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What is Sensory Integration?

Sensory integration was originated by A. Jean Ayers, an occupational therapist and educational psychologist who was also trained in neuroscience. Sensory integration is the way we organize information from our senses to help us understand our bodies, understand our environment and successfully interact in the world.

There are five main senses that tell us about the world: Touch, Sound, Sight, Taste and Smell. In addition, we have internal senses relating to our bodies that are required to help us function in the world: Proprioception and Vestibular.

Proprioception informs us of the position of our body parts through our muscles, ligaments and joints. Children who have difficulty with proprioception appear clumsy, distracted and awkward. Vestibular informs us of the position of our body and

head in space through receptors in our inner ears. Children who have difficulty with vestibular sensing may seek out spinning activities, might avoid playground equipment, or might seem uncoordinated (avoiding sports and gross motor activities).

What is sensory dysfunction?

Sensory dysfunction occurs when we are unable to process or organize the sensory information necessary to function smoothly in daily life. When sensory information is unclear, we may exhibit difficulty with learning, paying attention or planning and executing motor activities (i.e. motor planning skills).

Children who have sensory dysfunction may exhibit (1) high levels of frustration when trying to complete simple tasks, (2) difficulty interacting with their peers, (3) poor attention span, (4) poor handwriting, (5) difficulty with following directions, (6) an inability to sit still, or (7) poor coordination skills.

WHAT ARE SOME SIGNS OF SENSORY DYSFUNCTION?

- Poor attention span
- Can not sit still
- Difficulty following directions
- Poor endurance, and easily fatigues
- Jumps from one activity to another
- Difficulty with a change in routine
- Disorganized and messy
- A picky eater
- Poor awareness of personal space
- Poor balance
- Difficulty with throwing, catching or kicking a ball
- Fearful of movement
- Never gets dizzy (craves spinning/rolling)
- Avoids playground equipment
- Rocks body without realizing it
- Difficulty with cutting, writing, and coloring
- Poor pencil grip
- Difficulty staying on lines
- Difficulty manipulating small objects
- Poor directional concepts (left, right)
- Reverses letters, numbers, words, or phrases
- Inconsistent hand dominance
- Difficulty performing task which require eyes or extremities to cross the midline of the body
- Distress from unexpected or loud sounds
- Tendencies to hum or sing
- Avoids loud and crowded places
- Difficulty with grooming, dressing and undressing
- Poor toileting skills

Development of Hand Skills

Grasp Patterns:

- 1-2 years: Gross whole hand grasp
- 2-3 years: Over (pronated) approach
- 3-4 years: Thumb and fingers (radial-digital) grasp
- 3 ½ years and up: Three finger (tripod) grasp

Bilateral Skills

- 2 Years: Throw a ball forward and maintains balance
- 2 ½-3 years: Able to aim ball toward a target
- 3 ½ years: Able to throw a ball 5 to 7 feet toward a target
- 5 years: Able to throw overhand
- 6-7 years: Able to hit a target 12 feet away

Scissor Skills

- 2 years: Able to snip
- 2 ½ years: Can cut across a 6-inch piece of paper
- 3 to 3 ½ years: Able to cut on a line that is 6 inches long
- 3 ½ -4 years: Able to cut a circle
- 4 ½ - 5 years: Able to cut a square

Development of Prewriting and Handwriting in Children

- 10-12 months: Scribble on paper
- 2 Years: Imitates horizontal, vertical, and circular marks
- 3 Years: Copies a horizontal line, vertical line, and circle
- 4-5 years: Copies a cross, a square, right/left diagonal lines, some letters and numbers, and maybe be able to write own name
- 5-6 years: Copies triangle, prints own name, copies most lower/upper case letters

Development of Self-Dressing Skills

- 1 year: Pulls off shoes, removes socks, pushes arms through sleeves and legs through pants
- 2 year: Removes unfastened coat, removes shoes when laces are untied, helps pull down pants, finds armholes in t-shirts
- 2 ½ : Removes pull down pants with elastic waist, assists in pulling on socks, puts on front button coat or shirt, unbuttons large buttons
- 3 years: Puts on t-shirt shirt with minimal assistance, puts on shoes

- without fasteners, puts on socks, independently pulls down pants, zips/unzips jacket once on track, needs assistance to remove t-shirt, buttons large front buttons
- 3 ½ years: Snaps or hooks front fastener, unzips and separates zipper on jacket, puts on mittens, buttons series of three or four buttons, unbuckles shoe or belt, dresses with supervision
- 4 years: Removes pullover garment independently, buckles shoes or belt, zips jacket, puts on socks correctly, puts on shoes with assistance in tying laces, laces shoes
- 5 years: Ties and unties knots, dresses unsupervised



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