

Grip and Pinch Strength



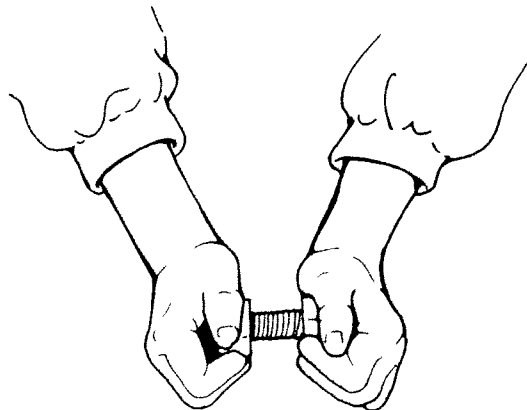
GRIP AND PINCH STRENGTH

Development

Strength of the muscles in the hands and fingers increases steadily throughout infancy and childhood as children grow in size and engage in numerous strengthening activities. Children's grip strength increases approximately 65% between ages three and six years (Metheny 1941). Then grip strength increases at a more rapid rate in boys than in girls, with a total gain of approximately 359% for boys and 260% for girls between ages six and 18 years. In general, boys are consistently stronger than girls in all grip and pinch patterns from age five years through adulthood, although the difference is not always great (Ager, Olivett, and Johnson 1984). As children move their bodies by crawling, pulling with arms, swinging, and climbing, they strengthen the muscles of their shoulders, arms, and hands. Manipulating toys and performing self-care tasks such as buttoning, zipping, and snapping all help to develop the muscles of the hands and fingers. As strength and coordination increase, a child's repertoire of activities increases so that opportunities for strengthening activities expand.

Grip and Pinch Weakness

Weak hands and fingers are quite common in children who have difficulty with fine motor skills. Because these children tend to avoid the activities that are difficult for them, they don't develop strength at the rate of children who do engage in fine motor activities at every opportunity. Other children have weak hands and fingers due to neuromuscular or central nervous system disorders. Children with fine motor difficulty often use a more awkward whole-hand grasp because they lack the strength and coordination to use finer finger-pinch patterns. Using the whole hand for grasping small objects interferes with the fine control that the fingers can achieve and also prevents the fingers from developing adequate strength for finer pinch patterns.



If hand and finger weakness is a suspected cause of difficulty, it is helpful to document this weakness by measuring grip and pinch strength with a dynamometer and pinchmeter and comparing the child's scores with those of age mates. Some children who appear to have weak hands actually have difficulty judging the sensory information received from their muscles and joints which tells them how much pressure they are exerting; and often they perform normally on tests of grip and pinch strength. These children would not benefit from strengthening activities, so it is important to accurately determine that strength is low before starting a program to increase strength.

Children with hand and finger weakness have difficulty with activities that require pinch and grip against resistance, such as pop-beads, classroom geoboards, buttons, zippers, snaps, turning on the television set, opening jars and milk cartons, turning keys, maintaining a secure grip on writing implements, exerting sufficient pressure during writing, writing and coloring endurance, and scissor control. Since the strength necessary for performing these tasks develops with age, select age-appropriate activities for determining whether strength is low.

Beneficial Activities

It is important to encourage children with grip and pinch weakness to try to complete self-care tasks independently (rather than doing them for them) and to assist only after they have made a serious attempt. Encourage all fine motor activities as much as possible in the child's spare time (drawing, building things, crafts).

If weakness is interfering with a child's ability to perform educational, recreational, or self-care tasks, encourage as many strengthening activities as possible throughout the day. Incorporate them into the classroom, playground, and home routines. If progress is unsatisfactory, it may help to choose a specific exercise or activity (such as gripping a ball or pinching putty) and have the child perform a set number of repetitions each day at the same time. Increase the number of repetitions as strength improves. Stop focusing on strengthening activities when the child no longer has difficulty performing functional activities (even if strength still is below "average").

Any activity that involves pinching or gripping against resistance will increase hand and finger strength. Pushing or pulling with the arms against resistance will strengthen arm and hand muscles. The greater the resistance, the better the exercise. However, resistance should be increased slowly as strength increases so the child experiences success and doesn't become frustrated. Types of activities that help with strengthening include manipulating resistive materials (such as clay, putty, and cookie dough); playing with push- or pull-toys (such as pop-beads); and pinching or gripping against resistance (such as playing with tiddlywinks, construction sets, or squeeze toys).



Compensatory Strategies

Decrease the resistance of the object to be pinched or gripped. For example, sand the ends of pop-beads so less force is required for pushing them together.

Increase the size of the object to be pinched or gripped. For example, use foam tubing to build up handles on utensils or writing implements.

Change the shape of the object to allow use of a more powerful grasp. For example, attach knobs to puzzle pieces for easier removal and placement.

References

- Ager, C. L., Olivett, B., and C. Johnson. 1984. Grasp and pinch strength in children 5 to 12 years old. *American Journal of Occupational Therapy* 38:107-113.
- Metheny, E. 1941. Breathing capacity and grip strength of preschool children. *University of Iowa Studies in Child Welfare* 18(2):1-207.



Child's Name _____

Date _____

GRIP STRENGTH
Classroom and Individual Practice
CLASSROOM ACTIVITIES

Purpose

To increase strength in the muscles used for gripping

Materials

Classroom materials and equipment, such as paper, stapler, hand-held hole punch, clay, sponge, foam or rubber ball

Activities

Whenever possible, encourage the child to perform activities that will increase strength. Any activity that involves gripping against resistance is helpful.



1. Child uses a stapler or hand-held hole punch to make holes for art projects, such as gluing punched-out circles onto paper.
2. Using one hand, child crumples paper into a small ball and throws it into the wastebasket. Child alternates hands.
3. Child keeps a tennis ball in desk and squeezes it as hard as possible several times a day. Child begins with a foam ball for minimum resistance and progresses to firmer rubber balls as strength increases.
4. Child scribbles or colors over templates or other textured materials. This requires rubbing while holding a writing implement. This is a good exercise for strengthening the muscles used for writing. Old book covers often have nice designs for rubbing, and so do gravestones.
5. Child stirs or kneads cookie batter, clay, and other materials that have a thick consistency.
6. Child manipulates clay, putty, dough, and other resistant materials. Cutting these materials with scissors or a plastic knife also strengthens muscles.
7. Child washes chalkboards and desk tops, and wrings out wet cloths or sponges.
8. Child does art activities that require coloring or scribbling repeatedly for long periods.
 - Child crayons different colors on top of each other, covers with ink, and then scrapes away ink with a craft stick to reveal colors under drawing.

- Child makes murals or other large drawings with large areas filled in with crayon or marker. Child colors over as much of the white as possible.
9. Writing is a good strengthening activity and is easily encouraged in the classroom. Increased finger strength normally develops in all children as writing demands increase in school. The child with weak fingers may be behind the others in this progression. During all writing times, stop when the child's hand is fatigued. Gradually build up the length of time in which the child is required to write.

Desired Response

As strength increases, child chooses more of this kind of activity spontaneously and performs with greater ease.

Undesired Response

Child is unable to perform activity or is fatigued for more than a few minutes after completing it. (Activity was too strenuous and should be simplified.)

Variations and Adaptations

Modify these activities to ensure success. Grade them to increase strength requirements as improvement occurs. For example, if the child is assigned the task of washing desk tops at the end of the day, start with one desk (or wring out the sponge once) and increase the number as ability improves. This enables the child to see progress in functional skills.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

GRIP STRENGTH
Classroom and Individual Practice
CRUMPLING PAPER

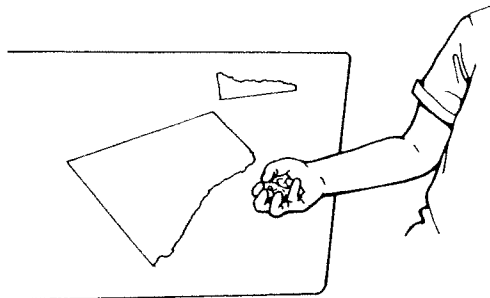
This activity can be done throughout the day—after classroom work, with scrap in art class, after resource room activities, when papers are brought home from school and sorted, and so on.

Purposes

To increase strength in the muscles used for gripping objects
To improve finger and eye-hand coordination

Materials

Paper of different sizes and thicknesses—tracing paper to construction paper



Procedure

Child completes fine motor activity on large sheet of paper, rips a smaller piece of paper from the large sheet, and crumples it into a ball, using only one hand. Child tosses paper ball into the wastebasket or other target. Child repeats the action until entire paper is crumpled.

Desired Response

Child rips paper successfully and crumples into compact ball using finger movements only.

Undesired Responses

Child is unable to perform activity. (Paper was too stiff or piece too large; use thinner or smaller piece of paper.) Child crumples paper against desk, chest, or other hand, rather than with fingers only.

Variations and Adaptations

Child alternates hands if both are weak.

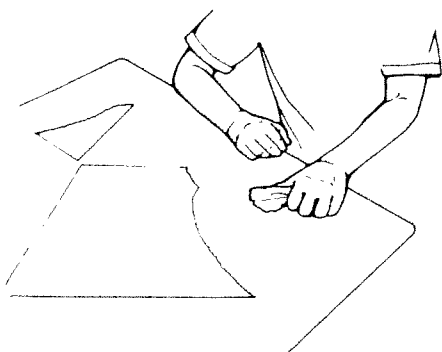
Child uses both hands together if too weak to make a ball with only one hand.

Child crumples any work paper this way.

Target (wastebasket) can be moved closer or farther away according to eye-hand skill level.

Child puts piece of paper flat on table or desk, places hand on it with fingers outstretched, and pulls paper into a ball using finger movement.

Use stiffer paper and encourage larger pieces as strength improves.



Use of these activities should be directed by a qualified therapist.

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Child's Name _____

Date _____

GRIP STRENGTH
Classroom and Individual Practice

PRESCHOOL CLASSROOM ACTIVITIES

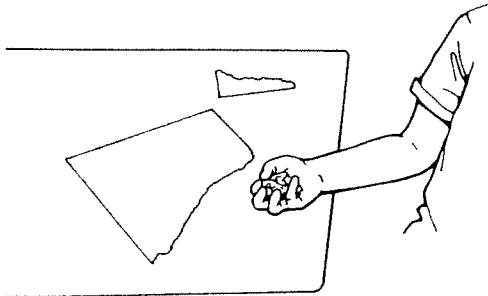
Purpose

To increase strength in the muscles used for gripping

Materials

Preschool classrooms contain many materials that strengthen hand muscles. Any toy or equipment that involves gripping against resistance (pushing, pulling apart, picking up) will increase strength when used repeatedly. Especially useful toys and materials include:

- Hammering sets and beginning carpentry tools
- Climbing equipment
- Pop-beads and other interlocking toys that can be pulled apart and pushed together
- Resistive materials (clay, dough, putty)
- Templates and textured surfaces for scribbling on
- Shovels and other preschool digging tools
- Box full of packing foam "peanuts"
- Box full of various sizes of jars with screw-on lids
- Squeeze toys, such as frogs that hop when a connected bulb is squeezed; fluid-filled dolls whose eyes, nose, or ears pop out when the trunk is squeezed; and foam toys
- Paper for ripping and crumpling
- "Grip-handle" squirt guns
- Construction kits with large nuts and bolts
- Water table or bucket, sponges, and dishcloths
- Salad tongs



Activities

1. Encourage play with the kinds of toys listed above as much as possible.
2. Present a box of jars. Child grips lids to screw them on and take them off. The amount of resistance can be adjusted so that greater strength is required to remove the lids; or the child can be asked to screw the lid on tighter. ("See if you can make this so tight that your friend can't get it off.") If a child is unable to open a jar, loosen it slightly and let the child try again.

- Place a variety of attractive objects in the jars, such as stickers, stars, or small rubber animals.
 - Keep pegs, buttons, and other small classroom manipulatives in jars. Ask the child to get the materials out of the jar for you or put them away after an activity.
 - Have one child try to tighten jars so tightly that another child can't open them; then reverse.
3. Individually or in a group, child participates in squeezing games with packing foam "peanuts."
 - Child takes handful of peanuts and squeezes to fit as many as possible into a jar with a screw-on top.
 - Child squeezes to grab as many peanuts as possible, and releases them into a container. Child tries to hold more in hand on successive attempts.
 - Child tries to fill container with peanuts, using as few handfuls as possible.
 4. Encourage child to stir, knead, and roll cookie dough, cut cookies off the roll with a plastic knife, and use cookie cutters.
 5. Encourage child to wring out sponges and dishcloths.
 - Fill two buckets half-full of water. Add a few drops of a different color of food coloring to each. Child uses sponge to transfer one color water into the other bucket to make another color when the two are mixed.
 - Fill one bucket with colored water. Child uses sponge to move all water into the other bucket. Two children can do this either as a race or a cooperative activity.
 - Child helps teacher clean tables after activities, washing tables with a dishcloth or sponge and wringing out dirty water often.
 - Child practices wringing after washing with washcloth.
 6. Encourage pre-scissor strengthening exercises, such as having child use salad tongs to pick up objects. Increase weight of objects to increase strength demands.

Desired Response

Child uses finger muscles for these activities. As strength increases, more of this kind of activity is chosen spontaneously and is performed with greater ease.

Undesired Responses

Child uses mostly large arm movements, is unable to perform the activity, or is fatigued for more than a few minutes after completing it. (Activity was too strenuous and should be simplified.)

Variations and Adaptations

All of these activities can be graded to increase or decrease difficulty by increasing the amount of time spent or the number of times the activity is repeated. Start at a level that is very comfortable for the child. Gradually increase difficulty so the child succeeds in accomplishing the task at more difficult levels as strength increases.

Use of these activities should be directed by a qualified therapist.



Child's Name _____

Date _____

GRIP STRENGTH
Classroom and Individual Practice
GAMES

Purpose

To increase strength in the muscles used for gripping

Procedure

In general, any activity that involves grip against resistance will be beneficial. Encourage the child to participate in this kind of activity on a regular basis.

Activities

1. Water relay. Children transfer water from one bucket to another using a sponge. This activity can be played in teams. Vary sizes of sponges to increase resistance; vary amount of water to determine the number of repetitions.
2. Towel pull. Mark a center line, using tape or chalk. One child stands on either side of the line. Children grip opposite ends of the towel and try to pull each other across the line.
3. Squirt-gun activities. Children squirt balloons to keep them in the air or race them across finish line.
4. Foam ball squeeze. Children stand in a circle with one child who has been designated to be IT standing in the center. Children pass a small foam ball from one to another, squeezing it out of sight in one hand between passes. All hands must remain at chest level in front of children's bodies. The center child tries to identify who has the ball. Children who do not have the ball try to act as if they are passing it to confuse IT. Any child caught with the ball becomes IT. Ball size can be changed to alter the difficulty of hiding it.

Desired Response

Child uses gripping motion of the hand to accomplish the activity with increasing ease as strength increases.

Undesired Response

Child is unable to accomplish the activity. (Task is too difficult and should be modified to make it easier.)

Use of these activities should be directed by a qualified therapist.



Child's Name _____

Date _____

PINCH STRENGTH
Classroom and Individual Practice
CLASSROOM ACTIVITIES

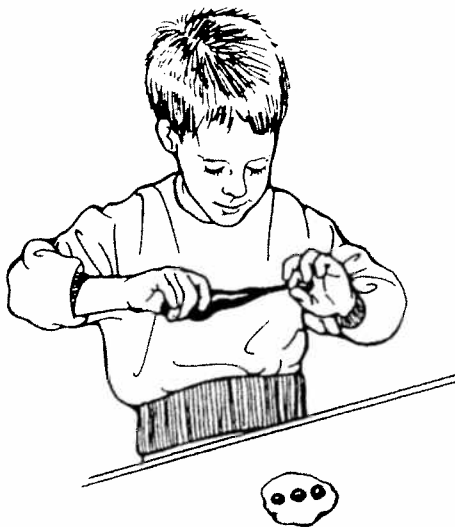
Purpose

To increase strength in the muscles used for fine pinch

Materials

Classrooms contain many materials that strengthen pinch. Any activity that involves pinching with fingers against resistance will increase strength when used repeatedly. Especially useful materials include:

- Geoboards
- Clay and other resistive materials
- Paper of various thicknesses
- Wind-up toys
- Construction kits with small nuts and bolts
- Small pop-beads (around 3/4-inch long)
- Tweezers
- Medicine bottles with flip tops
- Dressing boards or dolls with snaps, buttons, and zippers
- Clothespins
- Spring-loaded paper clips in a variety of sizes
- Tiddlywinks
- Potholder boards
- Easy-paint tube brushes
- Tinkertoys®
- Duplo® and Lego® building sets
- Stamps and stamp pads with a variety of sizes of small handles to encourage different pinch patterns



Activities

1. Child plays with geoboards. Start with thin, long rubber bands that require little stretching to fit over nails. Decrease length or increase width of bands to provide greater resistance as strength improves.
2. Child uses clay, dough, or putty to increase strength. Devise activities that require pinching of the material.
3. Child rips paper to make collages or papier-mache. Progress from tissue paper to medium weight to thicker construction paper.

4. Child pulls apart small pop-beads before playing with them. Beads in various shapes (fruits, flowers) are sold in toy stores and can be made into necklaces and bracelets.
5. Child picks up cotton, clay pieces, and other objects with tweezers. Firm, heavier objects (such as small rocks or thread spools) require the most strength.
6. Child uses fingertips to remove flip tops from medicine bottles. Loosen top slightly, if necessary. Stars, glitter, and other attractive materials can be kept in bottles for child to open and close before and after activities.
7. Child plays with boards or dolls with snaps, buttons, and zippers. Child practices pushing and pulling while maintaining pinch patterns. Snaps are usually easier on these than they are on a child's pants (especially if pants are tight), which makes them better for practice. Make sure that buttonholes are large enough to allow button through easily. Attach a ring to the zipper pull if pinch strength is insufficient for pulling zipper up or down.
8. Child squeezes clothespins and spring-loaded paper clips. Child squeezes these to pick up cotton balls or small objects, and squeezes to release. Child counts how many objects are moved from one place to another (or into a container) before fingers fatigue, and attempts to beat the record on subsequent days.

For weaker fingers, insert sheet of paper between "jaws" of paperclip or clothespin. Child holds so that paper hangs below clothespin, and tries to pinch hard enough to release paper so it falls to the ground. If successful, hold another sheet of paper perpendicular to the ground as child opens clothespin to grab paper. Child then releases paper.

To increase resistance, place rubber bands around clothespins to make opening more difficult.

Use different-sized spring-clips to encourage different pinch patterns. Very small ones require a finer tip-to-tip pinch, medium-sized ones require lateral pinch.

These activities are most successful when presented as a challenge ("Let's see if you can . . ."), incorporated into games, or done in groups.

9. Use commercially available tubes of paint with brushes on the end. The paint comes out as the child squeezes the tube, encouraging pinch repeatedly throughout the activity.

Desired Response

Child uses desired pinch patterns to perform activities, using sides or tips of fingers. As strength increases, these activities are performed more easily and with more resistance applied.



Undesired Responses

Child is unable to perform activity or is fatigued for more than a few minutes after completing it. (Activity should be simplified and resistance decreased.)

Child uses all fingers or a gross grasp (in which material is held against palm of hand) for manipulation of objects.

Tinkertoy® is a registered trademark of Playskool, Inc., a subsidiary of Hasbro, Inc.

Duplo® and Lego® are registered trademarks of Interlego, A.G.

Use of these activities should be directed by a qualified therapist.



Child's Name _____

Date _____

PINCH STRENGTH
Classroom and Individual Practice
GAMES

Purpose

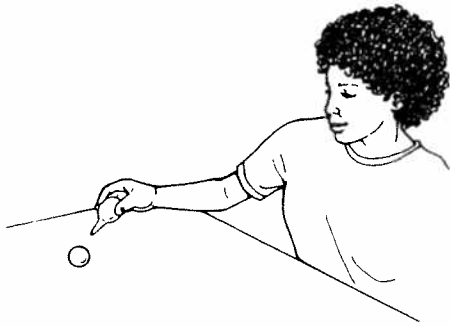
To increase strength in the muscles used for pinch

Procedure

In general, any activity that involves pinch against resistance is beneficial. Encourage the child to participate in this kind of activity on a regular basis.

Activities

1. Finger pull. Two children form hand-circles by touching thumb and index fingertips. One child opens circle to interlock fingers with other child's circle. Children pull hands away from each other, attempting to maintain closed circle. The child who opens fingers and allows the other to pull through loses the match.
2. Tiddlywinks. Children shoot plastic discs towards goal by pushing down on the disc with another disk, held in a fine pinch.
3. Table-tennis ball race. Children use bulb-type nasal aspirators to blow balls across the finish line. Vary bulb resistance and line distance to modify strength requirement.
4. Bedbugs®, a commercially available game. Child picks up plastic bugs with tweezer-like tongs as quickly as possible.



Desired Response

Child uses finger-pinch patterns to perform the pinch activities.

Undesired Response

Child uses a gross grasp to perform pinch activities.

Bedbugs® is a registered trademark of Milton Bradley Company.

Use of these activities should be directed by a qualified therapist.



Child's Name _____

Date _____

PINCH STRENGTH
Classroom and Individual Practice

CLAY, DOUGH, AND PUTTY ACTIVITIES

Purpose

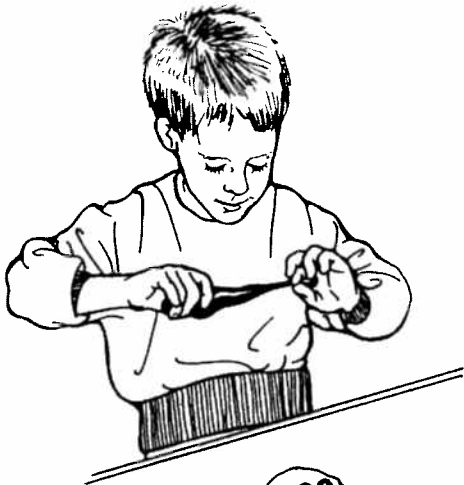
To increase strength in the muscles used for pinch

Materials

Any resistive material works well for strengthening. The stiffer (more resistive) the consistency, the more vigorous the exercise. Start with dough and other soft materials before progressing to stiffer clays and putty.

Activities

1. Make cookie dough and have child do some mixing and kneading, or use the kind of clay that requires kneading to release air bubbles before firing in the kiln.
2. Eggs in a nest. Child rolls ball of clay, dough, or putty between palms; pokes both thumbs down into center of ball and pinches all around to form sides of pinch pot or "nest." Child pinches off small pieces of clay from a larger piece, using tips of thumb and index finger; rolls these between fingertips to make round "eggs" to put in the nest. Then child pinches off larger piece of clay and forms a bird to sit on top of eggs.
3. Pinch pots. Child rolls ball of clay, dough, or putty between palms; pokes both thumbs down into center of ball and pinches all around to form sides of pinch pot; and continues pinching with various pressures to form a pot with sides of even thickness. Child forms another ball of clay (slightly smaller than the first) and flattens it out evenly with outstretched fingers, maintaining the circular form. The flat circle becomes a lid for the pot. Dry or fire in kiln and paint; or squish into a glob, using fingertips.
4. Finger touching. Child pinches pieces of putty, dough, or clay between fingers in pinch pattern and squeezes until fingers meet through the material. This exercise is repeated several times daily. Increase the resistance of the material as strength increases.



Eggs in a nest



Pinch pots



Lateral pinch



Three-jaw chuck pinch



Tip-to-tip pinch

For lateral pinch, child places putty between side of index finger and pad of thumb, and squeezes.

For three-jaw chuck pinch, child places palmar surfaces (pads) of index and middle finger above putty and thumb below putty, and squeezes.

For tip-to-tip pinch (pincer grasp), child squeezes putty between the tips of the index finger and thumb, with thumb joint bent slightly.

5. Putty string activities. Child pinches putty, using the pinch patterns described above, and pulls in opposite directions so that a long strip is formed. Child repeats to form several strips. Then child rolls strips together between palms to form a ball.

Child forms bracelets or necklaces by connecting ends of strings or twisting several strings together, then connecting ends.

Desired Response

Child uses desired pinch patterns with clay or putty held in fingertips. As strength increases, these activities are performed more easily and with more resistive materials.

Undesired Responses

Child uses all fingers or gross grasp (with material held against palm).

Child uses lateral pinch (side of index finger against pad of thumb) when tip-to-tip pinch is desired.

Child is unable to perform activity or is fatigued for more than a few minutes after completing it. (Activity should be simplified and less resistive material used.)

Variations and Adaptations

Several brands of silicone therapy putty are available in many different levels of resistance. This is handy for increasing or decreasing the difficulty of these activities to match the child's ability level. Resistive putty also comes in colors according to consistency, which makes it tremendously appealing to children. When child can perform these activities with the least resistive putty, progress to stiffer consistencies.

If child doesn't have adequate strength but wants to complete one of the projects listed, provide assistance only as much as needed. Encourage the child to increase the amount done independently on subsequent attempts.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

**GRIP AND PINCH STRENGTH
Compensatory Strategies**

ADAPTATIONS FOR WEAK GRIP AND PINCH

Purpose

To improve child's ability to perform fine motor activities independently when grip and pinch strength are weak

Strategies

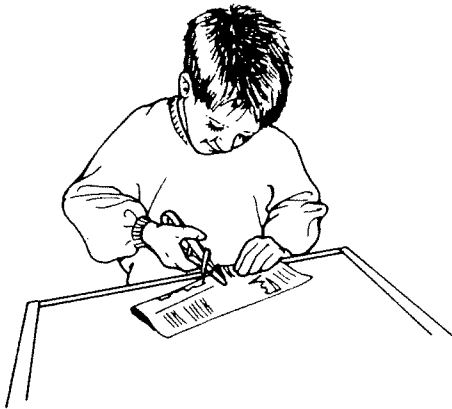
When devising ways to make tasks easier, consider:

1. Decreasing resistance of objects to be grasped or pinched.
2. Increasing size of objects.
3. Changing shape of objects to make grasping easier.
4. Stabilizing objects during manipulation.

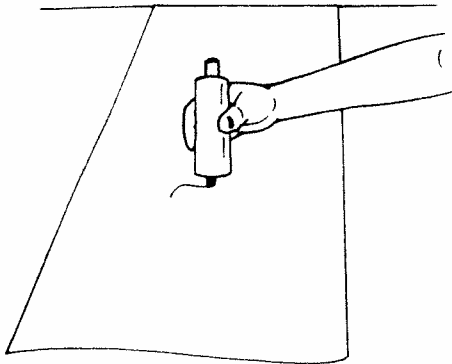
Apply these strategies to home and classroom activities.

Decreasing resistance

1. Sand the knobs on pop-beads or other interlocking toys to make them easier to put together and take apart.
2. Provide flexible-loop scissors. These commercially available scissors have one loop rather than two rigid loops. They are self-opening, but vary in amount of resistance required for snipping. Try several to find the easiest.
3. Provide loop pliers. These are similar to loop scissors and require only a weak grasp for closing. They can be used for opening tubes, flip-top cans, and small jars, using a grip pattern instead of finer finger-pinch patterns.
4. Markers, pens, and dry markers are easier for some children to use for writing and drawing because they glide over the surface with less friction than crayons, grease pencils, and pencils. If coordination as well as weakness is a problem, the friction may help with control of movement and should not be eliminated.
5. Pencils with soft leads require less force and often are easier for children who write with very light pressure due to weak hand muscles.
6. Use lighter and larger manipulatives for classroom activities if items are dropped due to weak pinch.
7. Substitute Velcro® closures for snaps, buttons, and zippers.

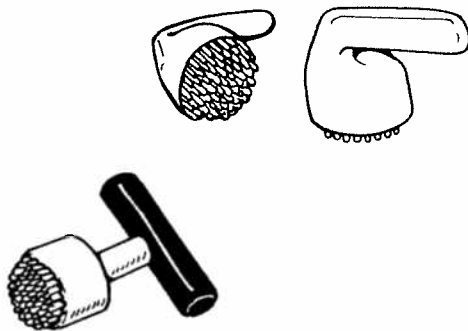


8. When the child has difficulty buttoning, zipping, or snapping due to weakness, make sure that clothing fits loosely so that the pull of the clothing is not adding resistance. Elastic waistbands and loose pullover clothing bypass the need for fasteners.
9. Provide an easy-pull hairbrush. This brush is designed to require minimal force for pulling through hair. It has widely spaced bristles with tiny balls on the tips and a strap to hold it firmly in the hand.
10. Decrease the amount of writing required so the child doesn't experience frustration and discomfort due to fatigued hand muscles.



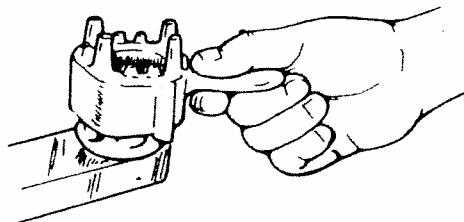
Increasing size of objects

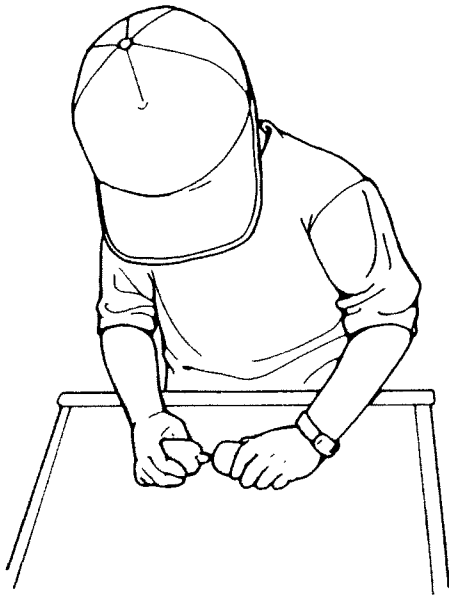
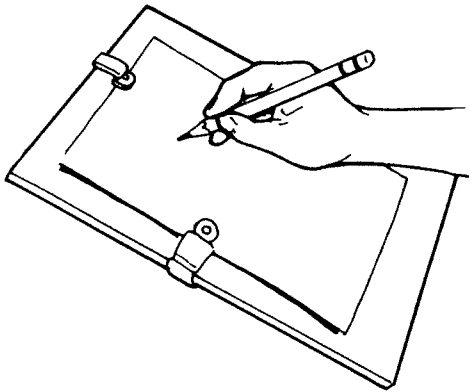
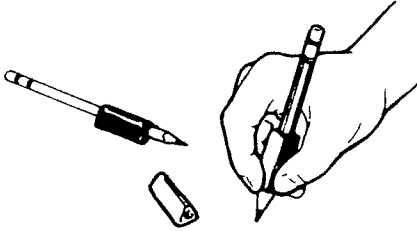
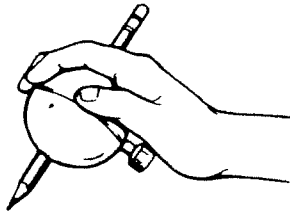
1. Large manipulatives allow a child to use more and larger muscles for grasping.
2. Attach a ring to a zipper pull if child cannot grip with enough strength to pull it up easily.
3. If child is unable to tie shoelaces and pull them tight, use shoes with Velcro® closures. If pinch is too weak for pulling Velcro® tight, attach ring to end of Velcro® tab so child can slip fingers through ring to pull.
4. Built-up handles often make gripping easier. Foam tubing is available commercially and can be used for increasing the size of handles on utensils and writing implements. Foam hair curlers can be used the same way. Utensils and writing implements are available that have thick handles designed for easy grasp. Flexible putty materials can be used to make individualized built-up handles.
5. Larger buttons enable child to use more fingers for pushing or pulling through buttonhole. Check to see that hole is loose and that button goes through with little force.
6. Throwing and catching large balls is easier than small balls because child uses both hands and very little gripping action.



Changing shape of objects

1. Glue knobs to puzzle pieces for ease of grasp.
2. If child has difficulty turning knobs on doors, television, or other appliances, use knob extensions and knob turners. These commercially available devices fit over knobs and handles to increase the size and amount of leverage for more efficient grasp. Use putty materials to create a variety of covers for knobs and pulls. Commercially available grippers are designed for turning water-faucet handles.





3. If grasp is strong but pinch patterns are very weak, use ball-shaped grippers for holding utensils and writing implements.
4. Pencil grippers are available in numerous shapes and sizes. These sometimes provide a more secure grip that requires less pinch strength for maintaining the pencil in the hand. Watch carefully, however, because some grippers encourage the “normal” grip pattern, which requires more finger strength than the child is able to maintain. In this case, these grippers will decrease the child’s ability to write—especially if used for extended periods of time.

Stabilizing objects during manipulation

1. If the nondominant hand is not strong enough to secure paper during writing and drawing activities, tape paper to desk; or use a one-arm paper holder to hold it in place. This is a commercially available magnetic board with metal holders that hold paper firmly.
2. If unable to hold manipulatives steady due to weak grip, the nondominant hand can hold the object against the desk surface while the dominant hand manipulates it. For example, a child can rest paper on the desk while cutting with scissors, or can hold a pop-bead down on the surface while connecting another piece to it.
3. For practicing catching balls, catcher’s mitts made of Velcro® are available in many toy stores. The Velcro® helps to hold the balls. These mitts are useful for improving eye-hand coordination, arm strength, and coordination with minimal grasp.

Comments

These suggestions may improve classroom performance of fine motor tasks. However, strength will not improve and abnormal movement patterns may be strengthened unless strengthening activities also are encouraged. Do not use compensation strategies exclusively unless it has been determined that the child’s grip or pinch strength will not improve to a functional level with practice, thus making compensation the top priority.

Velcro® is a registered trademark of Velcro U.S.A., Inc.

Use of these suggestions should be directed by a qualified therapist.

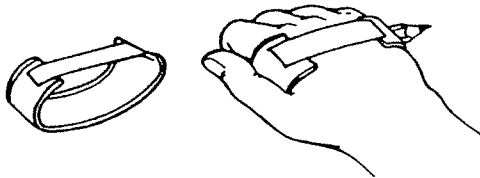


Child's Name _____

Date _____

GRIP AND PINCH STRENGTH Compensatory Strategies

ADAPTATIONS FOR NONFUNCTIONAL GRIP AND PINCH



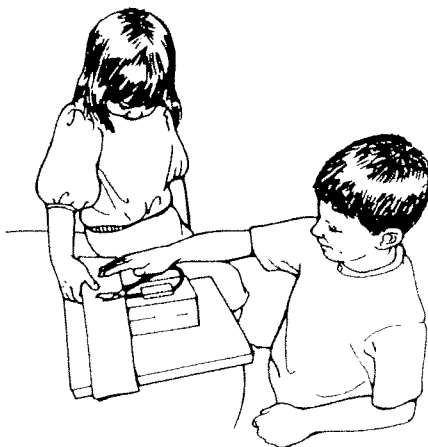
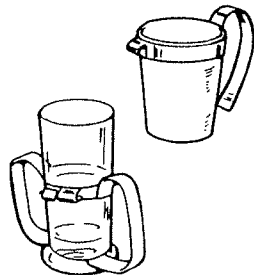
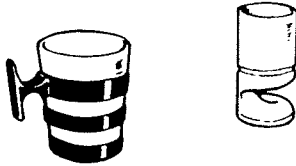
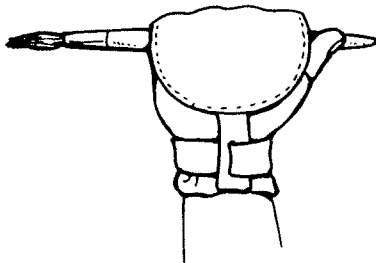
Purpose

To improve child's ability to perform fine motor activities independently when grip and pinch strength are extremely weak or absent

Strategies

1. A variety of commercially available devices allow bypassing of grip and pinch by holding implements in the child's hand. Some examples include:

- Universal cuff. This is placed over the hand and holds various utensils and writing implements. Different sized "pockets" are available for holding utensils of different diameters. Some come with double pockets, so the same cuff can be used for different-sized utensils.
- Right-angle pocket. This is inserted into the universal cuff to place writing and cutting utensils at the correct slant.
- Grip-Mate. This is a device that fits into the palm and has a strap that holds it in place. A variety of sizes and shapes of holes hold utensils with different handles (for example, toothbrush, pencil, and paintbrush).
- Mitts. These are like mittens with the finger end connected to the palm of the hand so that the hand is held in a gripping position. Different designs are available for a variety of gripping functions (for holding pool cues, brooms, writing implements, and so on). A simple mitt can be made quite easily. To explore the usefulness of a mitt before purchasing one, it may be helpful to place a paintbrush or pencil in the desired position, wrap an Ace bandage around the hand to hold the gripping position, and tape it securely. Build up the handle of the utensil if grip is not firm enough. Then try an activity.



2. Objects can be shaped so that the child can use the whole hand for manipulation. Child can put hand through loops for opening drawers or cabinet doors.

Adapted handles on cups and pitchers enable child to pick them up and pour.

Flexible-loop scissors can be mounted so that pressing down with the palm of the hand will result in cutting.

Loose fitting, pullover type clothing and pants with elastic waistbands can be put on without grip and pinch.

Use of these suggestions should be directed by a qualified therapist.

