

Manual Dexterity

► What is it?

Manual dexterity is reliant upon precise, accurate and fluid movements of the hand. This enables a child to learn new skills and perform tasks efficiently without using excess effort. Fine motor control facilitates participation and independence in all areas of child's life through play, self-care, and learning. Foundations of manual dexterity require stability/ strength in muscles within the hand, thumb, and fingers.

It is through our tactile system, that we first receive information about the world. Until language, motor skills, and cognitive processes develop, we are highly dependent on our sense of touch. That is why in a child's early years they learn through exploration/ play with a variety of different media. Tactile play is an essential building block for manual dexterity skills. There are 2 components that make up the tactile system:

Protective system - which is expected to detect and alert the neurological system for dangers it is important to think about child's tolerance for tactile stimulus as for some it can be distressing.

Discriminative system – which informs us if we are being touched and where on our body. Tells us whether the touch is light or deep, informs of us of the size, shape, temperature, texture, and density of the stimulus.

It is important to be mindful that for some children some textures and touch can be distressing. It is essential to approach activities sensitively, start with less challenging textures, working at a level where the child is comfortable, and build upon this.

► What are the implications?

Children with manual dexterity problems may have difficulties with:

- Doing up buttons, zips, tying laces, using knife and fork, opening packaging for packed lunch, using scissors.
- Grasping, releasing, pinching, and manipulating objects with the fingers
- Ability to hold and grip a pencil efficiently
- Pencil and paper tasks – colouring; drawing; stencils; tracing; developing pencil control when learning to form letter with neatness, fluency, and speed
- Turning objects in one hand with fingers, e.g. use both hands when needing to rotate pencil to use eraser
- Manipulating objects – using whole hand grasps and possibly two hands together instead of using refined finger grasp and movements

► Tactile play activities

As previously stated, tactile play is an essential building block for manual dexterity skills.

- Water play – play in water that is different temperatures and with or without bubbles. Use a variety of toys, containers, shells, kitchen utensils to pour and measure
- Play dough activities – making dough, rolling, modelling, etc. Texture can be added with lentils/sand, etc.
- 'Drawing' in a variety of substances, e.g. sand, paint, rice, chopped jelly, cornflour mixed with water, shaving foam, whipped cream, clay, finger paints etc.

- Encourage the child to explore different textures on his skin, e.g. paint brushes, scrubbing brush, pot scorers, soft cloths, fur, liquid soap.
- Play with different textured objects and ask the child to identify different features, e.g. hard/soft, warm/cold, rough/smooth.
- Feely box – hide objects in rice/sand/ pasta/polystyrene pieces and ask the child to find them.
- Feely bag – place a variety of objects into a bag and ask the child to feel them and identify before taking them out of the bag. Ask the child to find a specific item; if there are two identical sets one can be visible for the child to compare with.
- Try to incorporate a variety of tactile experiences in play, eating, bath time etc. It will usually be easier for your child to initiate play himself rather than having new or potentially threatening situations imposed upon him. Demonstrate yourself and make it fun. Incorporate imaginary play. Do not force participation.
- Use a variety of textures when bathing such as sponge, flannel, dishcloth, loofah etc
- Rub skin with textured cloth, a soft brush or lotion
- Play with toys that vibrate e.g. vibrating pens, balls etc.
- Walk, crawl, or roll over different surfaces such as grass, leaves, carpet, sand
- For older children – exploring textures through age-appropriate day to day activities e.g., baking, gardening. Can also try massage roller which child can use on their own body.



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► **Activities to improve manual dexterity**

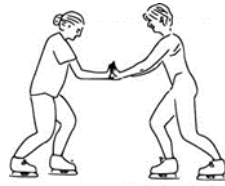
Activities need to be graded to reflect the child's developing skills Start with larger items that require little pressure, then gradually decrease size of equipment, and increase resistance to build up strength. These activities can either be done on an individual or group basis.

Wrist Extension and Stability:

These simple wrist exercises for kids can help stretch and strengthen the wrist muscles. In turn, this may help improve your child's fine motor skills and have a positive effect on handwriting.

- Weight bearing and weight shifting in all fours (hands and knees position) on straight arms, with open palms and fingers pointing straight in front of the body. Whilst keeping arms straight, the child rocks back and forward, from side to side and diagonally. This can also be done in a standing position with the child shifting weight over open palms and outstretched fingers on a secure table surface.

- Palm pushing - Stand facing the child, place palms together with wrists bent back and push against each other's palms



- Encourage the child to work in a vertical position above eye level wherever possible (on an easel, whiteboard, or paper stuck to a wall, etc).



- Wringing out a sponge/ flannel – can also get child helping with car washing, window cleaning. Washing windows, polishing furniture, wringing out wet towels/flannels
- Unscrewing and opening lids from jars and containers
- Wind-up toys
- Crab-walking forwards, backwards and sideways.



- Kneading play-doh or bread with the heels of the hand. Using a rolling pin to roll out clay, dough, or putty



- Playing with a frisbee or yoyo.

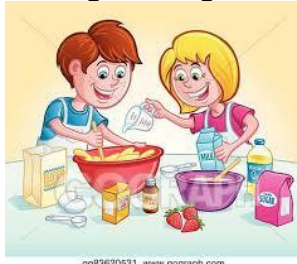
Hand, thumb, and finger strength:

- Encourage activities to strengthen hand grip and develop manipulation skills e.g. Playdough, plasticine, therapeutic putty – ensure your child is working on specific activities with your supervision. Make sausage shape, rolling between palm, pinch pieces off, make small pea size ball shapes, squeezing in your palm, use the heel of hand to flatten using hand strength not body weight, hiding small objects for child to get out with fingers.
- Clay, pastry, and playdoh work (thumb and coil pots, model making, rolling out, kneading).
- Clothes pegs/ bulldog clips: squeeze the clothes pegs between pads of thumb and index finger and place them on to the line or the edge of a cardboard box. Try different sizes and resistance strengths.

- Hold onto thick card with thumb and each finger in turn, don't let anyone pull it away.



- Baking/ stirring activities



- Rubber band – using a thick rubber band the child should stretch using mid-position of thumb and fingers on both hands.
- Arm wrestling, finger wrestling, tug of war using a towel
- Tearing newspaper into strips and crumpling into balls. Use to flick with the thumb and index finger or use to create art.
- Scissors activities (cut out paper of different thickness, shapes, designs)
- Hand-held stapler/ hole punches - make a picture. Encourage the child to hold the stapler/ hole punch within the hand rather than to press on the tabletop



- Use tweezers held between the pads of the thumb and index finger to pick up small objects such as dried peas or lentils, and place into a container
- Popping bubble wrap between pad of thumb and index finger and you can do the same with thumb and each finger in turn
- Opening packets, containers, jars.
- Use of spray bottles – squeeze the trigger of the bottle with the index and middle fingers while holding the neck of the bottle with opposed thumb, ring, and little fingers. Other waterplay activities: squeeze bottles, water pistol. Squeeze bottles to chase a tennis ball around a bowl of water.
- Squeezing sponges: fill an ice-cream tub with water and see how quickly you empty it by putting the sponge in and squeezing it out into another container. Wringing out flannels/towels.
- Using manual orange squeezer to squeeze orange halves.



- Stress balls to squeeze
- Translation - picking up small items and hiding in the palm

In-Hand Manipulation Skills



A Key To
Fine Motor
Success

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- Marbles/ coins in between fingers and drop separately into a container.
- Coin or brass rubbing
- Velcro strips to pull apart and squeeze together again using pincer grip

Grip:

For all the following activities encourage development and use of a mature pincer grip (thumb and index finger) when your child is picking up and manipulating small objects e.g. holding objects between the pads of the thumb and index fingers whilst tucking other fingers into the palm. If your child is struggling to tuck the remaining fingers into the palm, try giving the child a small object (such as an eraser or paperclip) to hold in with their middle / ring / little finger). Learning to use “less fingers” eventually helps your child to manipulate small objects more easily and more precisely.

- Threading pasta or beads onto string: make sure the bead is picked up between the pads of the thumb and index finger initially and then you can do the same with thumb and each finger in turn. Try both hands! Jewellery making, friendship bracelets.
- Posting: hold a bottle or container with your non-writing hand and pick up small objects with the other hand to post in the top. Make sure you hold the objects in the same way as the threading above.
- Posting money into a money box – encourage use of pincer grip



- Clothes fastening – buttons, laces, zips – place in front of child on table rather than having child wearing it. With buttons start with large buttons and reduce size as skills develop.
- Pennies – line up a row of 10 – 20 pennies to be turned over with their fingertips as quickly as possible.
- Paper clips – make a chain by interlocking paper clips together, or place around a square of strong card
- Paper folding activities – such as making aeroplanes, hats, fortune tellers etc.
- Lacing games, sewing activities, making puppets
- Playing a musical instrument, typing skills.

- Art activities games - Hama beads, aqua beads, collages with scraps of paper (torn and cut), lentils, pasta, material, etc.
- Using stickers – regular or reversible – sticking on pictures etc.
- Commercially available games tiddly winks, connect 4, threading, kerplunk, operation, Jenga etc.
- Travel games with very small pegs.
- Pegboard kits – an activity which involves picking up and placing small plastic pegs into a board with holes. Child can make own design or copy instructions that come with kit.



- Construction games (multi-link games, Lego, Duplo, brick building, Meccano, etc).
- Board games involving dice and counters. Dice games encourage the hands to be placed into a cupped position to shake the dice, which is good for developing hand arches.
- Playing card games.