

# What? Why? and How?

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# Pincer and Tripod Grasp

## What is the pincer and tripod grasp?

The pincer grasp is when the thumb and the index finger work together to pick up small objects. The tripod grasp is when the thumb, index and middle finger work together to pick up small objects. We use the pincer and tripod grasps to pick up small objects such as raisins, beads and small pegs. The pincer grasp is a more mature grasp than the tripod grasp.



## Why are the pincer and tripod grasp important?

We use the pincer and tripod grasps throughout our daily routine. These grasps allow us: to feed ourselves small food items, to pick up small objects without dropping them, to hold a crayon or pencil properly and to button, zip and snap.

## How can you help a child develop the pincer and/or tripod grasp?

Here are some activities to practice to help develop the pincer grasp:

- if you observe your child picking up small objects with the entire fist or four fingers and thumb, provide a demonstration of how to pick up the small objects using a pincer or tripod grasp
- encourage your child to eat small finger foods for snacks (if able to without choking). Encourage the child to use his/her fingers instead of a utensil
- write, draw or paint on a vertical surface such as an easel.
- use tweezers to pick up small objects
- when eating foods such as a bagels, muffins or hard rolls, pull off small pieces using thumb, index and middle fingertips
- when putting items in plastic bags with slide zip top ask the child to seal the bag
- squeeze water out of small sponges using only one hand
- squeeze water up a turkey baster or eye dropper for playtime in the bath or sink
- tear paper or ask child to rip up junk mail
- practice taking marker tops off and recapping using fingertips and thumb rather than the whole hand
- hang up a clothesline along a wall where a child can reach it. Have child hang artwork on clothesline squeezing clothes pins to attach artwork.
- use the thumb, index and middle fingers to pop bubble wrap
- pull off stickers and place on paper
- play with play dough and pinch off small pieces of dough
- play games that encourage pincer and tripod grasps such as using small building blocks, marbles, wind up toys, peg games (Lite Brite™, Battleship™) and/or travel games with small parts.

### References:

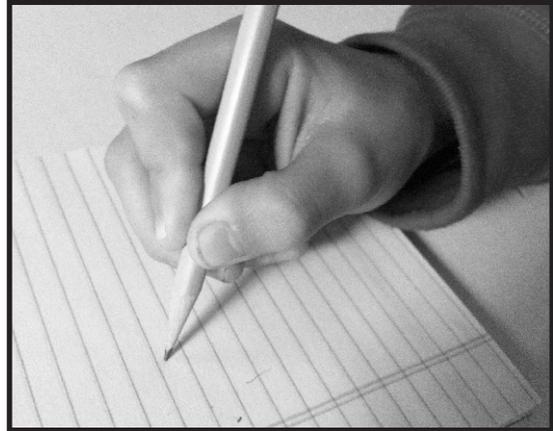
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# Dynamic Tripod Grip

## What is the dynamic tripod grip?

The dynamic tripod grip is holding a writing utensil resting against the middle finger while the thumb and index finger control the pencil, pen, marker or crayon. There are a variety of other functional ways to grip a writing utensil but the dynamic tripod grip has traditionally been considered the preferred grip for writing speed, control and form.



## Why is it important?

The dynamic tripod grip is considered an efficient way to hold the writing utensil for legibility and writing endurance. Inefficient or immature grasp patterns can result in writer's cramp, improper letter formation, decreased writing speed or too much or too little pencil pressure on the paper.

## How can you help a child develop the dynamic tripod grip?

The most beneficial way to develop the dynamic tripod grip is to encourage it in young children. Once a grip pattern has been established it can be difficult to modify. Check to see that young children are keeping the ring and pinky fingers tucked into the palm. The pencil (eraser pointing towards body rather than the ceiling) should rest on the middle finger with the index finger and thumb controlling the pencil movements. The thumb and index finger should form a circle.

Here are some tips for encouraging a dynamic tripod grip:

- make sure the child is sitting with proper posture for writing practice - hips, knees at 90 degrees and feet on the floor, elbows should be bent at least 90 degrees
- use small pencils (ie: golf pencils, broken crayons or broken chalk)
- provide verbal cues for the child to use the proper fingers
- put a rubber band or draw dots on the pencil where the fingers should be gripping the pencil
- write on vertical surfaces (ie: easels, hang paper on wall or put on a slant board on desk)
- try different pencil grips to encourage the dynamic tripod grip (ask your occupational therapist for pencil grip recommendations)
- practice using the proper grasp daily by keeping writing tasks interesting and motivating. Write letters to people or shopping lists. Practice simple drawing skills.
- try holding a few cotton balls or pom poms under the ring and pinky fingers to encourage stabilization on that side of the hand
- practice activities that utilize a pincer grasp - tweezers, tongs, picking up small objects, toothpicks, thumbtacks, etc.

### References:

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# Finger Isolation

## What is it?

Finger isolation is the ability to move one finger at a time.

## Why is finger isolation important?

The ability to move our fingers individually is crucial to most fine motor tasks. Think of how hard it would be to play piano, use a keyboard, play a flute, tie a shoe, finger a guitar, use sign language or button a shirt if you had to move all your fingers at the same time.



## How can you help a child develop finger isolation?

Here are some activities to practice to help develop finger isolation:

- sing and perform finger movement songs such as the itsy bitsy spider
- use finger puppets
- practice putting gloves on and taking off
- encourage the child to isolate the index finger and point at objects in books, pictures or items around the room
- use a touch tablet or smart phone
- use musical instruments (ie: toy pianos, recorders, finger symbols, etc.)
- finger paint encouraging the child to use one finger at a time
- make and use a salt tray - pour table salt onto a small tray, box top or empty travel wipe container. The child can draw shapes and letters in the sand using the index finger.
- practice using a calculator
- push buttons on television remote
- do shadow puppets on a wall
- learn and practice cat's cradle
- use a Chinese yo-yo on different fingers
- paint a child's fingernails having them only put one finger on the table at a time
- have a pretend tea party practicing holding your tea cups with pinkies out
- learn and practice sign language
- practice tying and untying knots with different sized string (larger, fatter string will be easier than smaller, thinner string)
- practice functional skills such as buttoning, zipping, snapping and shoe tying

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# Muscles in the Hand

## What are the muscles in the hand?

There are two groups of muscles in the hand, the intrinsic muscles (smaller muscles) and the extrinsic muscles (larger muscles). Each finger has at least 6 muscles that contract and relax allowing the fingers to move and complete fine motor tasks.

## Why is it important?

We need adequate muscle strength in the muscles of the hand, wrist and arm in order to exert muscle power and endurance. Adequate muscle strength in the hands, wrist and forearm are necessary in order to reach, grasp, lift and carry objects. Age appropriate fine motor skills require good muscle strength in the small muscles in the hands.

## How can you help strengthen the muscles in the hands?

Here are daily activities that may help to strengthen the muscles in the hand:

- knead bread or pizza dough
- squeezing toothpaste onto toothbrush
- unscrewing and screwing lids onto jars
- using nuts, bolts, wrenches and other tools always taking into account the child's age
- wringing out wash clothes
- using clothes pins
- squeeze water from sponges
- use tongs to help serve salad, rolls, ice, etc.
- make fresh squeezed juice
- water plants using a spray bottle
- use hole punchers or staplers
- practice clothes fasteners like buttons, snaps and zippers

Here are some suggested activities for free time that may help to strengthen the muscles in the hands:

- squeeze water up turkey baster or eye dropper during water play
- use play dough - roll, squeeze and pinch play dough
- put play dough in a garlic press and squeeze
- rip or tear paper for craft projects
- squeeze out glue for craft projects
- play with stress balls or pop toys
- cut up sponges into small pieces and wash small toys



### References:

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# Arches in the Hands

## What are the arches in the hand?

The arches in the hand go across (transverse), up and down (longitudinal) and diagonally (oblique) in the palm. The arches are what allow you to cup your hand. The hand is able to grasp different shaped objects by using the arches. In addition, the arches direct finger movements and how powerful these movements need to be based on the situation. For example, you would pick up a heavy ball with a different grasp than a ball of cotton.

## Why are the arches in the hand important?

Almost all of the movements you do with your fingers and thumb require you to form an arch in the hand.

## How can you help a child develop the arches of the hand?

- use play dough: roll dough into balls, pinch off small pieces of dough, roll dough into snakes, etc.
- play games that require you to shake dice. Encourage the child to shake the dice with the palm up.
- practice opening and closing different sized containers. Recycle different sized plastic jars. See if the child can unscrew all the different sized lids.
- practice picking up different size cups with various objects in each cup. The child will have to vary his/her grasp each time they pick up a different cup.
- squeeze stress balls
- play with small building block toys such as 1 inch cube blocks or interlocking blocks (ie: LEGO® or DUPLOS®)
- hold objects that require an arch in the hand such as a small ball
- dig in dirt or sand and scoop it up with the hands
- practice songs that require finger motions ie itsy bitsy spider
- encourage turning different sized door knobs to open and close doors
- have the child position the hand in a palm up position when putting small objects in the hand during daily routine tasks (ie: vitamin, liquid soap, raisins, etc.)
- have child help with food preparation when kneading bread or pizza dough or rolling cookie dough into balls
- put a hand into a puppets mouth - open and close the mouth. Sock puppets or traditional puppets will work to help to develop the arches of the hand.



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# Web Space

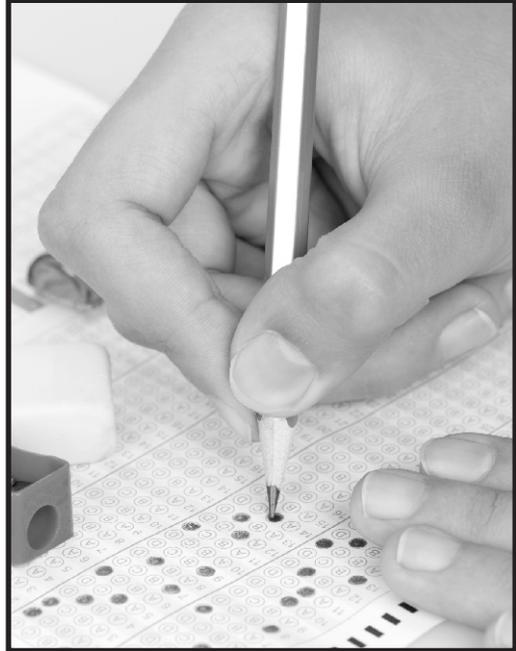
## What is the web space?

When you touch your thumb to your index finger it forms a circle which is the web space. When you make the "OK" sign with your fingers you form the web space.

## Why is the web space important?

When we hold crayons, pencils or pens we need an open web space to hold the writing utensils correctly. By holding the web space open it allows for improved control over the writing utensil and less fatigue.

An open web space is needed to use the pincer grasp with the thumb and index finger to pick up small objects such as beads or raisins.



## How can you help the web space develop?

- when practicing pre-writing or writing skills have the child use broken crayons, small pieces of chalk or golf size pencils as writing utensils
- use tweezers or tongs to pick up small objects (ie: instead of moving game pieces with your fingers try using tweezers to move the game pieces along the board). Use tweezers to transfer small beads from one bowl to another, etc.
- pull off small pieces of play dough or food dough
- try rolling play dough into small balls using your thumb and index finger
- try rolling tissue paper into small balls using thumb and index finger
- rip paper
- play with wind up toys or spinning tops
- have the child help with food preparation such as ripping off small pieces of lettuce leaves, snap off green bean ends, pick up chocolate chips and place in bowl one at a time, etc
- play tug of war with coffee stirrers or straws using only thumb and index finger to hold the tip of the straw
- practice holding different sized cups with varying amounts of liquids or solids
- use lacing cards or try simple sewing projects
- pour water from one cup to another when in the bath or pool

### References:

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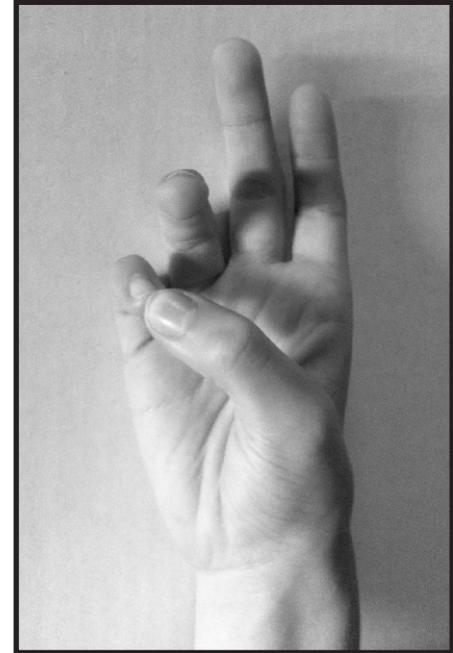
# Thumb Opposition

## What is thumb opposition?

Thumb opposition is the ability of the thumb to touch the pads of each finger on the same hand, one at a time.

## Why is thumb opposition important?

Humans use thumb opposition for many daily tasks. The thumb has a joint that allows it to move in many directions which is what helps us to grab different sized objects with our fingers and thumbs. We use thumb opposition in many daily tasks such as buttoning, snapping, zipping, tying shoelaces, writing, opening and closing containers and more.



## How can you help a child develop thumb opposition?

- practice tapping the thumb to the tip of each of the fingers on the same hand
- use tongs or tweezers to pick up small objects
- practice catching and throwing small balls that fit in the palm of the hand
- make art work using eye droppers to drop different color water onto the page or use eye droppers in the sink or tub for play time
- practice separating two pieces of paper apart using only one hand
- use clothes pins - practice opening and closing using the thumb and each of the fingers
- squeeze stress balls
- lace beads on a string and push them along the string
- squeeze glue out of bottle
- open and close zip lock bags
- open and close the mouths of puppets
- play with metal jacks and the rubber ball
- blow cotton balls around the floor by squeezing a turkey baster
- sing songs that require finger play motions
- practice screwing and unscrewing small lids such as toothpaste caps
- typing on a cell phone using the thumbs
- allow ample time to practice routine tasks such as buttoning, snapping, zipping and shoe tying
- practice sign language
- do shadow puppets

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# Separation of the Hand

## What is separation of the two sides of the hands?

Separation of the hand is using the thumb, index and middle fingers for intricate fine motor tasks while the pinky and ring fingers are not moving, providing stability for the other fingers and thumb to work.

## Why is it important?

When the pinky and ring finger are not moving this allows the middle finger, index finger and thumb perform precision work. If you do not stabilize the ring and pinky finger it makes it more difficult to complete intricate fine motor tasks such as writing, cutting with scissors, using keys and manipulating small objects.

## How can you help?

There are many activities or tips that you can offer children to help work on separating the power side of the hand from the precision side of the hand. Here are a few suggestions:

- place some cotton balls in the palm of the hand and have the child hold the cotton balls in place with the ring and pinky fingers while performing precise tasks with the other fingers and thumb such as writing
- write, draw or color on a vertical surface. This places the wrist and hand in an optimal position to develop separation of the hand.
- use spray bottle or water guns to clean surfaces, water plants or to just have fun!
- practice lacing activities or simple sewing projects
- use play dough - make small balls of dough using thumb, index and middle fingers, put toothpicks or candles into play dough or pinch off small pieces of dough
- play commercial games such as pick up sticks, marbles, Operation, LEGO®, Ants in the Pants, etc.
- play with spinning tops or wind up toys
- practice using tongs or tweezers to transfer items or game pieces
- use eye droppers or turkey basters to transfer water
- screw and unscrew nuts and bolts
- play with pipe cleaners or twist ties
- practice cutting keeping the ring and pinky fingers tucked into the palm
- practice snapping fingers
- peel stickers and position on another sheet of paper



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# In Hand Manipulation - Translation

## What is it?

Translation is an in hand manipulation skill (ability to pick up and use an object with one hand). Translation allows you to move objects from the palm of the hand to the fingertips and vice versa using only one hand. An example of translation is moving coins from your palm to your fingertips to put the coins in a bank.

## Why is it important?

If children do not have adequate translation skills, they may have to use both hands for certain activities that should only require one hand. You may observe the child: transferring the object to the other hand to help reposition it, using external support like a table top to help reposition objects, dropping the objects in the hand while trying to move them or taking longer to complete activities that require translation skills.

## How can you help a child develop translation skills?

Here are some suggested activities to help develop translation skills:

- when first practicing to move objects from the palm to the fingertips or vice versa choose objects that are not circular and small (not tiny). An example would be objects like dice.
- put coins in a piggy bank that are in the palm of your hand
- get coins out of a purse
- holding coins in one hand and putting in a vending machine
- crumple up paper using one hand
- lace beads onto a string while holding the beads in the palm of the hand
- paper clip pages together while holding the paper clips in the palm of the hand
- pick up small objects from a table
- put small objects in play dough such as coins or small beads. Have the child find the small beads in the clay. Once a bead is found, move it into the palm of the hand. When three beads have been found remove them from the palm and start again.
- recycle an old plastic container like a margarine or potato chip can. Cut a slot in the top. Have the child hold several poker chips in one hand. Practice putting the poker chips into the slot.
- give the child a snack of a small food like raisins. Put the raisins in the child's palm. Instruct the child to eat one raisin at a time moving the raisin from the palm, to the fingertips to the mouth.



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# In Hand Manipulation - Shift

## What is it?

Shift is an in hand manipulation skill (ability to pick up and use an object with one hand). It is the ability to move objects between the fingers. Some examples of shift is when you use your fingertips to try and separate two pieces of paper that are stuck together or when you move your fingers to the bottom of a pen to get ready to write.

## Why is it important?

The ability to move objects between the fingers is necessary for fine motor tasks. If shift skills are not sufficient you may have difficulty with isolating your finger movements causing you to drop objects frequently. It may also be difficult for you to manipulate objects like playing cards.

## How can you help a child develop shift skills?

Here are some suggested activities to help develop shift skills:

- practice turning pages in a book
- play games that require you to pick up one card at a time (ie: Candy Land®, matching games, flash cards, etc.
- play card games - try holding more than one card in the hand at a time
- practice sorting currency by separating bills into different denominations
- practice crayon, pencil or pen walks - hold the writing utensil in one hand and try moving the fingers up and down the shaft, remember only use one hand
- try threading large needles
- when cutting, practice turning the paper with one hand as you use the scissors to cut with the other hand
- put a little bit of sand or washable marker on the pads of the fingers. Have the child try to rub off the sand or marker using the thumb on the same hand
- string a bead on a pipe cleaner. Try and move the bead down the pipe cleaner using the fingers and thumb on one hand only
- walk your fingertips up and down a pencil from the tip to the eraser using only one hand



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# In Hand Manipulation - Rotation

## What is it?

Rotation is an in hand manipulation skill (ability to pick up and use an object with one hand). There are two types of rotation, simple and complex. Simple rotation is the ability to roll a small object between the thumb and finger tips. An example of simple rotation is using the finger tips and thumb to open a small jar. Complex rotation is the ability to turn an object end over end. An example of this is flipping a pencil over in one hand to use the eraser instead of writing with the tip of the pencil.

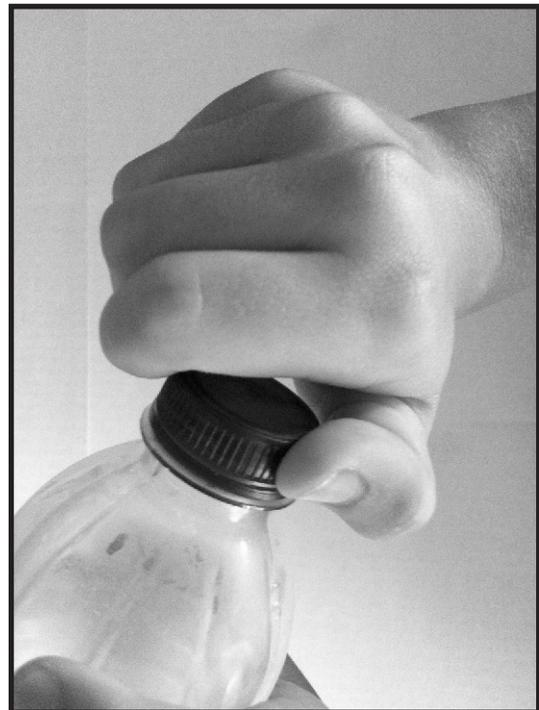
## Why is it important?

The ability to rotate objects with the finger tips is necessary for many fine motor tasks throughout the day. If a child has difficulty with rotation, he/she may drop objects frequently or be unable to manipulate small objects using one hand.

## How can you help a child develop rotation skills?

Here are some suggested activities to help develop rotation in hand manipulation skills:

- practice putting on and taking off small lids or caps (ie: opening water bottles or juice containers)
- give the child a container of nuts and bolts. The child can screw the nuts onto the bolts. Start out with large nuts and bolts and progress to smaller ones.
- practice rotating writing utensils, for example try rotating the pencil from the lead side to the eraser side
- do puzzles - rotating the pieces to fit into the proper place in the puzzle
- play with toys such as LEGO® or Tinker Toys®
- build with small building blocks especially ones with pictures on them. For example six sided block puzzles are great to practice rotation skills
- try stacking dice with the same number showing on each side of the tower. The child will have to rotate the die in the hand before he/she stacks the dice
- play with a shape sorter. The child will have to rotate each shape in different positions in order to fit it in the correct hole.



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