

Sensorimotor Skills

SERIOUSLY FUN FOUNDATIONS FOR LIFE!

Introductions and Session Plan

- ▶ Dr. Jennifer Hight
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- ▶ Session focus – Typical sensory development for children birth to 3 years, red flags/concerns and strategies to promote sensory development

Objectives

- ▶ Identify red flags for sensory or motor delays in early childhood.
- ▶ Recognize the role of sensorimotor processing related to typical development and early childhood behavior.
- ▶ Apply sensorimotor strategies to early childhood behaviors, e.g. biting, hitting, tantrums, and withdrawal.

DEC Recommended Practices (2014)

Assessment

- ▶ A3. Practitioners use assessment materials and strategies that are appropriate for the child's age and level of development and accommodate the child's sensory, physical, communication, cultural, linguistic, social, and emotional characteristics.

Environment

- ▶ E1. Practitioners provide services and supports in natural and inclusive environments during daily routines and activities to promote the child's access to and participation in learning experiences.

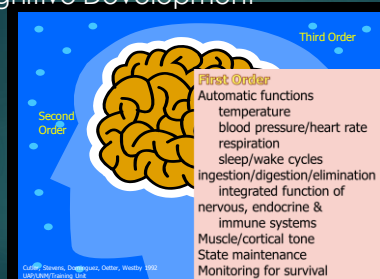
Instruction

- ▶ IN1. practitioners, with the family, identify each child's strengths, preferences, and interests to engage the child in active learning.

Sensory Development

- ▶ What discipline and areas do you currently practice?
- ▶ What learning experiences do you have related to sensorimotor development?
- ▶ What experiences have you had related to sensory processing?
- ▶ How comfortable are you in addressing a child's sensory needs?
- ▶ What would you like to take away from today's session?

Cognitive Development



Development of Self-Regulation

Second Order

- Suck, swallow, breathe
- Selective attention
- Visual searching, monitoring & directing
- Adaptive movement
- Vocalization in patterns
- Ability to achieve, maintain and change situation

ORAL

- use of taste, texture, temp, suck, blow, bite, lick, chew

HANDS

- use of form, size texture, temperature

BODY / PARTS

- uses of movement patterns & planes
- push, pull, lift, carry, hang, bounce, swing, rotate, movement in vertical, horizontal, diagonal, upside down/ backwards

Third Order

First Order

Cable, Stevens, Dominguez, Oakes, 1996, p. 107
LAP/UMN Training 1996

Development of Self-Regulation

Second Order

Third Order

- Intention
- Sustained attention
- Working memory
- Choice of a goal
- Planning
- Formulation of strategies
- Execution of strategies
- Evaluation of strategies
- Self monitoring
- Problem solving
- Voluntary, goal directed behavior
- Language for organization
- Recognition of need for state change/maintenance
- Organization of spaces, time, tasks, environments

First Order

Cable, Stevens, Dominguez, Oakes, Wexley 1996
LAP/UMN Training 1996

Sensory Integration

- ▶ First proposed by Dr. Jean Ayres in the 1960's
- ▶ Functional impairments due to inability of the brain to properly process sensory information
- ▶ Current focus is on *sensory processing*

What are the Primary Senses?

Sensory Input
Process
Organization,
Motor Output,
and Continual
Feedback

Kranowitz, 2005, p. 63

How do you Interact with Your Environment?

HIGH THRESHOLD = slow to notice sensory stimuli

LOW THRESHOLD = quick to notice sensory stimuli

PASSIVE SELF-REGULATION = allow sensory experiences to happen and then react

ACTIVE SELF-REGULATION = engage in behaviors to manage or control sensory input

BYSTANDERS miss more sensory cues than others

SEEKERS are busier and more engaged in sensory experiences

SENSORS react more quickly and more intensely than others

AVOIDERS are more likely to retreat from unfamiliar situations

Table 2.1 Summary of SP Patterns, Definitions, Descriptors

Sensory Processing Pattern	Definition	Descriptor	Neurologic Threshold	Self-Reg. Response
Registration	Misses sensory input	Bystander	High	Passive
Sensitivity	Detects Sensory Input	Sensor	Low	Passive
Seeking	Obtains Sensory Input	Seeker	High	Active
Avoiding	Bothered by Sensory Input	Avoider	Low	Active

Sensory Processing Responses

Children's Sensory Processing Responses	
Sensory processing pattern	Common child behaviors
Low registration Does not actively seek out experiences to meet sensory needs	<ul style="list-style-type: none"> • Shows little interest in surroundings • Rarely participates, especially when there is a lot of activity • Requires extra motivation
Sensory sensitivity Does not actively change environment; reactions to environmental stimuli might not be predictable	<ul style="list-style-type: none"> • Is easily startled by noises, visual stimulation, touch, movement • Freaks about things like a dog or spider, being near heels, loud noises • Is easily distracted by the environment, even minor changes
Sensory seeking Engages in behaviors to meet high neurological threshold	<ul style="list-style-type: none"> • Fidgets a great deal • Is active and restless • Seeks out sensory experiences: visual, auditory, tactile, and vestibular stimulation
Sensory avoiding Engages in behaviors to avoid over-stimulation due to low neurological threshold	<ul style="list-style-type: none"> • Is very sensitive to stimuli • Changes to routines, has difficulty with transitions and changes • Has difficulty engaging in social experiences

Thompson & Raisor, 2013, p. 40

Sensorimotor Checklist

- ▶ Work at your table to complete the self checklist and questions to ponder.

Sensorimotor Development: Milestones and Expectations

- ▶ Gross Motor
- ▶ Fine Motor
- ▶ Cognition
- ▶ Communication

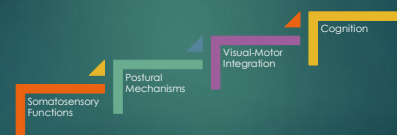
Gross Motor Development

- ▶ Reflexive to Voluntary
 - ▶ Gross to Fine
 - ▶ Integrated Stability to Mobility
- ▶ (Case-Smith, 2010, p. 307)

Activities to Develop Postural Stability

- ▶ Core strength is key!
 - ▶ Tummy time
 - ▶ Prone play beyond infancy
 - ▶ Army crawl
 - ▶ Tunnels
 - ▶ Scooter Boards
 - ▶ Exercise/yoga balls

Typical Fine Motor Development Requires



Exner, 2005

The First Year

- ▶ Gross Motor Milestones Support Fine Motor Development
 - ▶ Crawling
- ▶ Visual Skill Development Supports Eye-Hand Coordination
 - ▶ Contrasting Colors
 - ▶ Black & White
 - ▶ Red & Green
 - ▶ Dangling/Suspended Toys
 - ▶ Hand & Finger Puppets
 - ▶ Baby Safe Mirror
- ▶ Tactile Exploration is Beneficial
 - ▶ Textured Toys
 - ▶ Textured Books
 - ▶ Textured Blankets
 - ▶ Infant Massage

▶ Smith, 2011

Somatosensory Functions

- ▶ "Ability to Interpret our Tactile World and Respond Appropriately to Touch" (Bundy, Lane, & Murray, 2002, p. 44)
- ▶ Receptors in the Skin and Around the Joints (Bundy Lane, & Murray, 2002, p. 69)
- ▶ Fingertips Gather Information about Object Qualities
- ▶ Required to Sustain Objects in the Hand (Gordon & Forsberg, 1997, as cited by Exner, p. 306)
- ▶ Tactile Awareness
 - ▶ Needed to Judge Amount of Force Needed to Grasp or Lift an Object (Exner, 2005)

Activities to Develop Tactile Awareness

- ▶ Weight Bearing through Hands
 - ▶ Crawling and climbing
 - ▶ Wheelbarrow Walking
- ▶ Exploration of Textures with Hands
 - ▶ Textured Toys and books
 - ▶ Food play
 - ▶ Play in all indoor and outdoor environments
 - ▶ Textured Blankets
 - ▶ Fun Foam or Shaving Cream
 - ▶ Sensory Bin
 - ▶ Water and sand play
 - ▶ Oobleck or Goop
 - ▶ Finger Painting



Positioning For Fine Motor Activities

- Supine
- Crawling
- Prone on Elbows
- Vertical Surfaces
- Slanted Surface

- Nurek, K., Wendelburg, D., Patterson, K., 2010.

- Piacocini, V., Vance, D., 2001



Sensorimotor Development: Milestones and Expectations

- ▶ Sensory
 - ▶ Vestibular (balance and movement)
 - ▶ Proprioceptive (body position and force)
 - ▶ Tactile (touch)
 - ▶ Auditory (hear)
 - ▶ Visual (sight)
 - ▶ Olfactory (smell)
 - ▶ Gustatory (taste)

Red Flags for Sensory Concerns

from the STAR Institute for Sensory Processing Disorder (2006)

Red flags of Sensory Processing Disorder

If more than a few of the symptoms listed below fit your child, refer to the complete SPD Checklist.

Infants and toddlers

- ___ Problems eating or sleeping
- ___ Refuses to go to anyone but me
- ___ Irritable when being dressed; uncomfortable in clothes
- ___ Rarely plays with toys
- ___ Resists cuddling, arches away when held
- ___ Cannot calm self
- ___ Floppy or stiff body, motor delays

Red Flags for Sensory Concerns

from the STAR Institute for Sensory Processing Disorder (2006)

Red flags of Sensory Processing Disorder

If more than a few of the symptoms listed below fit your child, refer to the complete SPD Checklist.

Pre-schoolers

- ___ Over-sensitive to touch, noises, smells, other people
- ___ Difficulty making friends
- ___ Difficulty dressing, eating, sleeping, and/or toilet training
- ___ Clumsy; poor motor skills; weak
- ___ In constant motion; in everyone else's face and space
- ___ Frequent or long temper tantrums

Red Flags for Sensory Concerns

- ▶ Common Concerns
 - ▶ Biting
 - ▶ Aggression
 - ▶ Turn taking
 - ▶ Crying
 - ▶ Refusals
- ▶ Strategies for Sensory Development

Let's Play

- ▶ Movement Play is # 1
- ▶ More Sensory Play
 - ▶ Weight/heavy work
 - ▶ Food
 - ▶ Texture
 - ▶ Art and Drama
 - ▶ Outdoor

Resources

- ▶ American Academy of Pediatrics. (2012). www.healthychildren.org
- ▶ Division for Early Childhood. (2014). DEC recommended practices in early intervention/early childhood special education 2014. Retrieved from <http://www.dec-sped.org/recommendedpractices>
- ▶ Developmental Milestones and checklists
 - ▶ Pathways.org <https://pathways.org/topics-of-development/milestones/>
- ▶ Sensory Information
 - ▶ Activities for 0-18 months <https://pathways.org/sensory-activities-0-18-months/>
 - ▶ Sensory Integration Video https://youtu.be/1_lj8d9oY
 - ▶ Red flags for SPD https://www.spdstar.org/sites/default/files/file-attachments/red%20flags%20for%20SPD_0.pdf
 - ▶ Sensory Processing Disorder Checklist https://www.spdstar.org/sites/default/files/file-attachments/SPD%20Checklist_4.pdf
 - ▶ GoNoodle.com <https://www.gonoodle.com/>

Informative Websites

- ▶ www.sensoryintegration.org
- ▶ www.kidfoundation.org. The KID Foundation
- ▶ www.spdnetwork.org. resources for Sensory Processing Disorder Community
- ▶ www.sinetwork.org. sensory integration resources
- ▶ www.teachabout.com, Diane Henry OTR
- ▶ American Occupational Therapy Association Sensory Processing Resources: http://www.aota.org/-/media/corporate/files/aboutot/professionals/whatsot/cy/fact-sheets/factsheet_sensoryintegration.pdf
- ▶ http://www.naeyc.org/yc/files/yc/file/201305/Meeting_Sensory_Needs_Thompson_0513.pdf

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- ▶ Exner, C. (2005). Development of hand skills. In Case-Smith (5th Ed.), *Occupational Therapy for Children* 304-355. St. Louis, Missouri: Elsevier Inc.
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- ▶ Miller, L. (2006). What is sensory processing disorder? In L. Miller (Ed.), *Hope and help for children with sensory processing disorder*. (p. 3-18). New York, NY: Penguin Group.

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- ▶ Rathus, S. (2016). *Early childhood: Physical and Cognitive Development (4th Ed.)*. HDEV 144-145. Boston, MA: Cengage Learning.
- ▶ Smith, B. (2011). *From rattles to writing*. Framingham, MA: Therapro Inc.
- ▶ Smith, J. (2016). *Activities for Fine Motor Skills Development*. Garden Grove, CA: Teacher Created Resources, Inc.
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