

**Coordination of Arm,
Wrist, and
Finger Movements**

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS

Development

Control of arm and hand movement develops from the trunk out to the fingers. Babies bat at objects as they first gain control of large arm movements, with no isolated movement of forearm or fingers. During the first year of life, maturation and experience result in development of reaching and gross grasp patterns.

The second year brings increased trunk and shoulder control for more controlled arm movement, graded bending and straightening of the elbow, and turning of the forearm to position the hand for grasp. All pinch-and-grip patterns are developed during the second year, and the child progresses from holding a writing implement in the palm of the hand to holding it in the fingers. Although crayons or markers are held in the fingers, scribbling and drawing attempts involve mostly whole-arm movement.

If scissor experiences are provided, during ages two to three years children coordinate movements that open and close the hand with forward arm movement to cut with scissors across paper, while gross arm movement is used for positioning scissors. The wrist begins to assist in achieving finer control of positioning and moving writing implements.

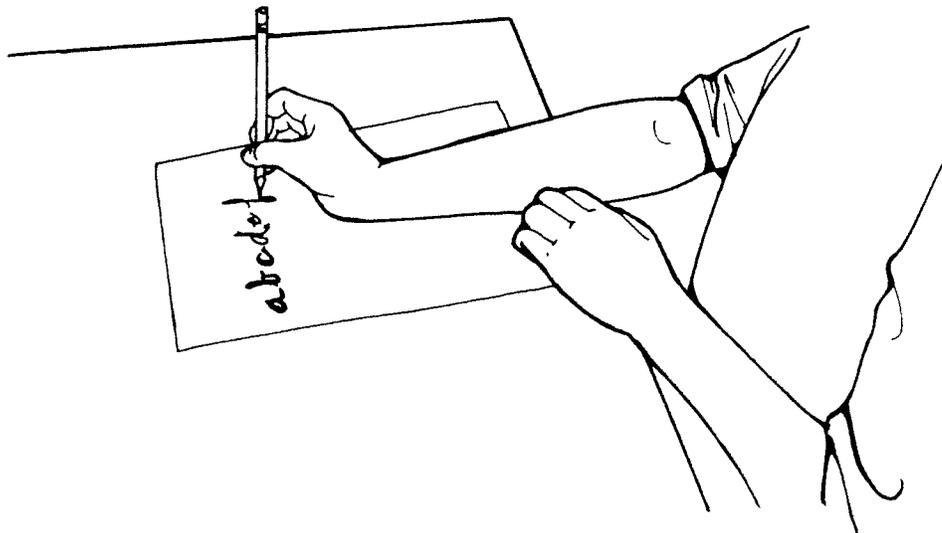
Three- to four-year-olds use finer movements of finger joints for manipulating small objects and writing implements. The wrist begins to assist in controlling the position of scissors during cutting, keeping the scissors on the line and preventing them from shifting off to either side.

From four years on, arm, wrist, and finger control increase and children learn to combine and sequence shoulder, forearm, wrist, and finger movements to cut complex shapes with scissors, draw shapes, and write letters and numbers. The ability to stabilize the arm and wrist and inhibit unnecessary movement, while using finer and more efficient movements of smaller muscles of the hand and fingers, develops progressively into the school years. As handwriting skills develop, fine finger movements are used for drawing circular (rotary) and vertical lines, while hand and arm muscles contribute to horizontal movement. Coordination of all of these factors becomes increasingly important for classroom performance as fine motor demands (coloring, cutting, drawing, and writing) increase in first, second, and third grades, and even more so when cursive writing is introduced.

Poorly Coordinated Arm, Wrist, and Finger Movement

Difficulties in this area may result from abnormal muscle tone, the sensory-integrative difficulties associated with learning disabilities, developmental delay, experiential variation, or normal individual differences in development. Children's rate of motor development varies widely, and some children are just slow to develop coordination of arm and hand movements due to their unique—yet entirely normal—rate of development or differences in childhood motor-learning experiences. Regardless of the reason for the difficulty, these children have good control of arm, wrist, and fine manipulative finger movements; however, when any of these are combined their skill breaks down.

Children who are experiencing this difficulty often write in one of two ways. Some avoid movement of the forearm during writing, using primarily finger and wrist movement. These children write small, and often they develop compensatory grip patterns that enable them to extend the wrist and supinate the forearm (put the hand into more of a palm-up position) so they can write farther along the horizontal line before needing to move the forearm. Unfortunately, this results in an awkward grasp that makes it difficult to bend the thumb joint; and rotary and vertical movements are lost, especially as the writer moves from left to right across the page. These children also stabilize the writing hand on the table top as long as possible before shifting it to a new stable position, rather than moving the forearm smoothly across the page to keep the hand in the ideal position for forming letters. The hand is repositioned by large, step-like movements of the arm as the writing proceeds across the paper.



Other children compensate by using primarily upper arm movement for writing, with little fine finger motion. Often the side of the hand and forearm are not rested on the table surface. (They would drag during writing.) This is a less stable way of writing because the side of the hand is not used for stabilizing efficiently. Together with the loss of fine control which finger movement allows, this results in writing that is poorly controlled and more tiring.

The same two tendencies can be seen during scissors use. Some children stabilize the paper on the desk top or with the upper arm held stiffly against the trunk, and they use small snipping motions for cutting. Others use upper arm movement to position the scissors (rather than combined arm and fine wrist movement) and are unable to cut quickly or accurately.



Beneficial Activities

Good arm, wrist, and finger control should be achieved before a child practices more complex combinations of movement. It is important for the child who has difficulty coordinating these components to practice activities that require movement of the arm and small movements of the wrist and fingers at the same time. Encourage use of smooth, graded movement of arm, hand, and fingers; and discourage use of one or the other exclusively. Present easy activities at first, and advance to more and more complex patterns of movement as skills improve. Coloring, writing, and scissor activities are excellent. Painting or drawing wavy or design lines across a wide sheet of paper also require finger and arm movement; these can be incorporated into many art or craft activities.

Supervision and guidance of the way that these activities are accomplished is the most important part of developing these skills because the child, without assistance, will continue to use more familiar, although limiting, movement patterns for these activities.

Compensatory Strategies

When incoordination interferes with classroom performance or is not improving regardless of practice, it is appropriate to make classroom activities easier. Devise ways for the child to accomplish tasks that do not require such complex movement patterns. For example, allow child to write with large movements, on wider-lined paper; this enables child to use whole-arm movement exclusively. Writing small (using paper with lines close together) will be easier for a child who prefers to avoid upper arm movement. A child who cuts using large arm movements for positioning scissors can rest elbow on desk top to increase stability.

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Writing Skills—Classroom and Individual Practice
VERTICAL MOVEMENTS

Purpose

To improve coordination of arm movement with vertical fine finger movement during writing

Materials

One large sheet of unlined paper; one sheet of paper with lines about ½" apart; pencil or marker

Preparation

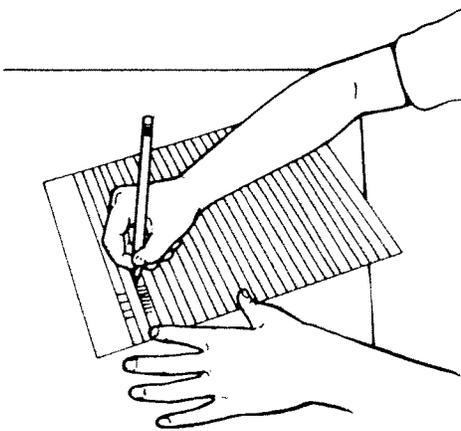
A relaxed arm is necessary for achieving the smooth and rhythmic control desired in these activities. If stiffness or low tone is a problem, carry out activities to normalize tone; repeat if child's arm becomes tense during these activities. Child should be able to draw smooth horizontal lines across the page and make vertical lines on paper using movement of the finger joints, before working on coordinating the two.

Position

Child sits with feet resting on the floor and arms supported on desk of proper height. Paper is slanted appropriately for right- or left-handed use. Encourage mature grasp position. Let child use gripper, if needed, when holding writing implement. The ulnar (little-finger) side of the hand rests on the desk surface and glides smoothly with movement.

Procedure

1. Child warms up by making small (½") vertical lines from left to right across the desk or table top, using smooth, rhythmic movement of the index finger, while moving the forearm horizontally.
2. Introduce thumb movement by asking child to touch thumb and index fingertips. Repeat procedure of making small lines across the desk top, using the tips of the thumb and index fingers together.
3. Once these movements are accomplished in a smooth and rhythmic manner, child grasps a pencil and repeats the activity on unlined paper.
4. When lines are easily drawn with pencil, using smooth finger and forearm movement, introduce lined paper. Child draws lines within the lines of the paper, trying to achieve uniform size. Encourage the use of visual feedback for correction.



5. Follow this activity with actual handwriting practice, so application to classroom work is very clear. Practice letters with vertical strokes (f, i, j, k, l, m, n, t). Encourage the use of finger movements as described in all classroom writing.

Desired Response

Child simultaneously uses finger movements for the small vertical movements, and smooth forearm movement for horizontal movement. Desired finger movement is seen at the knuckles and other finger joints of the thumb, index, and third fingers. The thumb joint bends during formation of lines, and the desired grip pattern and a slightly extended (bent-back) wrist position is maintained.

Undesired Responses

Child bends wrist back farther to avoid arm movement, and changes grip as lines are drawn toward the right side of the paper. The forearm moves in steps (moves a few inches and stays there until several lines are drawn, then moves right a few inches and repeats this movement pattern). Child moves the paper. The forearm moves in vertical as well as horizontal directions while forming strokes.

Variations and Adaptations

These warm-ups and activities can be done:

- With an index finger in the air.
- With index finger and thumb together in the air.
- In finger paint, dirt, sand, or cornmeal; on chalkboard.
- Over textured surfaces for added kinesthetic, tactile, and auditory sensory feedback.

Performance of these activities to music can enhance the smooth and rhythmic qualities of the movement and aid in keeping the arm relaxed.

Have child circle places where lines are not within the boundaries of the lines on the paper, indicating that movement was imprecisely controlled. Then have child repeat the activity and see progress as fewer corrections are needed.

Have child draw or paint outlines of snakes or other long, thin objects, no more than ½" wide, and use vertical lines to color the picture.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Writing Skills—Classroom and Individual Practice
DIAGONAL MOVEMENTS

Purpose

To improve coordination of arm movement with diagonal wrist and fine finger movement during writing

Materials

One large sheet of unlined paper; one sheet of paper with lines about ½" apart; pencil or marker

Preparation

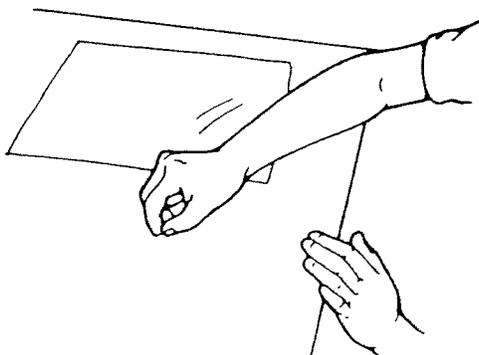
A relaxed arm is necessary for achieving the smooth and rhythmic control desired in these activities. If muscle tone is a problem, carry out activities to normalize tone; repeat if child's arm becomes tense during these activities. Child should be able to draw smooth horizontal lines across the page and make small diagonal lines on paper using movement of the finger joints before working on coordinating the two.

Position

Child sits with feet resting on the floor and arms supported on desk of proper height. Paper is slanted appropriately for right- or left-handed use. Encourage mature grasp position. Let child use gripper, if needed, when holding writing implement. The ulnar (little-finger) side of the hand rests on the desk surface and glides smoothly with movement.

Procedure

1. Child warms up by making small (½") diagonal lines from left to right across the desk or table top, using smooth, rhythmic movement of the index finger, while moving the forearm horizontally.
2. Introduce thumb movement by asking child to touch thumb and index fingertips. Repeat procedure of making diagonal lines across the desk top, using the tips of the thumb and index fingers together. Right-handed children use primarily finger movement for left-to-right diagonals and slight wrist movement for right-to-left diagonals; left-handed children use the opposite.
3. Once these movements are accomplished in a smooth and rhythmic manner, child grasps a pencil and repeats the activity on lined paper. Encourage the use of visual feedback for correction. Have child circle places where lines are not smooth, where the



angles differ, or where lines are not within the boundaries of the lines on the paper. These indicate difficulty with control. Then have child repeat the activity and see progress as fewer corrections are needed.

4. When diagonals in both directions are produced accurately and coordinated with smooth horizontal arm movement, child combines them to make small Xs from left to right across the table top or paper.
5. Follow these activities with actual handwriting practice, so that application to classroom work is very clear. Include letters with diagonal strokes (A, M, N, K, V, W, X, Y, Z). Encourage this movement pattern during classroom writing.

Desired Response

Child uses finger movements for the left-to-right diagonal and slight wrist movement for the right-to-left diagonal (opposite for lefties), in combination with smooth horizontal forearm movement. Desired finger movement is seen at the knuckles and other finger joints of the thumb, index, and third fingers. The thumb joints will bend during formation of left-to-right diagonal lines (right-to-left for lefties), and the desired grip pattern will be maintained.

Undesired Responses

Wrist bends back (extends) more, and grip changes as diagonals or Xs progress across the page. Forearm moves in steps (moves a few inches and stays there until several diagonals are drawn, then moves right a few inches, and repeats this movement pattern). Child moves the paper to avoid moving the arm.

Variations and Adaptations

These warm-ups and activities can be done:

- With index finger in the air.
- With index finger and thumb together in the air.
- In finger paint, dirt, sand, or cornmeal; on chalkboard.
- Over textured surfaces for added kinesthetic, tactile, and auditory sensory feedback.

Performance of these activities to music can enhance the smooth and rhythmic qualities of the movement and aid in keeping the arm relaxed.

Child draws or paints pictures, using small diagonal lines or crosses for decoration or as part of the design.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Writing Skills—Classroom and Individual Practice
ROTARY (CIRCULAR) MOVEMENTS

Purpose

To improve coordination of arm movement with rotary fine finger movement during writing

Materials

One large sheet of unlined paper; one sheet of paper with lines $\frac{1}{2}$ " apart; pencil or marker

Preparation

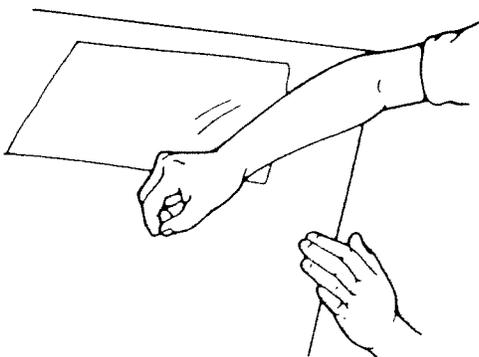
A relaxed arm is necessary for achieving the smooth and rhythmic control desired in these activities. If muscle tone is a problem, carry out activities to normalize tone; repeat if child's arm becomes tense during these activities. Child should be able to draw smooth horizontal lines across the page and make small circles on paper using movement of the finger joints before working on coordinating the two.

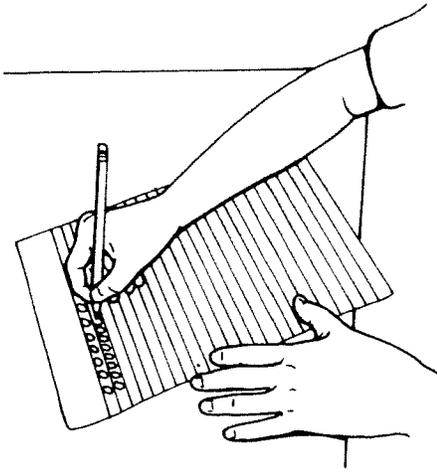
Position

Child sits with feet resting on the floor and arms supported on desk of proper height. Paper is slanted appropriately for right- or left-handed use. Encourage mature grasp position. Let child use gripper, if needed, when holding writing implement. The ulnar (little-finger) side of the hand rests on the desk surface and glides smoothly with movement.

Procedure

1. Child warms up by making small ($\frac{1}{2}$ ") counter-clockwise circles from left to right across the desk or table top, using smooth, rhythmic movement of the index finger while moving the forearm horizontally.
2. Introduce thumb movement by asking child to touch thumb and index fingertips. Repeat procedure of making smooth circles across the desk top, using the tips of the thumb and index fingers together.
3. Once these movements are accomplished in a smooth and rhythmic manner, child grasps a pencil and repeats the activity on paper. Encourage the use of visual feedback for correction. Have child mark places where circles are not smooth or round, indicating that movement was jerky, or where circles are not within boundaries of the lines on the paper, indicating that movement





was imprecisely controlled. Then have child repeat the activity in a smoother manner and see progress as fewer corrections are needed.

4. Repeat the procedure with lined paper.
5. Follow these activities with actual handwriting practice, so that application to classroom work is very clear. Focus on the desired movement pattern during letters with rotary strokes (a, b, c, d, e, g, o, p, q).

Desired Response

Child simultaneously uses finger movements for the small rotary movements, and smooth forearm movement for horizontal movement. Desired finger movements are seen at the knuckles and other finger joints of the thumb, index, and third fingers. The thumb joint bends during formation of circles, and the desired grip pattern is maintained.

Undesired Responses

Child fails to hold the wrist in a relatively neutral (straight) or slightly extended position. The forearm moves in steps (moves a few inches and stays there until several circles are drawn, then moves right a few inches, and repeats this movement pattern). Child moves the paper.

Variations and Adaptations

These warm-ups can be done:

- With index finger in the air.
- With index finger and thumb together in the air.
- In finger paint, in dirt, sand, or cornmeal; on chalkboard.
- Over textured surfaces for added kinesthetic, tactile, and auditory sensory feedback.

Performance of these activities to music can enhance the smooth and rhythmic qualities of the movement.

Have child draw or paint pictures, using small circles for decoration or as part of the design.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Writing Skills—Classroom and Individual Practice
COMPLEX MOVEMENT COMBINATIONS

Purpose

To improve coordination of arm movement with complex fine finger movement (combinations of vertical, rotary, and diagonal movements) during writing

Materials

One large sheet of unlined paper; one sheet of paper with lines ½" apart; pencil or marker

Preparation

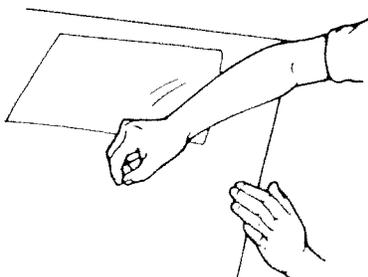
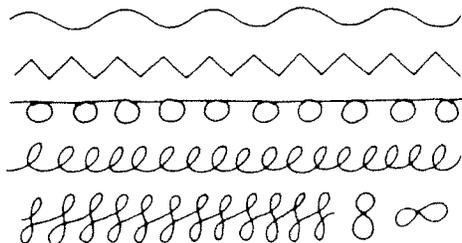
A relaxed arm is necessary for achieving the smooth and rhythmic control desired in these activities. If muscle tone is a problem, carry out activities to normalize tone; repeat if child's arm becomes tense during these activities. Child should be able to draw smooth horizontal lines across the page and make small complex shapes (such as a figure eight) on paper using movement of the finger joints before working on coordinating the two.

Position

Child sits with feet resting on the floor and arms supported on desk of proper height. Paper is slanted appropriately for right- or left-handed use. Encourage mature grasp position. Let child use gripper, if needed, when holding writing implement. The ulnar (little-finger) side of the hand rests on the desk surface and glides smoothly with movement.

Procedure

1. Child warms up by making a series of design lines from left to right across the desk or table top, using smooth, rhythmic movement of the index finger, while moving the forearm horizontally. Increase complexity of the design lines as child accomplishes the simpler ones. Examples of design lines progressing from simple to complex are shown here.
2. Introduce thumb movement by asking child to touch thumb and index fingertips. Repeat procedure of making design lines across the desk top, using the tips of the thumb and index fingers together.
3. Once these movements are accomplished in a smooth and rhythmic manner, child grasps a pencil and repeats the activity on unlined paper. Encourage the use of visual feedback for



correction. Have child circle places where lines are not smooth or accurate, indicating difficulty with control. Then have child repeat the activity and see progress as fewer corrections are needed.

4. When shapes are formed in a smooth and rhythmic manner, repeat on lined paper. Child circles places where lines are jerky or design goes out of the lines, and records progress over time.
5. Follow these kinds of activities with practice of connected cursive letters (if developmentally appropriate), either the alphabet or letters which are a particular problem for the child. Finish the practice session with actual handwriting practice, using the newly learned skills in the actual context for which they are needed.

Desired Response

Child uses fine movements of finger joints for making designs, as smooth horizontal forearm movement moves the hand across the page. Desired finger movement is seen at the knuckles and other finger joints of the thumb, index, and third fingers. The thumb joint bends during formation of shapes and letters, and the desired grip pattern is maintained.

Undesired Responses

Wrist bends back (extends) farther, and grip changes as designs or letters progress across the page. Forearm moves in steps (moves a few inches and stays there until several designs are drawn, then moves right a few inches, and repeats this movement pattern). Child moves the paper to avoid moving the arm, or uses forearm movement instead of finger movement to form designs and letters.

Variations and Adaptations

These warm-ups and activities can be done:

- With index finger in the air.
- With index finger and thumb together in the air.
- In finger paint, dirt, sand, or cornmeal; on chalkboard.
- Over textured surfaces for added kinesthetic, tactile, and auditory sensory feedback.
- To music, to enhance the smooth rhythmic qualities of the movements.

The size of the design lines can be varied.

The activities can be incorporated into a more purposeful activity, such as coloring in pictures, designing material, and decorating paper Easter eggs.

If motor memory is weak, this activity also can be helpful for reinforcing the movement pattern for letter formation.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Writing Skills—Classroom and Individual Practice
CLASSROOM CUES FOR WRITING ACTIVITIES

Purpose

To improve coordination of arm movement with fine finger movement during writing

Materials

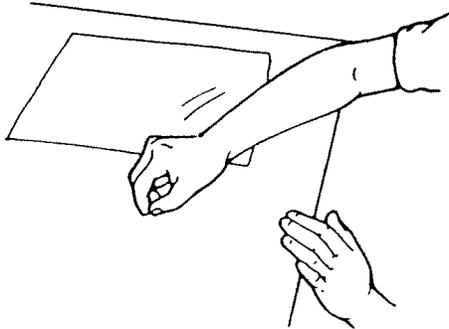
Any classroom written work or project for coloring in small areas

Preparation

A relaxed arm is necessary to achieve the smooth and rhythmic control desired for writing. If child's arm or hand is stiff or tense during writing, remind child to relax using any method which is effective.

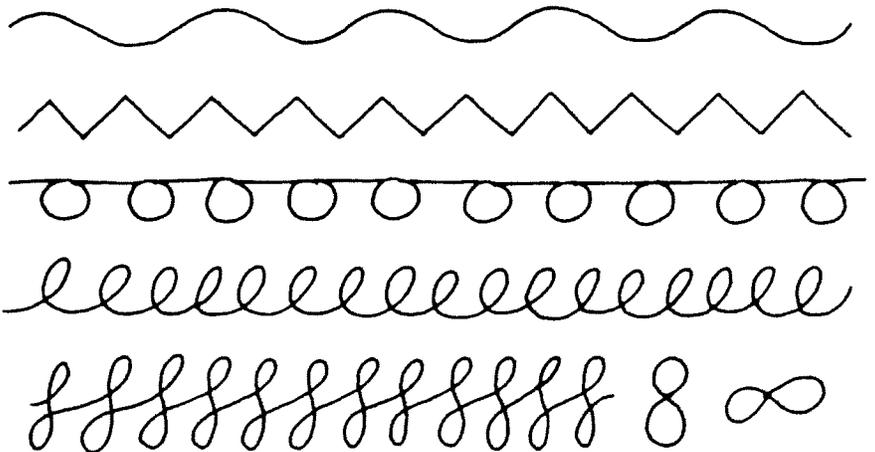
Position

Child sits with feet resting on the floor and arms supported on desk of proper height. Paper is slanted appropriately for right- or left-handed use. Encourage mature grasp position. Let child use gripper, if needed, when holding writing implement. The wrist is held straight or bent back slightly (extended). The ulnar (little-finger) side of the hand rests on the desk surface and glides smoothly with movement.



Procedure

1. Before beginning a writing or coloring activity, encourage child to make complex design lines across the desk top, using finger and arm movements. The purpose of this is to remind child of the feeling of using arm and finger movements together, and to loosen up the arm and hand for the activity. Examples are:



2. During written work, observe child's movement pattern. Reinforce coordinated finger and arm movement with praise. If child is using whole-arm movement or strictly finger movement, use a cue that has been taught to the child during practice sessions (for example, touching the back of the fingers in passing if child is not using them, touching the upper arm if it is not moving horizontally during writing, a small picture of an arm or hand taped to the desk). If this interferes with attention to the content, do it only during activities that focus on penmanship and the mechanics of writing.

Desired Response

Child uses finger movements in combination with smooth horizontal forearm movement during classroom writing and coloring activities that require small movements of the fingers. Desired finger movements are seen at the knuckles and other finger joints of the thumb, index, and third fingers. The desired grip pattern is maintained.

Undesired Responses

Child forgets and uses whole-arm movement or avoids upper arm movement during writing and drawing and uses finger movement only. Child moves the forearm in jerky step-like movements, and changes grip when writing toward the far right side of the page. Child moves the paper to the left to avoid movement of the arm to the right during writing.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Scissor Skills—Classroom and Individual Practice
**COORDINATING HAND MOVEMENT AND
FORWARD ARM MOVEMENT**

Purpose

To improve ability to cut in forward direction with coordinated movement of arm and fingers

Materials

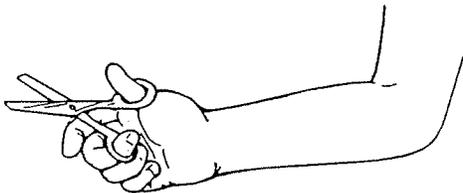
Scissors (correct size and handedness); paper

Preparation

A relaxed arm is necessary to achieve the smooth and rhythmic control desired for cutting. If child's arm or hand is stiff or tense, use relaxation techniques before starting activity; repeat if tension increases during cutting. If tone is abnormal, use techniques to normalize tone before beginning.

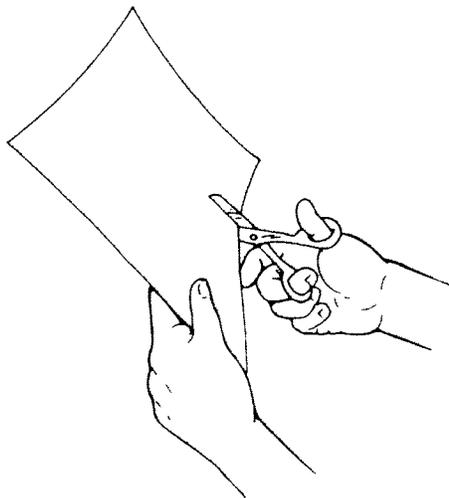
Position

Child sits with feet resting on the floor and upper arms supported against trunk. Scissors are held perpendicular to the floor, with the thumb through the top loop and the middle finger through the lower loop. Loops rest near the middle joints of the fingers, and the index finger helps to hold the lower loop steady.



Procedure

1. Child opens and closes scissors smoothly and rhythmically several times, using large, smaller, and very small snips, as instructed by the adult.
2. Child moves closed scissors forward in a straight line parallel to the desk top several times, varying speed of movement from fast to very slow, as instructed by adult.
3. When 1 and 2 are performed easily, child combines them to open and close scissors while moving forearm forward, in a line parallel to the desk top. Size of snips is varied from large to very small, according to adult instruction.
4. Child cuts across paper using large open-and-close hand motions.
5. Repeat, cutting across paper using medium snips, then very small snips.



Desired Responses

Child uses smooth, rhythmic finger movements in combination with smooth forward forearm movement to cut across a piece of paper. Child adjusts speed of forward arm movement as snip size varies. Position and grip described above are maintained.

Undesired Responses

Child raises elbow or moves wrist during cutting. Child moves paper to avoid forward arm movement. Snipping movement is jerky and snip size varies. Paper rips due to poor control or because child moves arm forward too fast for the size of the snip.

Variations and Adaptations

Increase width of pieces of paper to be cut as skill improves.

If child has difficulty using both hands during cutting (bilateral hand use), hold paper for child.

If finger strength is weak, use flexible loop (easy-grip) scissors.

This same method can be incorporated into many classroom cutting activities (for example, cutting strips for making a paper chain, cutting strips on an Indian headband, cutting paper strips for making papier-mache).

Use double-loop training scissors to give child the feel of the rhythmic quality of movement. Hold the second set of loops over child's hand, and guide movement. Decrease assistance and have child use regular scissors as skills improve.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Scissor Skills—Classroom and Individual Practice
LATERAL (SIDEWAYS) CONTROL OF SCISSORS

Purpose

To improve use of wrist to control sideways movement of scissors while cutting on lines

Most children are able to do this before the first grade.

Materials

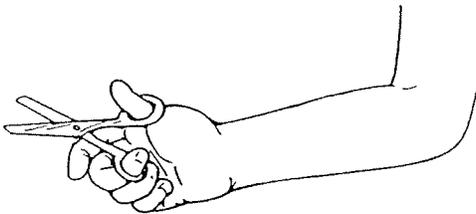
Scissors (correct size and handedness); paper with straight and wavy lines drawn in a variety of widths ($\frac{3}{4}$ ", $\frac{1}{2}$ ", $\frac{1}{4}$ ", $\frac{1}{8}$ ", $\frac{1}{16}$ ")

Preparation

A relaxed arm is necessary to achieve the smooth and rhythmic control desired for cutting. If child's arm or hand is stiff or tense, use relaxation techniques before starting activity; and repeat if tension increases during cutting. If tone is abnormal, use techniques to normalize tone before beginning. Child should be able to cut across paper before working on this activity.

Position

Child sits with feet resting on the floor and upper arms supported against trunk. Scissors are held perpendicular to the floor, with the thumb through the top loop and the middle finger through the lower loop. Loops rest near the middle joints of the fingers, and the index finger helps to hold the lower loop steady.



Procedure

1. Place paper with widest straight line on child's desk. Child demonstrates smooth, controlled snipping motions with hand and fingers in space, over the top of the line. When this is smooth, child grasps scissors and cuts through the line.
2. When #1 is accomplished, child cuts straight lines with smaller widths.
3. When Steps #1 and #2 are performed easily, place paper with widest wavy line on desk. Child grasps scissors and demonstrates arm and wrist movement (which will be used for cutting) in air above the line. Child moves arm forward and bends and extends wrist in smooth, rhythmic motion.
4. When this is accomplished, child adds snipping motions of hand to above, and repeats until smooth.
5. Child cuts across wide wavy line.

6. When thin wavy lines are cut successfully, child cuts lines with more waves.

Desired Response

Child uses smooth, rhythmic finger movements in combination with smooth, forward forearm movement to cut across all lines. Child keeps wrist straight to maintain scissors on straight lines, and uses slight wrist movement to correct when the scissors deviate from the center of the line. Child bends and straightens wrist (flexion and extension) to keep scissors on wavy lines. Forearm moves slightly, but elbow stays down.

Undesired Responses

Child raises elbow and keeps wrist straight, using upper arm movement instead of wrist movement to direct scissors. Child moves paper to avoid forward arm movement. Snipping movement is jerky and snip size varies. Paper rips due to poor control or because child moves arm forward too fast for the size of the snip.

Variations and Adaptations

If child has difficulty keeping elbow down, encourage child to cut with elbow resting on desk top.

Child lies on stomach on floor, resting on elbows for cutting practice. This helps with using wrist movement for directing scissors, because upper arms are used to support body weight and are not available to help.

Use wider lines if the line widths listed above are too difficult.

Increase width of pieces of paper to be cut as skill improves.

If child has difficulty using both hands during cutting (bilateral hand use), hold paper for child.

If finger strength is weak, use flexible loop (easy-grip) scissors.

Use double-loop training scissors to give child the feel of using wrist movement for guiding scissors. Hold second set of loops over child's hand, and guide movement. Decrease assistance and have child use regular scissors as skills improve.

This same method can be incorporated into any classroom cutting activities that involve cutting on lines or cutting out shapes.

If child has difficulty maintaining scissors on line due to eye-hand coordination or visual perceptual difficulties, glue a craft stick on either side of the line to provide a tactile guide.

Use yarn or string to provide tactile guidelines. Glue two pieces of string parallel to each other to make straight, curved, or wavy lines. Child cuts between strings.

Punch holes across paper, using a hand-held paper punch, in straight or curvy lines. Child directs scissors to cut across line made by holes.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Scissor Skills—Classroom and Individual Practice

CLASSROOM SUGGESTIONS FOR CUTTING ACTIVITIES

Purpose

To improve coordination of arm, wrist, and finger movement during scissor use

Preparation

A relaxed arm is necessary to achieve the smooth and rhythmic control desired for writing. If child's arm or hand is stiff or tense during cutting, remind child to relax using any method which is effective.

Position

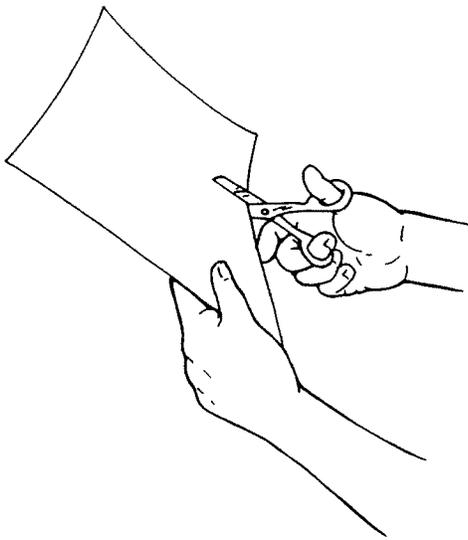
Child sits with feet resting on the floor and upper arms supported against trunk. Scissors are held perpendicular to the floor, with the thumb through the top loop and the middle finger through the lower loop. Loops rest near the middle joints of the fingers, and the index finger helps to hold the lower loop steady.

Procedure

1. Before beginning a cutting activity, encourage child to hold scissors correctly and to demonstrate in space how to cut a wavy line in a forward direction. Child uses small rhythmic snips, moves scissors forward, and bends and straightens wrist in a smooth and controlled manner. This is to remind child of the feeling of using arm, wrist, and finger movements together, and to loosen up the arm and hand for the activity.
2. When child is cutting with scissors, observe the movement pattern. Reinforce coordinated finger and arm movement with praise. If child is using whole-arm movement or strictly finger movement, use a cue that has been taught during practice sessions (for example, touching the elbow if it is raised, touching the wrist if it is not moving during cutting of curved lines, or a small picture of correct scissor positioning taped to the desk).

Desired Response

Child uses smooth, rhythmic finger movements in combination with smooth, forward forearm movement for cutting. Child keeps wrist straight to maintain scissors on straight lines, and uses slight wrist movement to correct when the scissors deviate from the center of the line. Child bends and straightens wrist (flexion and extension) to keep scissors on wavy lines. Forearm moves slightly, but elbow stays down.



Undesired Responses

Child raises elbow and keeps wrist straight, using upper arm movement instead of wrist movement to direct scissors. Child moves paper to avoid forward arm movement. Snipping movement is jerky and snip size varies. Paper rips due to poor control or because child moves arm forward too fast for the size of the snip.

Variations and Adaptations

If child has difficulty keeping elbow down, encourage child to cut with elbow resting on desk top or while lying on stomach on floor (propped on elbows).

If child has difficulty using both hands during cutting (bilateral hand use), hold paper for child.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Home and Recreational Activities

DRAWING, COLORING, AND CUTTING

Purpose

To improve coordination of arm movement with fine wrist and finger movement

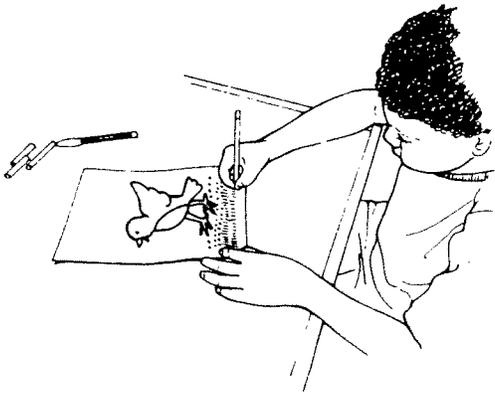
Preparation

A relaxed arm is necessary to achieve smooth and rhythmic control of movement. If child's arm or hand is stiff or tense, use relaxation techniques before starting activity; repeat if tension increases.

Activities

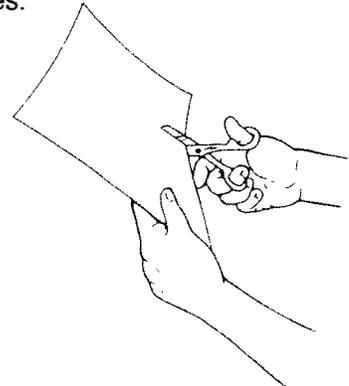
Encourage child to engage in drawing and cutting activities, and remind child to use the movement patterns described below.

Child colors in coloring books, preferably books that have various sizes of shapes for coloring. Thin-tip markers encourage smaller finger movements than crayons or thick markers. Watch how child moves arm and hand, and remind child to use finger, wrist, and arm together, when appropriate, rather than fingers only or whole-arm movement.



Whole-arm movement is normally used for coloring in large spaces, wrist movement is used for coloring with small horizontal lines or right-left diagonal lines (left-right for lefties). Finger movement alone is used for coloring in small spaces using vertical or left-to-right diagonal lines (right to left for lefties). Coloring in medium or large space with a series of small circles or lines arranged horizontally, one line on top of another, combines large and small movements.

Child cuts out pictures from magazines to make collages or to paste into scrapbook. Make sure child is keeping elbow down and using wrist movement for keeping scissors on the line or shape outline. Encourage small, smooth snips, and slow, controlled movement. Have child begin with simple shapes, then progress to more complex shapes as child's control increases.



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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Compensatory Strategies
WRITING

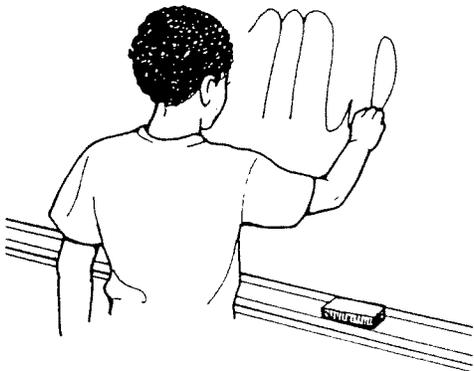
Purpose

To improve the child's writing ability despite difficulty coordinating arm, wrist, and finger movement

Strategies

Minimize demands for one or more of the motor components of the writing activity.

1. If child has difficulty moving the forearm smoothly while writing, provide paper with narrow line spacing, and encourage small writing so movement of forearm is minimized.
2. If child is more comfortable using whole-arm movements, provide paper with wider line spacing, and allow large writing so letters can be formed more accurately using large arm movements.
3. If child prefers to use whole-arm movements, primary-sized pencils may make writing easier.
4. Writing on the chalkboard eliminates most wrist and finger movement.
5. If child is unable to move forearm smoothly across desk during writing, encourage step-like movements of forearm (from one stable position to another) at regular intervals while writing across the page. This should decrease child's need to assume awkward grip patterns.
6. Cursive writing may be difficult because it involves more coordination of smooth horizontal forearm movement with finger movement. Minimize focus on appearance of written work when requiring cursive, or allow manuscript for lengthy writing assignments.



Comments

These suggestions may improve classroom performance of writing. However, more coordinated movement patterns will not develop and less efficient movement patterns may be strengthened unless the child also is encouraged to engage in activities that improve coordination. Do not use compensatory strategies exclusively unless it has been determined that coordination will not improve to a functional level with practice, making compensation the top priority.

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

Child's Name _____

Date _____

COORDINATION OF ARM, WRIST, AND FINGER MOVEMENTS
Compensatory Strategies
CUTTING WITH SCISSORS

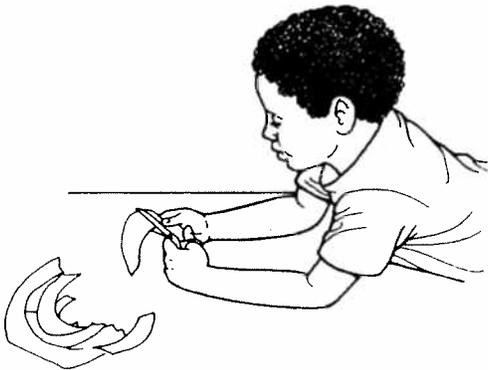
Purpose

To improve child's cutting ability despite difficulty coordinating arm, wrist, and finger movement

Strategies

Minimize demands for one or more of the motor components of the cutting activity.

1. Try easy-grip (flexible loop) scissors if control of the open-close movement is difficult when combined with wrist movement.
2. Electric scissors eliminate the need for open-close hand movement.
3. If child is unable to stabilize upper arm during cutting, encourage child to rest forearm or wrist on the desk top.
4. If use of the nondominant hand is good, try teaching the child to turn the paper with the nondominant hand. This will decrease the need for wrist movement of the dominant hand. For example, by turning the paper when cutting out a square, the child is required to cut only straight lines which require less wrist control.
5. Lying on stomach on the floor, propped on elbows, stabilizes the upper arm and forearm so that only wrist and finger movement is needed for cutting.



Comments

These suggestions may improve classroom cutting performance. However, more coordinated movement patterns will not develop unless the child also is encouraged to engage in activities that improve coordination. Do not use compensatory strategies exclusively unless it has been determined that coordination will not improve to a functional level with practice, making compensation the top priority.

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