Perspectives on Deafness With Autism: Changing How We Think

Deafness with Autism: An Occupational Therapy Perspective

Housekeeping

• You must stay logged in for the duration of this course in order to be eligible to earn CEU credit.

• This course is offered for Continuing Education Units (CEUs) from AudiologyOnline if you are a CEU Total Access member.

• Be sure to take the exam following course completion to earn credit.

• Need Technical Support? Contact AudiologyOnline at 1-800-753-2160
Introduction/Overview

- Identify the difference between the vestibular, proprioceptive, tactile processing
- Discuss 3 ways these sensory systems often affect an individual with autism
- Define joint attention and explain its importance in early identification of autism
Our many senses

- Interoception
  - From inside the body
- Vestibular-Proprioception
  - From the head and musculo-skeletal system
- Exteroception
  - From outside the body
- Multisensory Processing
  - How they all work together in context

Vestibular Sense

- Senses movement, balance, and gravity
- Detects position and movement of the head relative to gravity
- Receptors located in inner ear and connected to the cochlea for hearing
- Pivotal for anti-gravity postures
- Closely linked to visual system
  - Eye gaze
  - Rapid location of objects in space
  - Maintaining balance while visual field is moving

Proprioceptive Sense

- Understanding where your body is in space
- “Muscle sense”: carries information about joint position and movement
- Vital for:
  - Motor planning
  - Exhibiting motor control
  - Grading pressure for a given movement
  - Postural stability
What is Sensory Processing?

Jane Ayres defines Sensory Processing (SP) as "the neurological process that organizes sensation from one's own body and from the environment and makes it possible to use the body effectively within the environment."

How does SP affect our learning?

- Modulation is required for adapted response to sensory stimulation
- Important for development of play skills
- A variety of sensory experiences help shape our learning and understanding of the world

Typical Play Development: Birth-12 months

- Birth - 6 months:
  - Sensorimotor phase of development
  - Social Smile (~4 months)
  - Coos (2 months) & Babbles (6 months)
  - Visually tracks people

- 6 months – 12 months:
  - Recognizes familiar faces vs strangers
  - Likes to play with others
  - Responds to emotions of others
  - Understands "no" (9 months)
  - Plays Peek-A-Boo
Typical Play Development: 12 months-3 years

- 12 months:
  - Shy or nervous around strangers/Cries when parents leave
  - Easily finds hidden items
  - Uses simple gestures
  - Attempts to assist with dressing self

- 2 years:
  - Imitates others
  - Completes 2-step directions
  - Points to things or pictures when named

- 3 years:
  - Dresses and undresses self
  - Participates in turn-taking games
  - Plays make-believe and imaginative play

Four A’s of Behavior

- Arousal
  - Ability to maintain alertness and transition between sleep and wake states

- Attention
  - Ability to focus selectively on a desired stimulus or task

- Affect
  - Emotional component of a behavior

- Action
  - The ability to engage in adaptive goal-oriented behavior

Four A’s in ASD

- Arousal
  - Variable responsiveness

- Attention
  - Hyper-focused attention on an object of task; inconsistent response to sensory modalities

- Affect
  - Social aversion; fear/anxiety; emotional lability; flat affect

- Action
  - Motor clumsiness; impairments in gross and fine motor skills; praxis deficits
Sensory Dysfunction and ASD

- DSM-V criteria addresses sensory processing under the stereotyped/repetitive motor movements
- DSM-V notes differences in eye gaze: this is more likely due to a sensory dysfunction than social impairment
- Auditory processing disorder is the most commonly reported sensory-processing impairment in ASD
- Tactile hypo- and hyper-sensitivities are also prevalent in children with ASD
- Sensory sensitivities tend to be present in infancy and increase with age

Visual system as area of strength
- Excel at puzzles and mechanical tasks
- May be hypo- or hyper-sensitive to vestibular input
  - May not experience post-rotary nystagmus
- Close relation of vestibular and ocular systems → hand flapping, lining up objects, and other non-functional behaviors

Praxis

- Praxis: Ability to plan out and execute novel motor movements
- Children with ASD tend to have poor motor planning skills, especially in area of ideation
- Poor ideation leads to poor play skills and deficits in self-help skills
- Children with ASD can easily become prompt-dependent due to difficulties with praxis
Self-Care with SP in ASD

- Dyspraxia and SP dysfunction may lead to deficits in
  - Managing fasteners for dressing
  - Managing arousal levels for sleep
  - Maintaining a well-rounded diet
  - Handwriting
  - Toileting

Praxis

- Mirror neurons: learning through imitation
- Dyspraxia has been strongly correlated with the social, communicative, and behavioral impairments that define autism
- May be associated with "motor empathy" dysfunction ➔ deficits in "theory of mind"

Theory of Mind

- Appearance-reality distinction
- False belief tasks
- Shared experiences
- "Seeing leads to knowing" tests
  - Sally Ann Test
  - Crayons
Unique SP Challenges for a Deaf Child with ASD

Most common red flags in infancy for ASD:
- 6 months: No big smiles or warm, joyful expressions
- 9 months: No back-and-forth sharing of sounds, smiles, or other facial expressions
- 12 months: No babbling, pointing, gestures
- 16 months: No single words
- 24 months: No 2-word spontaneous phrases
- Any sign of regression (loss of language or social skills)

Unique SP Challenges for a Deaf Child with ASD: Tactile

Tactile defensiveness may affect:
- Ability to create accurate ear mold impressions
- Wearing hearing aids or processor on ear
- Light touch is often disruptive for a child with ASD: may be more so for a child who has no auditory clue that a person may be about to engage in physical contact

Unique SP Challenges for a Deaf Child with ASD: Auditory

Auditory defensiveness:
- When fit with amplification (hearing aids or CIs), some have an increased perception of loudness
- Hyperacusis is common & can affect daily routines, quality of peer interactions and curiosity about the environment
- Auditory processing deficits are common in children with ASD
Maladaptive Behaviors

- Aggression: aggressing towards others
- Self-injury: aggressing towards self
- Disruption: throwing items, banging on surfaces, etc

Visual Strategies for Success

- Provide STRUCTURE!
- Use lots of VISUALS
- Limit verbal cues
- Increase wait time
- Use timers

Visual Timers:
http://www.online-stopwatch.com/eggtimer-countdown/full-screen/
Visuals to Assist with Learning: Structured Teaching

- Provide frequent breaks
- Provide opportunities for swinging and crashing
  - Be cognizant of contraindications of certain playground equipment with cochlear implants
- Engage child in obstacle courses
- Provide safe “time-out” area to limit sensory input

[Link to YouTube video: https://www.youtube.com/watch?v=0JlngUhXeIU]
Deaf with SP...but no ASD?

- Estimates of 75%-100% of children with ASD have some degree of Sensory Processing Dysfunction...BUT many children with SPD do NOT have ASD
  - Joint Attention
  - Shared interest in activities
  - Engagement in self-stimulatory behaviors
  - Flat affect

Thank you for your time!

Questions?
erineharvey@gmail.com

Resources

Resources


Write down something new that you learned from today's presentation.

Perspectives on Deafness With Autism: Changing How We Think

Deafness with Autism: An Early Communication Perspective

June 3, 2014 • 12:00 p.m. Eastern/9:00 a.m. Pacific