 9 months, and walking around 10-11 months

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Measure	Raw	Standardized	Age Equivalent	Percentile	Comments
Stationary	38	10	18 months	50%	AVERAGE
Locomotion	88	10	17 months	50%	AVERAGE

Notes

participated fairly well in standardized testing today. He is easily distracted and very playful, and requires increased manual and verbal cues to follow direct commands. Results may be considered accurate and valid to patient's current level of gross motor performance.

All tasks are completed with MILD to MODERATE RIGHT cervical rotation, and LEFT sided body lead.

General Strength [Physical Findings]

Comments

Strength: Predominant LEFT sided body lead in ambulation with MILD RIGHT rotation preference. Will alternate LE in climbing. MILD RIGHT convexity of spinal rounding noted, however will reduce in ambulation, climbing and crawling. Persistent abdominal distension.

Range of Motion: Full passive to bilateral directions in cervical rotation and lateral trunk/cervical flexion. Preference to keep head rotated to mild right rotation at grossly 35-45 degrees from midline. Will actively rotate to full range with tactile cues to prevent early shoulder hike in left rotation.

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Case Study: *Daniel

- EOW
- Attended 8 sessions
- Referred to vision therapy

Name	Notes
cervical AROM	Emphasis on bilateral rotation to full range during all interaction. Emphasis with visual cues to track from midline to full left range. Pt preference for mild right rotation at 35 degrees with eye gaze to "neutral" forward.
core strengthening activities	Facilitated for progression of trunk/pelvic dissociation and core control.
gait training	Facilitated with cues to keep body oriented neutral. Further advanced with ascend/descend incline, small/moderate surface level changes and stair/ladder climbing.
LE Strengthening	Facilitated with active climbing stairs/ladder, etc with emphasis on alternating leading LE. Pt will reciprocate by self today on small ladder. Further promoted with active climbing slide.

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Important things to keep in mind:

- Persistence of asymmetrical positioning affects the whole body and emerging early development
- Prone is an influential point of vision distortion
- Sitting is an influential point for early hand dominance and strength
- Always screen for history of torticollis if any asymmetry or coordination deficits present later in development

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Questions?

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