



## Fine Motor Development

Presented by:  
Tara-Leigh Cain, BScOT  
Occupational Therapist  
Play In Motion Child Development Center

tara@playinmotion.ca

---

---

---

---

---

---

---

---

## Fine Motor Development Goals

Participants will receive knowledge of fine motor developmental milestones and skills to help enhance fine motor abilities in children.

---

---

---

---

---

---

---

---

## Fine Motor Coordination

- ▶ Involves the ability to control the small muscles of the body to accomplish a task such as eating, dressing and printing
- ▶ Control of the small muscles all starts with the control of the larger muscles in the body; for example, trunk, shoulders, arms and hands

---

---

---

---

---

---

---

---



Infants begin to explore the environment by manipulating objects and gathering valuable information about the physical characteristics. This eventually provides perceptual information necessary to make future judgments without the need for physical contact. The need for fine motor skills begins here.

---

---

---

---

---

---

---

---

## The Importance of Fine Motor Skills

- ▶ Children spend approximately 60-70% of their time at school completing fine motor work
- ▶ Approximately 12% of children experience difficulty in this area

---

---

---

---

---

---

---

---

## Consequences of Fine Motor Difficulties

1. Decreased social Skills/level of independence
  - difficulty with dressing, eating
2. Poor Academic Performance
  - as grades increase, there is more of a need for precision and speed in handwriting to keep up with classroom expectations
3. Psychological/Emotional Difficulties
  - frustration, decreased self esteem, rejection from classmates

---

---

---

---

---

---

---

---

## Observable Behaviours of Children with Fine Motor Difficulties

- Difficulty with writing; poor grasp leading to poor form, fluency, and frequent discomfort when writing
- Difficulty controlling speed of movements leading to excessive speed and resultant untidy work, or work not being completed due to overly slow movements
- Difficulty with precision grip and inaccurate release and therefore problems with games that involve placement of pieces
- Difficulty with spatial relations leading to difficulties with design and copying

---

---

---

---

---

---

---

---

## Observable Behaviours of Children with Fine Motor Difficulties (continued)

- Tearing paper and/or breaking pencils due to force-control difficulties
- Difficulty with learning to dress and undress
- Preference for outdoor activities
- Clumsiness and frustration: spills food, drops objects, breaks objects
- Frustration towards and/or resistant behaviour to manipulative and graphic tasks
- Excessive muscular tension when performing fine motor tasks

---

---

---

---

---

---

---

---

## Fine Motor Components

- I. Posture
  - ▶ trunk, shoulder, wrist, hand
- II. Motor Coordination
  - ▶ spatial awareness, visual motor, motor planning, bilateral integration
- III. Vision
  - ▶ acuity, oculomotor, perception

---

---

---

---

---

---

---

---

## Fine Motor Components (continued)

### IV. Attention

- concentration on task or task instructions

### V. Technology

- the use of technology to help compensate for fine motor delays
- the effects of technology on fine motor development

---

---

---

---

---

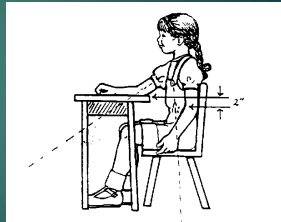
---

---

---

## I. Posture...Trunk

- ▶ Ankles, knees, hips should be at 90 degrees with desk height 2" above elbow.
- ▶ This is ideal for best written output but provide opportunities to practice printing/painting/coloring in other positions to help increase and develop shoulder strength
- ▶ For older children, use of a therapy ball or a move-in-sit is beneficial for increasing trunk strength



---

---

---

---

---

---

---

---

## Posture...Shoulder

- ▶ Strength and mobility of shoulder muscles determines wrist and hand control (lots of tummy time for babies!)



---

---

---

---

---

---

---

---

## Posture...Shoulder



- ▶ Working on a vertical (wall) or slant board improves trunk strength and shoulder mobility.

---

---

---

---

---

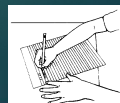
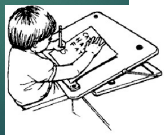
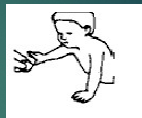
---

---

---

## Posture...Wrist

- ▶ Wrist extension (up) helps position and strengthen the hand.
- ▶ This position is necessary for controlled and sustained finger use.
- ▶ Use vertical surface, slant board and correct paper position.



---

---

---

---

---

---

---

---

## Posture...Hand

### 10-12 months:

- Use of pincer grasp
- Can voluntarily release objects to another person

### 13-18 months:

- Using pincer grasp to pick up and release small objects into container (ie, cheerios)
- Uses 2 hands in play; one to hold or stabilize and one to manipulate

### 19-24 months:

- Grasping 2 objects with one hand

---

---

---

---

---

---

---

---

## Posture...Hand

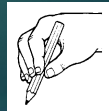
- ▶ Palmar grasp (2 yrs)



- ▶ Digital Pronation (3 yrs.)



- ▶ Static tripod with arch (4 yrs) OK!



---

---

---

---

---

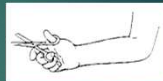
---

---

---

## Posture...Hand (con't)

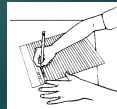
- ▶ Individuated finger movements (3-5 yrs)



- ▶ Web space and dynamic tripod grasp (4-5 yrs)



- ▶ Precision skills (5-6 yrs)



---

---

---

---

---

---

---

---

## II. Motor Coordination

- ▶ Spatial Awareness
  - ▶ Visual Motor
  - ▶ Motor Planning
  - ▶ Bilateral Control

---

---

---

---

---

---

---

---

## Spatial Awareness

- ▶ Children need to understand spatial language both verbally and physically
- ▶ Common terms that they need to know are: under/over; up/down; in/out; in front of/behind/next to; left/right; forward/back; top/bottom
- ▶ Shape language: circle, square, triangle
- ▶ Size language: big/bigger; small/smaller; little/large
- ▶ Time language: slow/slower; fast/faster

---

---

---

---

---

---

---

---

## Spatial Activities

- ▶ Play hide and seek with toys
- ▶ Practice crossing midline while playing
- ▶ Dancing to music – when the music stops, ask child to move in relation to an object
- ▶ Use of a bean bag – have child place the bean bag according to certain spatial commands
- ▶ Busy body parts – call out a body part and have the child touch that body part

---

---

---

---

---

---

---

---

## Spatial Activities (con't)

- ▶ *Kinesthetic awareness/proprioception* is the next step in spatial awareness
- ▶ this refers to the awareness (without vision) of where the body parts are in space and the position, force and extent of their movement; for example, reaching and grasping with accuracy
- ▶ A child with proprioceptive deprivation may have difficulty with keeping balance, running, jumping, climbing, buttoning or tying shoelaces

---

---

---

---

---

---

---

---

## Kinesthetic/Proprioceptive Activities

- ▶ Bean bag game – but complete with eyes closed
- ▶ Placing object approximately one foot away, have child close his/her eyes and reach and obtain object
- ▶ Drawing pictures with eyes closed (ie, simple shapes)
- ▶ Building block towers with eyes closed

---

---

---

---

---

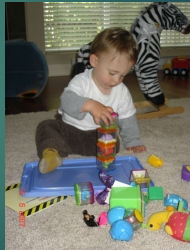
---

---

---

## Visual Motor Control

- ▶ Refers to the coordination of the eyes and hands together
  - Building blocks
  - Beads and strings
  - Eating, dressing



---

---

---

---

---

---

---

---

## Visual Motor Activities

- Picking up objects with thumb and index finger and put in a container
- Stringing beads
- Lacing activities
- Marbles
- Bean bag throw into hoop
- Building blocks
- Puzzles
- Balloon activities

---

---

---

---

---

---

---

---



## Motor Planning

- Motor planning refers to the ability to carry out skilled, nonhabitual motor acts in the correct sequence, which is a very necessary component of all fine motor skills
- A child with good motor planning skills seems to learn new motor activities quickly and easily
- A child with motor planning difficulties needs more assistance and cues to learn and sequence tasks; and they require more practice when learning fine motor skills

---

---

---

---

---

---

---

---

## Motor Planning Strategies

- ▶ Give the child as much feedback as possible, use all sensory systems: give them verbal feedback (tell them what to do), tactile (touch them to show them how to do it) and visual (draw pictures of the steps)
- ▶ Help improve the child's 'body map' (knowing where your body parts are and what they are doing) by talking about body parts, using dolls, in the mirror etc

---

---

---

---

---

---

---

---

## Motor Planning Activities

- ▶ Obstacle Course: start with 2 activities and increase as child is successful (ie, walk on a tape line and then hop over a ruler)
- ▶ Play imitation games or songs and stories that involve imitating movements (ie, Simon Says)
- ▶ Dot to dot sheets for older children

---

---

---

---

---

---

---

---

## Bilateral Control

- ▶ Bilateral control is the ability to coordinate the movements of the left and right sides of the body efficiently and smoothly.
- ▶ The term applies to both gross motor and fine motor activities.



---

---

---

---

---

---

---

---

## Bilateral Control cont

- ▶ In all fine motor bilateral activities, each hand takes on a specific role:
  - The Worker Hand** generally holds the tool or directs the action.
  - The Helper Hand** stabilizes the object.
- ▶ The Worker Hand is usually more skilled with dexterous movements, especially when holding and using objects.
- ▶ This hand is usually considered to be the dominant hand.

---

---

---

---

---

---

---

---

## Bilateral Control Stages of Development

- ▶ 1 – 3 months: awareness of two hands.
- ▶ 3 – 6 months: reach hands out together to get an object.
- ▶ 5 – 10 months: transfer objects between hands.
- ▶ 10-12 months: uses pincer grasp to pick up small objects
- ▶ 13 – 18 months: stabilizes with one hand, manipulates object with the other; for example, hold drum with one hand while the other hits it with a stick.
- ▶ 18 – 36 months: both hands manipulate but do different actions.
- ▶ **Hand dominance develops by age 3 and should be firmly established by age 5**

---

---

---

---

---

---

---

---

## Bilateral Control Crossing Midline

- ▶ The ability to pass information between both sides of the brain requires the ability to cross midline
- ▶ Crossing midline is required to make letters that have both horizontal and diagonal movements ie, X, T, H, K, R, A
- ▶ Inability to cross midline can be very confusing and frustrating for children and this can cause 2-3 year fine motor delays

---

---

---

---

---

---

---

---

## Teaching Scissor Skills A bilateral activity

Break down into steps:

- ▶ shoulder back/forth
- ▶ hand open/close
- ▶ combine above
- ▶ cut with resistance (straws, cardboard strips)
- ▶ cut straight, fat lines (NO CURVES)!

Work on hand strength:

- use of water bottle
- use of tongs to pick up objects

---

---

---

---

---

---

---

---

## III. Vision

- ▶ Function in 3 components is necessary to accurately develop visual skills:
  - ▶ Acuity (*eye ball*)
  - ▶ Oculomotor (*muscles of eye*)
  - ▶ Perception (*integration and memory*)

---

---

---

---

---

---

---

---

## IV. Attention

- ▶ Observe...
  - ▶ difficulty attending to task (norm is 3 minutes for each year of age)
  - ▶ unable to attend to task instructions
- ▶ Implement...
  - ▶ decrease visual and auditory stimuli
  - ▶ Sensory Motor warm up exercises
  - ▶ individual Sensory Observations and Strategies

---

---

---

---

---

---

---

---

## VI. Technology

- ▶ If fine motor difficulties continue to persist when the child is in grade 4-7, then can focus on implementing compensatory strategies (use of a computer)



---

---

---

---

---

---

---

---

## Technology Effects on fine motor development

- Numerous studies have shown links between the increased use of technology and the increased diagnosis of mental and physical impairments in children
- Infants to 2 years of age are watching an average of 2.2 hours of television PER DAY!
- Elementary kids are watching 6.5 hours of television and video games!
- Visual and auditory systems are being bombarded but proprioceptive and movement systems are not getting as much input which has resulted in the increase in motor delays and impairments.

---

---

---

---

---

---

---

---

## Fine motor developmental milestones

1. General manipulation
2. Scissor skills
3. Prewriting

---

---

---

---

---

---

---

---

## General Manipulation

- ▶ 12 months:
  - uses pincer grasp
  - voluntarily releases object
  - puts objects in and takes them out of a container
  - places one block on top of another
- ▶ 18 months:
  - ▶ Uses pincer grasp to pick up small object and place in container
  - ▶ Stacks 3 or more blocks
  - ▶ Holds two toys in one hand
  - ▶ Turns pages of a book (hard cover, more than one at a time)
  - ▶ Takes off socks

---

---

---

---

---

---

---

---

## General Manipulation

- ▶ 24 months:
  - ▶ Opens doors, takes lids off of jars
  - ▶ Strings large beads
  - ▶ Stacks 4-7 blocks
  - ▶ Raises and drinks from a cup and then replaces it on the table
  - ▶ Get spoon into mouth right side up so food doesn't spill
- ▶ 36 months:
  - ▶ Stacks 6-8 blocks
  - ▶ Turns pages of a book singly
  - ▶ Nests 3 objects by size
  - ▶ Sorts dissimilar objects ("give me all the spoons")
  - ▶ Completes inset puzzles of 2-4 pieces

---

---

---

---

---

---

---

---

## General Manipulation

### 4 years old

- ▶ Stacks 9-10 blocks
- ▶ Imitates block designs of 4 blocks
- ▶ Works inset puzzles of 3-8 pieces
- ▶ Sorts small objects by one attribute at a time: color, shape, size and detail

### 5 years old

- ▶ Laces sewing card
- ▶ Completes 3-9 piece puzzle
- ▶ Folds and creases paper twice
- ▶ Attaches paper clip to paper
- ▶ Imitates block designs of 4-6 blocks
- ▶ Organizes 3-5 objects by size

---

---

---

---

---

---

---

---

## Scissor Skills

### 2-3 years

- ▶ Can place scissors correctly on fingers and open and shut appropriately
- ▶ Can hold scissors in dominant hand and bring paper into them with assisting hand
- ▶ Can snip into paper

### 3-4 years

- ▶ Cuts forward with scissors across 3-4 inch strip
- ▶ Cuts forward across 6-8 inch strips
- ▶ Cuts forward on 1 inch path across 3 inch strip

---

---

---

---

---

---

---

---

## Scissor Skills

### 4-5 years

- ▶ Cuts on curved and angled paths of 1 inch, turning paper with assistor hand
- ▶ Cuts out circle, square and triangle
- ▶ Cuts on lines with irregular turns

### 5-6 years

- ▶ Cuts out simple figures (apple, car, fish)
- ▶ Cuts out complex figures (house, boy, flower)

---

---

---

---

---

---

---

---

## Prewriting Skills

- ▶ 2-3 years
- ▶ Imitates vertical lines
- ▶ Imitates horizontal lines
- ▶ Copies vertical lines
- ▶ Imitates circle
- ▶ Copies horizontal lines
- ▶ Copies circle
- ▶ 3-4 years
- ▶ Imitates vertical-horizontal cross
- ▶ Copies vertical-horizontal cross
- ▶ Grossly colors one object with some attempt to stay within the lines
- ▶ Draws 2-part person (head and either legs or arms)

---

---

---

---

---

---

---

---

## Prewriting Skills

- ▶ 4-5 years
- ▶ Traces vertical and horizontal line, deviating no more than half an inch
- ▶ Copies diagonal line
- ▶ Imitates a square
- ▶ Imitates a triangle
- ▶ Grossly colors fair sized objects, within lines
- ▶ Draws 3 part person
- ▶ 5-6 years
- ▶ Copies a triangle
- ▶ Traces and imitates letters and numbers
- ▶ Imitates and copies letter of name
- ▶ Draws person with head, facial parts, arms, legs, trunk, hands and feet
- ▶ Prints name

---

---

---

---

---

---

---

---