Incorporating Movement to Comprehensively Treat Preschoolers with ASD

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Targeting Balance and Increasing Intentionality of Motor Movements, presented in Partnership with Thieme Publishers

Kelly Vess, MA, CCC-SLP

Moderated by:
Amy Natho, MS, CCC-SLP, CEU Administrator, SpeechPathology.com

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Targeting Balance and Increasing Intentionality of Motor Movements, presented in Partnership with Thieme Publishers

By Kelly Vess, MA, CCC-SLP

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Presenter Kelly Vess, MA, CCC-SLP, has 16 years of experience specializing in preschool age intervention. She researches and develops evidence-based assessment and treatment practices that focus on optimizing therapeutic gains within realistic caseload and time demands.

Kelly Vess is also a clinical instructor for Wayne State and Eastern Michigan universities. In collaboration with Wayne State University, she develops and directs evidence-based intervention programs for diverse populations of preschoolers in speech, language, and literacy intervention.

Kelly Vess is the author of Speech Sound Disorders: Comprehensive Evaluation and Treatment with Thieme Publishers. Video clips and excerpts from this book will be shared to clearly illustrate evidence-based practices. This book contains over 120 best practice clips of assessment and therapy with interactive evaluation forms for the reader to further our current practices.

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Financial Disclosure:

Kelly Vess is a full-time employee of Barnes Early Childhood Center and author of Speech Sound Disorders: Comprehensive Evaluation and Treatment for Thieme Publishers in which she receives royalties for book sales. Kelly Vess also received an honorarium for this presentation.

Contributors: Joseph Evens, MA, OTRL, Dianne Stall, MEd, OTRL, Dr. Jordan Kondrat, PT, DPT, Dr. Julia Smith, PhD, Dorothy Heitjan, MEd, CCC-SLP, Heather Dean, CMT, Behavioral Specialist Susan Lucchese, social worker Edward Trainor, and WSU Clinical Director Karen O'Leary, CCC-SLP.

Intervention: Movement activities were developed by Wayne State University SLP graduate students Katelyn Adams, Holly Flynn, and Torey McNally alongside author Kelly Vess.

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Four Session Webinar Outline

1 Incorporating Movement Activities to Improve Joint Attention and Executive Function

2 Targeting Balance and Increasing Intentionality of Motor Movements

3 Improving Complex Motor Coordination and Perception of Tactile (Touch) Stimuli

4 Strengthening Visual Motor and Auditory Processing Skills

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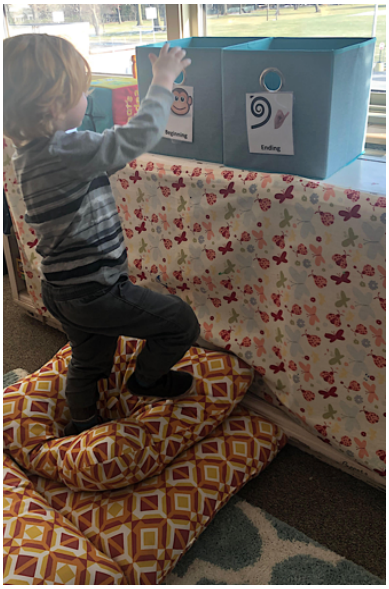
Series Goals:

1. Participants will be able to describe evidence-based practices that comprehensively treat preschoolers with Autism Spectrum Disorder by addressing motor skill development within therapy sessions.
2. Participants will be able to describe task-oriented movement activities to improve motor skills, joint attention, and executive function skills within therapy sessions.



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Session 2:

Improving Balance & Intentionality of Movement

Targeting Balance and Increasing Intentionality of Motor Movements

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Learning Outcomes

After this course, participants will be able to:

- Describe how motor, balance, postural control, and proprioception challenges impact preschoolers with ASD.
- Describe how to identify hypotonia (weakness) in the core and its impact on proximal and distal movements in the body, and identify evidence-based strategies to improve postural tone in therapy.
- Describe the impact of repetitive, restrictive behaviors (RRBs) on children with ASD and identify skills that replace RRBs with intentional movements.

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Impact of Balance, Proprioception Deficits, and Repetitive, Restricted Behaviors, Core Postural, Tone, Balance on Children with ASD

Children with ASD are more likely to present with…

- Delayed early motor development that often presents before 12 months of age.
- Hypotonia (i.e., low muscle tone) in the trunk, proximal, and distal muscles of the upper limbs (e.g., shoulder, wrists respectively) and lower limbs (e.g., hips and ankles respectively).
- Increased perception to pain and touch.
- Poorer motor skills, which relate to an increased severity level of ASD globally.

Q1, Q2 12

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Children with ASD are more likely to present with…

- Poorer balance and postural control, which is directly linked to an increase in restricted, repetitive behaviors.
- Postural instability, which is linked to low tone, visual processing deficits, visual fixation difficulties, and proprioception deficits.
- Poorer motor skills correlates to poorer socialization, cognition, and language skills.
- Poorer motor skills and poorer postural control correlate to more restrictive, repetitive behaviors (RRBs).
- Research indicates that development of proprioception, postural control, balance, and intentionality are foundational skills for the development of social, cognitive, and linguistic skills.

Q3, Q4

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Restrictive Repetitive Behaviors (RRBs) Can Impede Engagement

Restrictive, Repetitive Behaviors (RRBs): Repetitive movements with objects or the body (such as rocking and hand-flapping), ritualistic behaviors, or irregular responses to sensory stimuli. Restrictive, repetitive behaviors impede joint attention.

Cortisol: Cortisol often called the "flight-or-fight stress hormone," is a steroid hormone made in the adrenal glands. Most bodily cells have cortisol receptors. Therefore it serves multiple purposes, one of which is memory formulation. A moderate amount of cortisol increases neuronal synapses and dendrite development. Therefore…

- Children engaging in increased physical activity produce healthy cortisol levels which positively impact cognition.
- Conversely, a low amount of physical activity results in decreased cortisol levels, which negatively impact cognition.
- Too much or too little cortisol can result in a hyper-arousal or hypo-arousal state, which impedes motor, social-emotional, and cognitive engagement.

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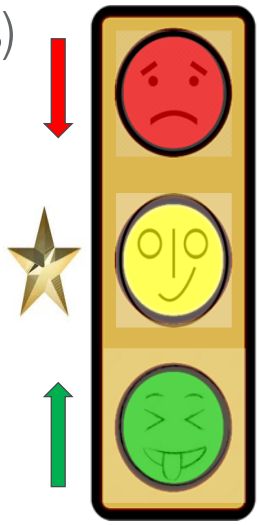
How Cortisol Levels Impact Restrictive, Repetitive Behaviors (RRBs)

- RRBs are ***more likely*** to occur when a child is hypo-aroused with a lack of engagement (low cortisol level).
- RRBs are ***less likely*** to occur when a child is in an alert, engaged state (medium cortisol level).
- RRBs are ***more likely*** to occur when a child is hyper-aroused in an overly stimulated state (high cortisol level)



Q8

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Terminology to better communicate with your physical and occupational therapist colleagues.

Postural Control: Focus on the Foundation to Develop Movement

Postural Control: Maintaining, achieving, or restoring a *controlled state* of balance during any posture or activity. Poor postural control negatively impacts proximal and distal movement.

Muscular Tone: Muscular contraction when a muscle is in a resting state. Muscular tone helps our bodies maintain postural control.

Proprioception: Body's ability to sense stimuli regarding the body's position, motion, and equilibrium. Proprioception helps our bodies maintain postural control.

Vestibular System: The vestibular system perceives the body's orientation, orients the body to gravity, controls postural reactions, and stabilizes the body in space. Changes in head position impact balance and movement. Information is collected in the inner ear and processed in the cerebellum.

Q6, Q9, Q11

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Video 2.1.
Zoologist Davey Fully Engaged

Source: Digital clip from Speech Sound Disorders: Comprehensive Evaluation and Treatment with Thieme Publishers.

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Developing Intentional Motor Movements

Terminology to better communicate with your physical and occupational therapist colleagues.

Gross Motor: Refers to large motor movements of the body largely controlled by proximal muscles.

Fine Motor: Refers to motor movements of the body driven by distal muscles.

Bilateral Coordination: Bilateral coordination refers to the ability to coordinate both sides of the body at the same time in a controlled and organized manner.

- **Symmetrical Coordination:** Both hands and/or feet are performing the same motion (e.g., jumping, clapping).
- **Reciprocal Coordination:** Both sides of the body are performing the same motion *reciprocally,* (e.g., crawling, walking, climbing).
- **Asymmetrical Coordination:** Both sides are working together, but performing separate tasks with one side leading and the other supporting (e.g., cutting paper, tying shoes).

Q5

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Video 2.1.

Zoologist Davey Illustrating Intentional Motor Movement

Domain	Example Behavior Illustrating Development in Each Domain
Proprioception	
Balance	
Muscular Tone	
Gross Motor	
Fine Motor	
Reciprocal Coordination	

Source: Digital clip from Speech Sound Disorders: Comprehensive Evaluation and Treatment with Thieme Publishers.

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To further prevent RRBs, ask, "How can we totally engage the child?"

Mind: Challenge the child with a meaningful task that requires executive function, maintained attention, and joint attention to complete. Model and elicit complex language that is more advanced than the child's current level.

Heart: Encourage the child to imitate gross, fine, and verbal actions through a most-to-least prompting hierarchy to exponentially increase mirror neuron development. Enthusiastically respond to the child's behaviors as communicative to increase joint attention.

Body: Encourage the child to struggle with increased levels of independence within more challenging and complex motor tasks. Provide objective and enthusiastic encouragement for the child's efforts throughout therapy sessions.

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Further Reflection of Zoologist Davey in Video 2.1.

What actions or activities supported Davey's engagement?

Areas Engaged	Therapist's Actions or Activity that Encouraged Engagement of the….
Mind: Challenging Skills with Scaffolding	
Heart: Engagement & Motor Imitation	
Body: Task-Oriented, Challenging Motor Skill	

When did Davey demonstrate RRBs in this digital clip?

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Terminology to better communicate with your physical and occupational therapist colleagues.

Incorporating Balance to Efficiently Improve Strength and Proprioception

Against Gravity Movement: Any motion that causes a body part(s) to provide effort to move against the force of gravity (e.g., walking up a ramp, wheel barrow on hands, crab walk, climbing a slide, throwing an object, jumping).

Gravity Assisted Movement: Movement is performed in a position where gravity can assist in pulling the weight of the limb to the end of the joint's available range (pouring, going down a ramp, descending stairs).

Postural Sway: When statically standing, small side-to-side and back-and-forth muscular contractions continually occur. Younger children use significantly more muscular activity to maintain a standing posture than older children. Natural refinement occurs with experience in a posture.

Q7 16

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Terminology to better communicate with your physical and occupational therapist colleagues.

Incorporating Balance to Efficiently Improve Strength and Proprioception (cont.)

Equilibrium Reactions: Reaction in which child moves the trunk and extremities to compensate for displacement in efforts to achieve balance.

Protective (Parachute) Reactions: Reaction in response to displacement in which the child "catches" self with extremities to prevent a fall.

Repeated practice using flexibility, strength, and experiencing different postural reactions results in global motor skill improvement.

Q7

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Video 2.1. Marine Biologist Ava

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Video 2.2. Marine Biologist Ava Demonstrating a Protective Reaction Activity to Improve Postural Control

Motor Behaviors	Example Observed in the Video
Motor Imitation	
Postural Control	
Muscular Tone	
Balance	
Protective Reaction	
Against Gravity Movement	

Source: Digital clip from Speech Sound Disorders: Comprehensive Evaluation and Treatment with Thieme Publishers. Note: This child presents with dysarthria, not ASD, for illustrative purposes of hypotonia.

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Further Reflection of Marine Biologist Ava in Video 2.2.

What actions or activities supported Ava's engagement?

Areas Engaged	Therapist's Actions or Activity that Encouraged Engagement of the….
Mind: Challenging Skills with Scaffolding	
Heart: Engagement & Motor Imitation	
Body: Task-Oriented, Challenging Motor Skill	

What visual and behavioral observations indicate hypotonia in Ava?

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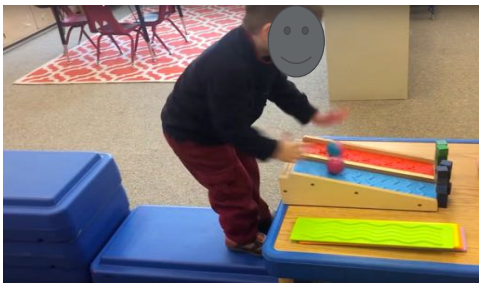
Takeaway Tip to Improve Balance & Intentionality Tomorrow:

Differentially create obstacles based on the individual child that are challenging, yet within the child's capacity.



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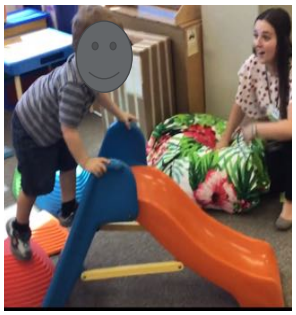
Questions?

Video 1.
Zoologist Davey



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Video 2.
Marine Biologist Ava

For more information: kellyvessslp.com

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