

In-Hand Manipulation

What is it?

In-Hand Manipulation skill refers to the ability move and position objects within one hand without the assistance of the other hand. Examples include moving coins in the palm, twirling a pencil within the fingers and turning a coin from heads to tails. It is, perhaps, the most complex fine motor skill. Three types of skills have been identified as being important components of in-hand manipulation. These are translation, shift and rotation. Translation is the movement of objects between the palm and fingertips, similar to moving coins from the palm to the fingertips to place them into a vending machine slot. Shift involves moving objects between the fingers. An example is "walking" the fingers along the shaft of a pencil, from eraser to pencil tip. Rotation is the turning of an object around using the pads of the fingers, such as flipping a pencil around so its point end is where the eraser end was. All of these components are needed to get the object oriented so it's just right for using, viewing or grasping.

Why is this important?

Children who have difficulty with in-hand manipulation may need to use both hands for activities that would typically require only one. Or they may need to unnecessarily stabilize an object against their body or an external support to get the job done. They may appear clumsy when handling objects or be slow to complete projects. Many daily activities require this high level hand skill. Examples include positioning a pencil when writing and drawing, adjusting grip on paper when cutting with scissors, using a fork and knife. Positioning buttons, zips and laces for dressing involve these subtle hand movements. Operating tools, handling nuts and bolts, nails, turning a screwdriver-- all involve in-hand manipulation ability.

Activities to help develop skills

- Pick up a small object with fingers such as a bead, coin and "hide" it in your hand. Then pick up another and another.
- Move one item from your palm to your fingertips and place it down on the table.
- Practice removing small objects from a change purse or container one at a time and hiding each within the palm. Then placing them back, one at a time.
- Connect 4 game: hold several chips at a time within the palm while placing chips in the slots.
- Place coins in a Piggy Bank starting with several coins in the palm.
- String beads holding 2 or 3 beads within the palm.
- Pegboard games holding 2 or 3 pegs within the hand.
- Flip a coin from head to tail within the fingers of one hand.
- Turn dice within the fingertips to see different sides.
- Craft activities that require using bottles to squeeze: glue, glitter glue, puffy paint, fabric paint, etc.

Pencil Games

- Hold the pencil in the fingertips, ready for writing, then "walk" the fingers to the eraser end of the pencil, then back to the tip.
- Turn the pencil between the thumb and fingertips

Contact details

Children's Therapy Services

Telephone number: 0300 019 2936

For further general health-related information, please ask the relevant department for an information prescription or contact:

Patient Experience
University Hospitals Dorset NHS Foundation Trust
Longfleet Road
Poole
Dorset
BH15 2JB

Telephone: 0300 019 8499

www.uhd.nhs.uk

We can supply this information in other formats, in larger print or have it translated for you. Please call the Patient Experience Team on 0300 019 8499 or email patientexperienceteam@uhd.nhs.uk for advice.

If you wish to make any comments or to ask about any research evidence used to write this leaflet, please contact the Patient Experience Team on 0300 019 8499, write to the Patient Experience Team (address above) or email patientexperienceteam@uhd.nhs.uk

Poole Hospital, Longfleet Road, Poole, Dorset, BH15 2JB

Author: **Rebecca Shelton** Date: **February 2021** Version: **Four** Review date: **February 2024** Ref: **160/21**

t: 01202 665511 w: www.uhd.nhs.uk : @UHD_NHS : @UHDTrust : @uhd_nhs