

Manipulation

What is manipulation?



Manipulation skills refer to the ability to move and position objects within one hand without the help of the other hand. Manipulation is used when holding a puzzle piece, keys, writing or even cutting with scissors. These are skills we sometimes take for granted. However, they all require the coordination of many skills for successful performance, including fine motor (muscle) control, bilateral integration, coordination and hand-eye coordination.

Why is manipulation important?

Many daily activities require object manipulation in one hand. Examples include positioning a pencil when writing and drawing; using scissors, holding a knife and a fork; and positioning buttons, zippers, snaps and laces for dressing. When these skills are difficult, children can become easily frustrated and avoid activities involving manipulation, resulting in less refined skills due to a lack of practice.

Children who are lacking in these skills often have poor self esteem and confidence as a result.

What are the building blocks necessary to develop manipulation?

- **Hand and finger strength:** An ability to exert force against resistance using the hands and fingers, that uses muscle strength for task performance.
- **Hand-eye coordination:** The ability to process information received from the eyes to control, guide and direct the hands in the performance of a task such as manipulating a puzzle piece or pencil.
- **Hand dominance:** The consistent use of one (usually the same) hand for task performance, which allows refined manipulation skills to develop.
- **Hand division:** Using just the thumb, index and middle finger for manipulation, leaving the fourth and little finger tucked into the palm not participating but providing stability for the remaining 3 fingers.
- **Bilateral integration:** Using two hands together with one hand leading (e.g. threading with a string with one hand while the other hand helps by holding the bead).
- **Postural control:** The ability to stabilize the trunk and neck to enable coordination of the arm and hand for physical task performance.
- **Body Awareness (Proprioception):** Information the brain receives from our muscles and joints to make us aware of body position and body movement, that then guides future controlled movements.

How can you tell if my child has problems with manipulation?

If a child has difficulties with manipulation they might:

- Use both hands for activities that usually only require *one* (e.g. cutting or block building).
- Stabilise objects against their body or an external support (e.g. a table) to complete tasks rather than using the 'helping' hand to stabilise the object.

- Appear clumsy when handling objects.
- Be slow to complete activities requiring manipulation.
- Avoid activities requiring manipulation such as cutting, drawing and doing up buttons and zips.
- Prefer to get others to perform manipulation based activities for them such as when dressing or eating or in drawing (e.g. “Daddy, draw me a car” but refuses to try themselves).
- Have poor pencil and scissor skills.

What other problems can occur when a child has manipulation difficulties?

When a child has manipulation difficulties, they might also have difficulties with:

- **Behaviour:** The child may become angry or frustrated when attempting to manipulate small objects, so they are described as having a ‘short fuse’ or small frustration tolerance.
- **Self confidence:** The child may have a limited belief in their ability to perform a task, so they avoid it.
- **Self care:** They might display avoidance, or demonstrate over reliance on adults to, perform everyday life activities (including dressing, eating, cleaning teeth).
- **Fine motor skills:** Finger and hand skills such as writing, cutting, opening lunch boxes, tying shoelaces, using a computer mouse, opening doors with a key.
- **Construction** activities such as Lego, block building, cut and paste.

What can be done to improve manipulation?

- **Grasping and manipulating:** Encourage participation in activities that involve grasping and manipulating small objects such as drawing, puzzles, opening containers, and threading.
- **Finger games:** Practice tasks that use just one or two fingers (e.g. poking games).
- **Praise:** Give lots of praise and encouragement when your child engages

in these activities, especially if they persist when finding an activity difficult. Focus of the participation rather than the degree of skill in the performance.

- **Upper limb strength:** Encourage play activities that develop upper limb (arm and shoulder) strength (e.g. climbing ladders, wheelbarrow walking).
- **Postural control:** Ensure the child is able to stabilise their trunk to allow refined movement of the arm and hands/fingers. This may involve reviewing the chair and table they typically use.

What activities can help improve manipulation?

- **Small objects:** Pick up a small object with fingers (bead, coin, M&M candy, popcorn) and hide it in your hand. Then pick up another then another, while still holding *all* in your hand.
- **Transitioning skills:** Move one item from your palm to your fingertips and place it down on the table (or put it in your mouth if it's food) using just 3 fingers.
- **Piggy bank:** Place coins in a piggy bank, starting with several coins in the palm to move the coins from palm to finger tips using just 3 fingers.
- **String beads:** Hold 2 or 3 beads within the palm (as above).
- **Pegboard games:** Hold 2 or 3 pegs within the hand (as above).
- **Twist open or closed lids** on small bottles or toothpaste tube using fingers while they are held in the palm of the same hand.
- **Cut with scissors:** Practice holding the scissors with the thumb on top and adjusting the grip on the paper with the helping hand.
- **Dressing:** Practice buttoning, zipping and snapping snaps using both hands.
- **Construction toys:** Play with construction toys such as Duplo, Lego and K'nex.
- **Craft activities:** Activities that require using bottles to squeeze (e.g. glue, glitter glue, puffy paint, fabric paint).
- **Threading:** Lacing boards, sewing cards, and beads.

Why should I seek therapy if I notice difficulties with manipulation in my child?

Therapeutic intervention to help a child with manipulation difficulties is important to:

- Help them develop age appropriate self care skills such as dressing, tying shoelaces, opening lunch box items, using keys, putting on a watch.
- Enable the child to develop an appropriate pencil grip for successful academic performance.
- Prevent the child from under-performing.
- Enable the child to be able to effectively manipulate small objects such as blocks, beads and other small toys for confidence in play with peers.
- Enable the child to be able to hold and control scissors effectively.

If left untreated what can difficulties with manipulation lead to?

When children have difficulties with manipulation, they might also have difficulties with:

- Performing handwriting (in the academic setting) which is a leading cause of academic under-performance in children demonstrating their true intellectual capacity on paper.
- Completing assignments that involve cutting and pasting (e.g. poster presentations).
- Effectively holding and moving the mouse for IT work (e.g. mouse on a PC or stylus on an iPad).
- Dressing (e.g. doing up zips, button, tying shoes) and other self care skills (e.g. cleaning teeth).
- Holding and using cutlery (knife and fork) to cut and prepare food.
- Frustration due to difficulties completing every day tasks such as eating, dressing and writing.

What type of therapy is recommended for manipulation difficulties?

If your child has difficulties with manipulation, it is recommended they consult an Occupational Therapist.

Contact us today to make an initial enquiry or book an assessment for your child on 1800 KID SENSE (1800 543 736)

