

Manipulation

What is manipulation?

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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 or even scissors in just one hand. Cutting is a skill we sometimes take for granted. However, it is a process that requires the coordination of many skills, 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, a knife and a fork; and positioning buttons, zippers, snaps and laces for dressing. When these skills are difficult, children can often 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 will often have poor self esteem and confidence as a result.

Building blocks necessary to develop manipulation include:

- **Hand and finger strength:** An ability to exert force against resistance using the hands and fingers.
- **Hand-eye coordination:** The ability to process information received from the eyes to control, guide, and direct the hands in the accomplishment of a given task, such as handwriting or catching a ball.
- **Hand dominance:** The consistent use of one (usually the same) hand for task performance, which allows refined skills to develop.
- **Hand division:** Just using the thumb, index and middle finger for manipulation, leaving the fourth and little finger tucked into the palm not participating.
- **Bilateral integration:** Using two hands together with one hand leading (e.g. opening a jar lid; with the other and helping - e.g. stabilising the jar).
- **Postural control:** The ability to stabilize the trunk and neck to enable coordination of other limbs.
- **Proprioception:** This is information that the brain receives from our muscles and joints to make us aware of body position and body movement.

You can tell there are problems with manipulation if the child:

- Uses both hands for activities that usually only require one (e.g. cutting).
- Stabilises objects against their body or an external support to complete tasks rather than using the 'helping' hand to stabilise the object.
- Appears clumsy when handling objects.
- Has poor pencil and scissor skills.
- Is slow to complete activities requiring manipulation.
- Avoids activities requiring manipulation such as cutting and doing up buttons.
- Has a preference to get others to perform manipulation based activities for them such as when dressing or eating.

When you see difficulties with manipulation you might also see difficulties with:

- **Behaviour:** The actions of a person, usually in relation to their environment. The child may become angry or frustrated when attempting to manipulate small objects.
- **Self confidence:** A person's belief in their ability to perform a task.
- **Self care:** Involves the everyday tasks undertaken to be ready to participate in 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.

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, threading.
- **Finger games:** Practice tasks that use just one or two fingers (e.g. poking games).
- **Praise:** Give lots of praise and encouragement when the child engages in these activities, especially if they persist when finding an activity difficult.
- **Upper limb strength:** Encourage play activities that develop upper limb 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.

Activities that can help improve manipulation skills include:

- **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 and 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 close lids:** Use small bottles or a toothpaste tube held within the palm of the 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.
- **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 you seek therapy if you notice difficulties with manipulation?

- To help develop self care skills such as dressing.
- To enable a child to develop an appropriate pencil grip.
- To enable a child to be able to effectively manipulate small objects such as blocks, beads and other small toys, as well as to open lunch boxes, use keys, compasses, and put on a watch.
- To enable a child to be able to hold and control scissors effectively.

Left untreated, difficulties with manipulation can lead to:

- Difficulties in the academic setting performing fine motor tasks and demonstrating their true academic ability.
- Difficulties with dressing and self care skills.
- Difficulties holding and using pens to sign papers or fill in forms.
- Difficulty completing assignments that involve cutting and pasting (e.g. poster presentations).
- Difficulties 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.

If you are concerned about manipulation difficulties, the next step is:

- Call Kid Sense for an obligation-free discussion with a paediatric professional on ph 1300 66 00 67.
- Take the free on-line Self Assessment to obtain a visual representation of how your child is developing (doing this in conjunction with your teacher can be really helpful too).
- Visit the Child Development *Ages and Stages* Charts and Checklists to see what skills are expected at your child's age.
- Go to Booking an Appointment for more information.
- Review the fact sheets below for more relevant information.

Other relevant resources:

- Fine motor skills (fact sheet)
- Hand control (fact sheet)