Fine motor skills

Getting little hands working in the classroom → impact on handwriting

Mitch Cook
Elise Hogan
4th Year Occupational Therapy Students
The University of Sydney
The OT role in the school setting

- Occupational therapists (OT’s) aim to **maintain or improve function** across occupations.

- In the school environment this may include assisting students with:
  
  - **Fine motor skills**
  
  - **Gross motor skills**
  
  - **Visual perceptual skills**
  
  - **Sensory processing**
  
  - **Physical access**
Outline of presentation

• Definition, and importance of fine motor skills

• Factors influencing fine motor development
  • Posture / core stability
  • Sensory awareness

• Components of fine motor skills
  • Finger and hand strength
  • Finger isolation and pincer grasp
  • Bilateral integration
  • In hand manipulation
  • Thumb opposition
  • Joint laxity
  • Pencil grasps

• Activities to promote fine motor development
Fine motor definition

The ability to control and coordinate the small muscles in the hand for precise movements.
Importance of fine motor skills

- Fine motor skills build the foundation for varied skill development
  - Precursors to literacy and numeracy development
  - Facilitate independence, i.e., buttoning, dressing, tying shoe laces

- Children with poor fine motor skills may avoid activities or present as frustrated.
Factors influencing fine motor skills

- **Postural Control**
  - Ability to maintain and change the position of the trunk and neck.
  - A stable seated posture is necessary to achieve effective hand use and manipulation.
  - Poor postural control may lead to fatigue and disengagement.
Factors influencing fine motor skills

- **Sensory Awareness**
  
  - Body awareness is understanding where our body parts are and what position they are in without visual feedback.
  
  - Poor body awareness impacts fine motor skills as the child does not have a clear picture of how their body has to move in order to perform a task.
  
  - Eg: Reduced sensory awareness may result in heavy pencil pressure.
Finger and Hand Strength

- When the muscles in the forearm and hand are slow to develop, weakness and incoordination may result.
- Impacts grasp, pressure used while writing and finger pinch ability

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>FM Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger aerobics</td>
<td>Finger tip squeeze: finger tips together and pushing</td>
<td>Good warm up activity before writing. Engages all muscles in the hands especially the index finger and thumb (which are essential for handwriting)</td>
</tr>
<tr>
<td></td>
<td>Finger Wars: touch the index finger and thumb together for both hands, combine them and attempt to pull apart</td>
<td></td>
</tr>
<tr>
<td>Lego Building</td>
<td>Interlocking lego pieces to construct structures. After structure has been built instruct student to “demolish” the structures one piece at a time</td>
<td>The materials and tools provide resistance in this task which aids in building strength in the hand and fingers.</td>
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## Finger and Hand Strength

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<tr>
<td>Bubble wrap</td>
<td>Pop the bubbles on large or small bubble pack by pinching with thumb and index finger or by pushing down on bubbles when sheet is placed on a hard surface.</td>
<td>Builds strength in fingers, especially the index and thumb. Can be used as a reward to a completed task.</td>
</tr>
<tr>
<td>Squeezing toys and materials, hungry tennis ball</td>
<td>Can be used during craft activities where paper or fabric may need to be scrunched to make an artwork</td>
<td>Engaging all the muscles in the hand to flex and extend whilst holding material. Can have the option of just using the dominant hand to strengthen intrinsics and as a result increase endurance of handwriting.</td>
</tr>
<tr>
<td>Playdough in the classroom</td>
<td>Giving students directions about how you want the playdoh to be manipulated. Eg: squeezing, pushing, stretching, moulding</td>
<td>Concentrates on a child's grip strength and pinch strength for functional activities.</td>
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## Finger Isolation and Pincer Grip

The pincer grasps allows for a more refined and neater way to manipulate small objects in the classroom (pencil, paper, scissors, etc).

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<td>Computer Typing activities</td>
<td>Incorporating computer activity games where the students use specific digits for areas of the keyboard</td>
<td>Useful for learning to use a keyboard properly and also to develop finger isolation movement.</td>
</tr>
<tr>
<td>Tissue paper, stencil and glue artwork</td>
<td>Encourage the students to use their index finger and thumb to tear the paper, scrunch it and put it with a stencil to make a pattern</td>
<td>Developing the isolation of the pincer grasp during art activities in an engaging way.</td>
</tr>
<tr>
<td>Hungry Tennis balls</td>
<td>Tennis ball with hole, students need to feed the tennis ball with beads using pincer grip from both hands</td>
<td>Challenging the pincer grip on both hands. One hand is involved with squeezing the tennis and the other is focused on precision of pincers.</td>
</tr>
</tbody>
</table>
Bilateral Integration

- Ability to use both sides of the body at the same time in a controlled and organised manner.

- A child with poor coordination of both sides of the body may have difficulty controlling one hand while the other hand is doing something else.

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<td>Simon says</td>
<td>Listening game which involves following instruction</td>
<td>Integrating actions which involve both sides of the body.</td>
</tr>
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</table>
| Art Projects, maths activities | • Stringing beads.  
• Tracing around stencils  
• Finger painting. | Presenting opportunities for integration of information about movement of two hands working together |
In hand manipulation

- The ability to move and position objects within one hand without the assistance of the other
- **Translation** – movement of object between palm and fingertips and fingertips to palm
- **Shift** – movement objects between fingers
- **Rotation** – turning of an object around using the pads of the fingers
### In hand manipulation

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<td>Bingo</td>
<td>‘Hide’ counters in palm of dominant hand. Move counters to card using fingertips of same hand</td>
<td>Builds translation skills</td>
</tr>
<tr>
<td>Sight words</td>
<td>Pick up scrabble tiles and hide them in palm to spell sight words.</td>
<td>Builds translation skills</td>
</tr>
<tr>
<td>Number activities</td>
<td>Rotate dice within the fingertips of one hand to find a number.</td>
<td>Builds rotation skills</td>
</tr>
<tr>
<td>Pencil exercises</td>
<td>Pencil walks, Pencil rolls, Pencil windmills</td>
<td>Builds shift, rotation skills</td>
</tr>
</tbody>
</table>
+ Hungry Tennis Ball
Joint Laxity

- Joint laxity can affect how a student grasps and controls small objects.

- Lax joints refers to joints that can extend beyond a normal range and hyper-extend.

- Refer to activities of hand strengthening to improve lax joints.
**Thumb opposition**

- Ability to turn and rotate the thumb to touch each of the fingertips
- Importance for grasping objects of different sizes

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<td>Hungry tennis ball</td>
<td>Make a slit in a tennis ball. Squeeze the ball with thumb, index and middle fingers to open. Feed with beads, counters or letters. The wider the slit, the easier it will be to open the mouth wide.</td>
<td>Encourages an open web space.</td>
</tr>
<tr>
<td>Shuffling Cards</td>
<td>Use both hands to shuffle cards with palms cupped</td>
<td>Encourages an open web space</td>
</tr>
<tr>
<td>Geoboards</td>
<td>Make shapes and letters using rubber bands on geoboards.</td>
<td>Develops the precision side of the hand</td>
</tr>
<tr>
<td>Ziplock bags</td>
<td>Place objects in ziplock bags and seal. This may be a good pack up activity</td>
<td>Encourages using fingertips to press and seal</td>
</tr>
</tbody>
</table>
Pencil grasp – dysfunctional

**Causes:**
- lack of experience (kindergarten)
- reduced strength and hand manipulation skills
- joint laxity
- poor sensory feedback

**What to look for in the classroom:**
- thumb wrap is common
- pressure through the finger joints (skin appears white around the joint)
- Child taking lots of breaks, complaining of pain
- Poorly controlled writing
Pencil Grasp – Dysfunctional

Thumb Wrap

Thumb Tuck
Pencil grasp – dysfunctional

tripod closed web space

Adapted Tripod

5 Finger
Pencil grasp – functional
Pencil grips

Cross over grip

The pencil grip
Take home message

- Importance of a regular fine motor activities within the classroom
- Importance of in hand manipulation activities
- Use of thicker diameter pencils for longer
References


http://therapystreetforkids.com