

Motor Development

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Fine Motor Development

- *Fine motor* refers to movement of the small muscles of the body which requires a high degree of control and precision. These skills may include picking up small items with a thumb and finger tip, playing with toys, drawing shapes, writing, cutting with a scissors, using eating utensils.



Gross Motor Development

- *Gross motor* refers to movements that involve large muscle groups and tend to be more broad and energetic. These skills include rolling, sitting, standing, walking, running, jumping and transitions (moving from one position to another).



Motor Development: 1-2 Months

Normal Development

- Strong interest in feeding
- Visually focuses on faces
- Turns head toward sounds
- Hands open more frequently
- When on tummy: Able to lift and turn head towards either side

Signs for Concern

- Lack of eye contact with caregivers
- Lack of interest and/or difficulty in feeding
- **Preference to turn head to one side only**
- Very stiff or very floppy

Motor Development: 3-4 Months

Normal Development

- Grasps toy or object for at least 1 minute
- Brings toy or hands to mouth
- Brings hands together
- Moves each arm and leg equally
- On their tummy, props on forearms to lift head and chest off of ground
- Turns head side to side

Signs for Concern

- Keeps hands fisted
- Moves arms and legs less on one side of the body compared to the other side
- Difficulty lifting head off floor when on tummy.
- Difficulty holding head upright
- Preference to turn head to one side only
- Very stiff or very floppy

Motor Development: 5-6 months

Normal Development

- Passes toy back and forth between both hands
- Helps hold bottle with both hands
- Pushes entire chest off floor with elbows straight
- Rolls from back to stomach
- Sits with hands on floor to balance self (prop sit)
- Stands with both hands held

Signs for Concern

- Unable to grasp or reach for toy
- Lack of interest in toys
- Unable to lift chest and head from surface when prone
- Trouble holding head upright
- Preference to turn head to one side only.
- Legs collapse when held in standing
- Excessively rounded back in sitting or pushes back strongly in sitting

Motor Development: 7-8 months

Normal Development

- Opens and uses all fingers to grasp a toy
- Bangs two toys together
- Imitates play such as banging one toy on another toy
- Sits alone
- Gets into crawling position
- Rolls equally over both sides
- Pivots or scoots on stomach

Signs for Concern

- Difficulty grasping toys or banging them together
- Uses one arm or hand more than the other
- Unable to sit alone
- Difficulty rolling or moving on the floor

Motor Development: 9-10 months

Normal Development

- Claps hands
- Grasps a small object between thumb and index finger
- Crawls on hands and knees
- Able to get into sitting alone
- Pulls up into standing using furniture
- Stands at furniture
- Cruises from side to side at furniture

Signs for Concern

- Not moving across the floor to get toys (crawling, rolling, pivoting)
- Uses mostly one arm and leg during play
- Difficulty using arms or legs
- Unable to straighten back in sitting
- Unable to take weight through legs in standing

Motor Development: 11-12 Months

Normal Development

- Pushes buttons on toys
- Turns pages of book
- Takes objects out and puts objects into container
- Cruises along furniture
- Stands alone
- Takes steps with or without help

Signs for Concern

- Difficulty picking up foods or finger feeding
- Only uses arms to move across floor or move into standing
- Stands with legs stiff or stands on tip toes
- Unable to pull to stand.

Motor Development: 15 Months

Normal Development

- Attempts to use a spoon
- Scribbles on paper with crayon
- Walks alone rather than crawls
- Climbs onto furniture
- Squats to pick up toy and returns to stand

Signs for Concern

- Not trying to pick up and play with small objects
- Not trying to feed self
- Unable to walk without support

Motor Development: 18 months

Normal Development

- Points to one body part
- Helps undress self
- Beginning to eat with a spoon
- Drinks from a cup
- Throws ball
- Stack 1-3 blocks
- Walks alone with control
- Walks up steps with help
- Pulls toy while walking
- Attempts to kick a ball

Signs for Concern

- Does not point to show things to others
- Not walking independently
- Loses skills he once had

Motor Development: 24 Months

Normal Development

- Drinks from a straw
- Feeds self with a spoon
- Helps with washing hands
- Puts arms in sleeves with help
- Builds a tower of 3-4 blocks
- Opens cabinets, drawers, boxes
- Operates a mechanical toy
- Tosses or rolls a large ball
- Bends over to pick up a toy without falling
- Walks up steps with help/holding rail
- Takes steps backward
- Walks and runs well
- Climbs on playground equipment or furniture
- Begins to ride a tricycle

Signs for Concern

- Doesn't try to open cabinets, containers, drawers
- Has difficulty building a tower of blocks
- Unable to help in hand washing
- Has difficulty walking backwards
- Unable to climb stairs with help
- Primarily walks on toes
- Falls frequently

Motor Development: 3 years

Normal Development

- Feeds self using utensils (with some spilling)
- Holds a cup in one hand
- Opens doors
- Puts on shoes (but not tie laces)
- Dresses self with help
- Washes and dries hands alone
- Holds a crayon well
- Throws a ball overhead
- Walks on tiptoes if shown how
- Kicks a ball forward
- Jumps with both feet (off a step and forward on the ground)
- Pedals a tricycle

Signs for Concern

- Doesn't open and close doors
- Has difficulty holding a crayon or feeding self
- Unable to kick a ball or throw a ball overhead
- Unable to walk up steps or jump with both feet
- Primarily walks on toes
- Falls frequently

Cincinnati Children's Parent Education

web based

Cincinnati Children's Health Topics:

- Growth and Development

Other helpful Health Topics:

- Babies/Infants
- Cerebral Palsy
- Healthy Eating

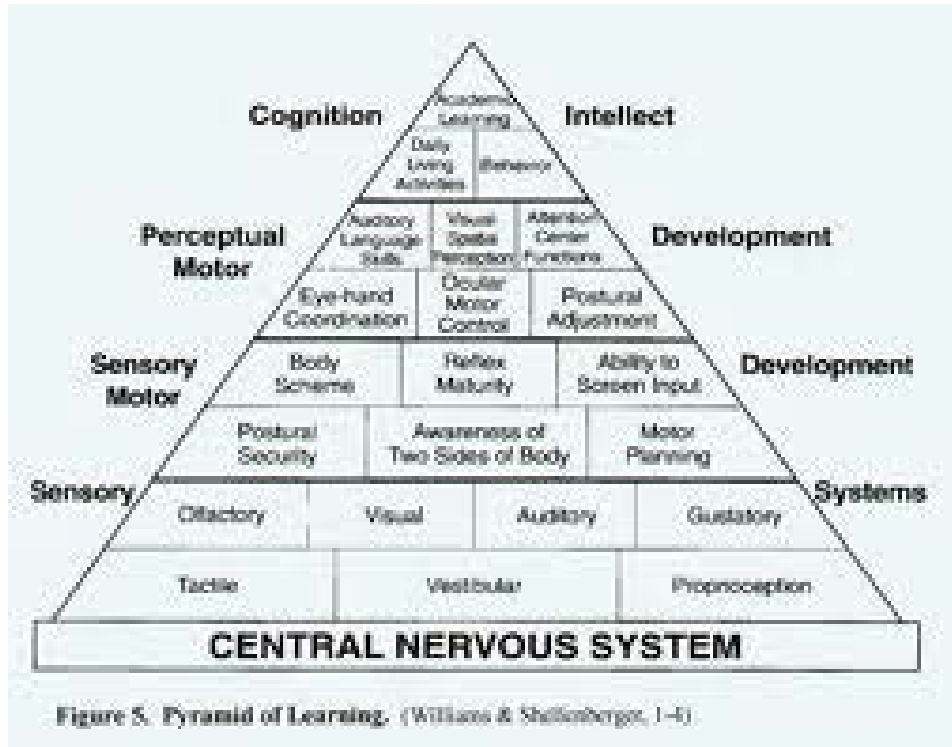
Sensory Processing / Early Childhood Development



Sensory Processing Disorders / Difficulties (SPD)

- Sensory Integration or Sensory Processing refers to the brain's ability to process information correctly from all the senses
- Sensory Processing Disorder/ Sensory Integrative Disorder, Disorder of Sensory Integration, Sensory Processing Difficulties are some terms being used to describe a complex disorder of the brain characterized by poor or inadequate processing of sensory information. It is currently not recognized in the DSM-4.

Sensory Processing



Sensory Skills are the foundation for higher learning.

Skills including self-help skills and academic learning skills.

The 7 Senses

- Tactile/Touch *
- Auditory/Sound
- Olfactory/Smell
- Visual/Sight
- Gustatory/Taste
- Vestibular/Movement *
- Proprioceptive/Body Awareness *

*Sensory interventions in OT tend to focus on these 3 sensory systems

Sensory Threshold

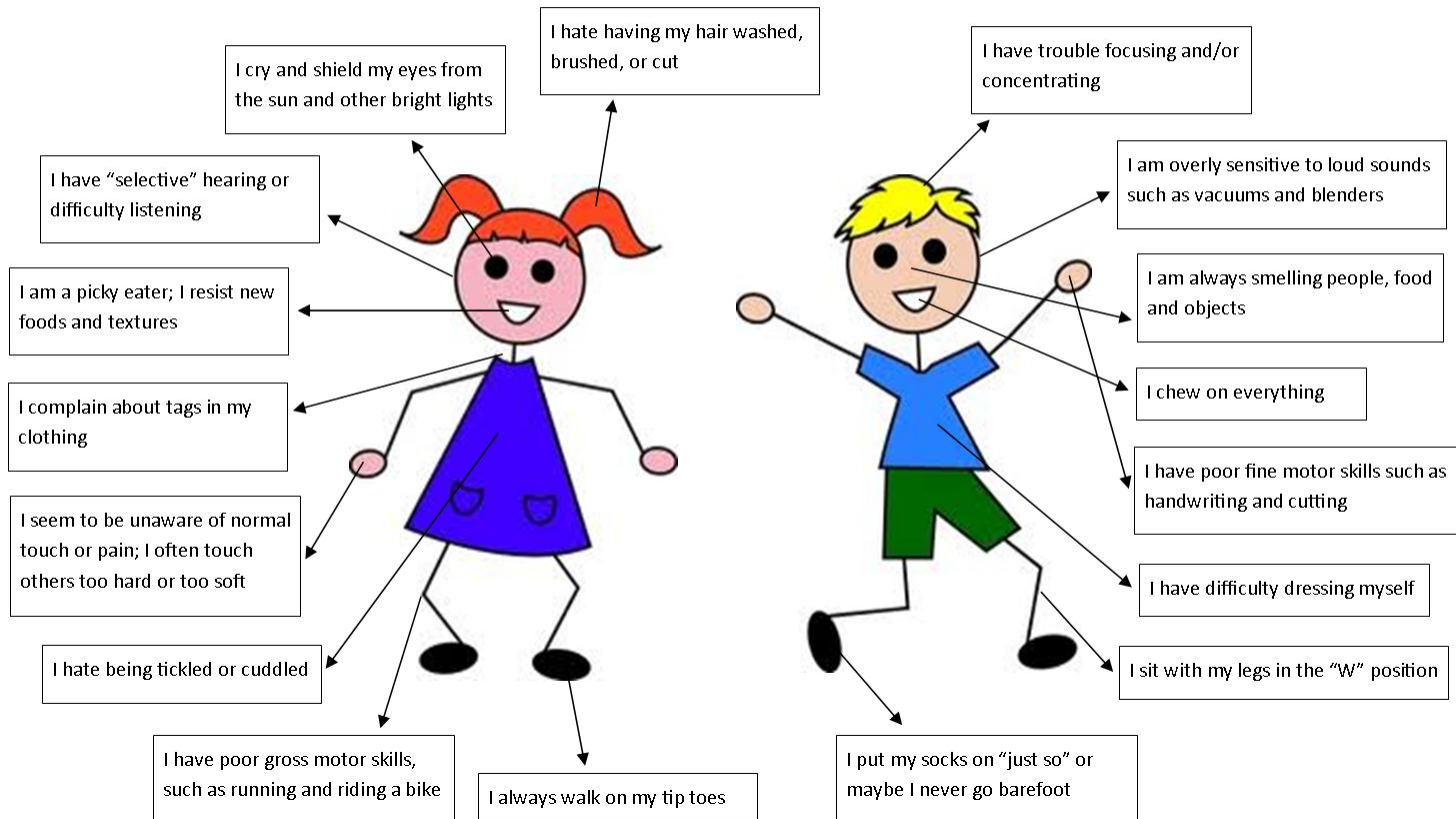
- The sensory threshold is the level at which a person becomes aware of the sensory input and can process the sensation.
- The body needs to receive enough sensation to reach the threshold and perceive the sensation.
- Thresholds vary for every person and can vary throughout the day. They can be dependent on stress and fatigue.

Sensory Processing

- Hyposensitive / under responsive
 - Can involve 1 or more systems
- Hypersensitive /over responsive
 - Can involve 1 or more systems
- Sensory seekers
- Motor Planning Difficulties

Signs of Sensory Processing Disorders

Signs of Sensory Processing Disorders:



Hypersensitive / Over-Responsive Children

- These children over respond to sensory input. It can be with one or many sensory systems
- These children may...
 - Fear movement or a change in body position
 - Have strong clothing preferences
 - Dislike unexpected touch
 - Not like to be cuddled or held
 - Cover their ears frequently
 - Avoid certain textures
 - Dislike being barefoot in grass or sand
 - Dislike bright lights or busy places/crowds



Hyposensitive/Under-Responsive Children

The under responsive child does not register sensory information well. They may seem indifferent to sensory input.

- These children may...
 - Respond slowly
 - Seem unaware of the environment
 - Have a high pain tolerance
 - Not notice when they are dirty, wet or clothing is twisted
 - May appear slow, unmotivated, unaware or have limited facial expression.
 - Use a lot of force when walking and/or grasping



Sensory Seekers

- These children seem to have an insatiable need for sensory sensations
- These children may...
 - Have a high activity level - always on-the-go
 - Intrude on others
 - Touch everything including other people
 - Mouth things
 - Prefer foods that have strong flavors
 - Seek out or make lots of noise
 - May be risk takers

Motor Praxis/Motor Planning

Motor planning or praxis is the ability of the brain to conceive, organize, and carry out a sequence of unfamiliar actions.

1. Ideation or generating an idea of how one might interact with the environment.
2. Motor planning or organizing a program of action.
3. Execution or the actual performance of a motor act.

Motor Planning

- These children have difficulty forming a plan, organizing the plan and carrying it out. This is especially true with new or unfamiliar tasks.
- These children may...
 - Be clumsy
 - Be messy
 - Play with toys the same way with little variation
 - Prefer sedentary or imaginary play to sports
 - Have trouble learning new skills
 - Have trouble coming up with ideas of how to play

Finding the Just-Right Challenge

- You can help your child with motor planning problems by finding the just right challenge for motor activities and helping them learn to problem solve.
- It may be helpful to have other children model a new motor plan or to use video modeling.
- Oral motor skills may be especially hard because there is no visual feedback so working in a mirror may be helpful.

State Control

- When we are alert, calm, attentive and focused we are in a state that is optimal for learning new information and skills.
- Often reaching and staying in this 'Just Right' state can be a challenge for any toddler but can especially difficult for children with sensory processing difficulties.
- Sensory input can help

Calming Sensory Activities

- Slow rhythmic rocking
- Heavy work and deep pressure
- Joint compressions or massage
- Chewing or sucking
- Warm items including drinks
- Music with predictable beat/rhythm
- Pressure vests or form fitting clothing

Alerting Sensory Activities

- Quick unexpected movements or crashing
- Off beat music
- Carbonated drinks
- Cold items including drinks
- Vibration
- Swinging high or spinning
- Bright lights
- Spinning or fast moving objects or lights

Sensory Issues with Feeding



Sensory Feeding

Under-Responsive

- May prefer strong flavors and crunchy foods
- May overstuff or pocket foods.
- May be messy eaters-unaware of food on face or foods may spill out.
- May struggle with wet / slippery foods-harder to control.
- May mouth lots of non-food items/toys even after it is developmentally appropriate.

Over-Responsive

- May gag on some textures. Often as soon as the food texture registers in the mouth
- Push out certain foods / textures
- May show a strong dislike for tooth brushing
- May not mouth toys as an infant or only mouthed smooth toys like the pacifier.

Oral Motor

- Oral motor delays are often seen in children with oral sensory issues.
- Skill delays may lead to oral sensory issues or oral sensory difficulties may impede skill progression.
- Children with oral sensory issues may present with food neophobia (a fear of trying new foods)
- Sometimes other sensory sensitivities can impact willingness to try or tolerate foods. (ie. tactile)

How to refer to OT/PT

- A physician's order is required when making a referral to OT/PT at CCHMC.
- Orders can be faxed to the OT referral fax line 636-7975.
- When requesting a referral specifics regarding the main concerns can be helpful.

Resources and Recommended Reading

Sensory Processing

- ***Building Bridges through Sensory Integration*** by Yack, Aquilla and Sutton
- ***Quirky Kids*** by Klass and Costello
- ***Sensational Kids*** by Lucy Jane Miller
- ***SenseAbilities-Understanding Sensory Integration*** by Trott, Laurel and Windeck
- ***Sensory Integration and the Child*** by Jean Ayers
- ***The Out of Sync Child*** by Carol Kranowitz
- ***The Out of Sync Child Has Fun*** by Carol Kranowitz
- ***Tools for Tots-Sensory Strategies for Toddlers and Preschoolers*** by Diana Henry

Helpful Resources

- ***Food Chaining*** by Cheri Fraker
- ***Just Take a Bite*** by Lori Ernsperger and Tania Stegen-Hanson
- ***Treating Eating Problems*** by Keith Williams and Richard Foxx
- ***Diagnosis and Treatment of Feeding Disorders*** by Chatoor
- ***Great Therapy Ideas*** by Boshart
- ***Pre-feeding Skills*** by Morris and Klein
- ***Feeding and Swallowing Disorders in Early Infancy-*** by Wolf and Glass
- ***Tools for Tots*** by Diana Henry, Kane-Wineland and Susan Swinderman

Thank You

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